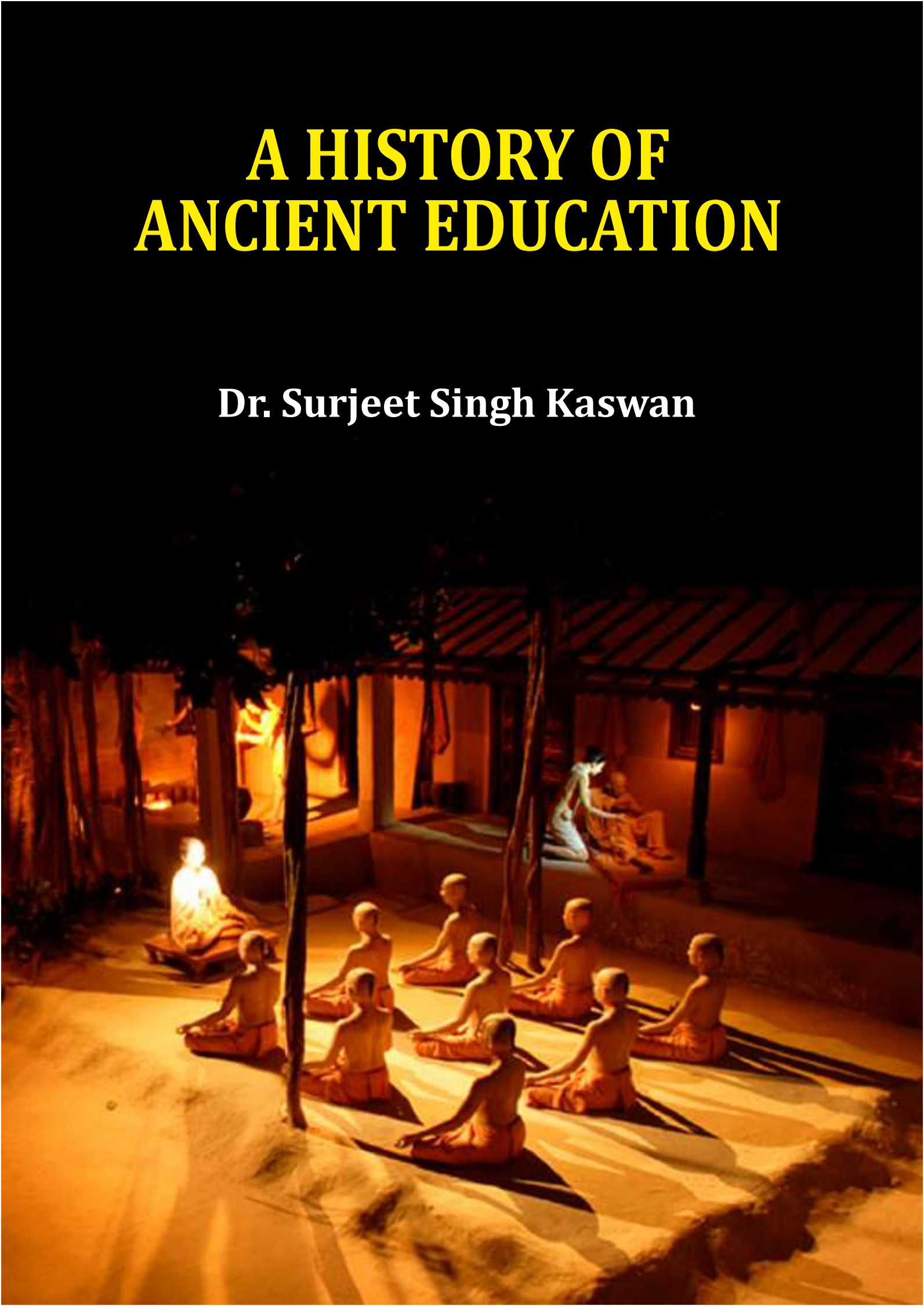
A HISTORY OF ANCIENT EDUCATION

Dr. Surjeet Singh Kaswan



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Preface

The ancient Indian education system was highly egalitarian, offering opportunities for education to individuals from all strata of society, irrespective of caste, gender, or socio-economic status. Both boys and girls were entitled to education, although the curriculum and methods of instruction might have varied based on societal norms and cultural practices.

"A History of Ancient Education" delves into the rich tapestry of educational practices across various ancient civilizations, offering a detailed examination of their philosophies, methods, and societal impacts. In Mesopotamia, education centered around practical skills such as reading, writing, and mathematics, imparted in temple schools known as edubbas. Similarly, ancient Egypt focused on cultivating scribes through instruction in writing, arithmetic, and religious studies, reflecting the importance of administrative functions in their society. The dissemination of knowledge in ancient India was not confined to formal institutions alone. It occurred through informal channels such as oral traditions, storytelling, debates, and philosophical discourses held in public forums like sabhas and samvads. Scholars traveled far and wide, exchanging ideas and disseminating knowledge across the subcontinent. Educational institutions in ancient India were not limited to urban centres but were spread across rural areas as well. Apart from Gurukulas, there were ancient universities known as Mahaviharas and Mahayanas, which served as centres of higher learning and attracted students and scholars from distant lands.

The patronage of rulers and wealthy patrons played a significant role in the sustenance and growth of educational institutions in ancient India. Kings, emperors, and nobles often endowed lands, grants, and scholarships to support

the functioning of Gurukulas and universities, fostering a vibrant intellectual ecosystem. Spiritual and moral values were integral to ancient Indian education, with an emphasis on character building, ethical conduct, and service to society. Students were not only expected to excel in academic pursuits but also to lead a life of righteousness, compassion, and selflessness.

Ancient Indian education was remarkably egalitarian, offering opportunities for learning to individuals across societal strata, irrespective of caste, gender, or socio-economic status. Both boys and girls had access to education, although the methods of instruction and curriculum might have varied based on cultural norms and regional practices. This inclusive approach to education underscored the belief that knowledge was a universal birthright, accessible to all who sought it with sincerity and diligence.

The decline of ancient Indian education coincided with various historical factors such as invasions, political upheavals, and socio-economic changes. However, its legacy endured through the preservation of ancient texts, oral traditions, and cultural practices, continuing to inspire generations with its timeless wisdom and profound insights into the human quest for knowledge and enlightenment.

A History of Ancient Education provides a comprehensive exploration of the educational practices and philosophies across ancient civilizations, revealing their impact on the development of human knowledge and culture.

– Author

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Education in Ancient Civilizations

THE DEVELOPMENT OF WRITING

Starting in about 3500 BC, various writing systems were developed in ancient civilizations around the world. These writ In Egypt fully developed hieroglyphs that could be read in rebus fashion were in use at Abydos as early as 3400 BC. Later, the world's oldest known alphabet was developed in central Egypt around 2000 BC from a hieroglyphic prototype. One hieroglyphic script was used on stone monuments, other cursive scripts were used for writing in ink on papyrus, a flexible, paper-like material, made from the stems of reeds that grow in marshes and beside rivers such as the River Nile. The Phoenician writing system was adapted from the Proto-Canaanite script in around the 11th century BC, which in turn borrowed ideas from Egyptian hieroglyphics. This script was adapted by the Greeks.

A variant of the early Greek alphabet gave rise to the Etruscan alphabet, and its own descendants, such as the Latin alphabet. Other descendants from the Greek alphabet include the Cyrillic alphabet, used to write Russian, among others. The Phoenician system was also adapted into the Aramaic script, from which the Hebrew script and also that of Arabic are descended. In China, the early oracle bone script has survived on tens of thousands of oracle bones dating from around 1400-1200 BC in the Shang Dynasty. Out of more than 2500 written characters in use in China in about 1200 BC, as many as 1400 are identifiable as the source of later standard Chinese characters of several pre-Columbian scripts in Mesoamerica, the one that appears to have been best developed, and the one to be deciphered the most, is the

Maya script. The earliest inscriptions which are identifiably Maya date to the 3rd century BC, and writing was in continuous use until shortly after the arrival of the Spanish conquistadores in the 16th century AD. Other surfaces used for early writing include wax-covered writing boards, sheets or strips of bark from trees, the thick palm-like leaves of a particular tree, the leaves then punctured with a hole and stacked together like the pages of a book, parchment, made of goatskin that had been soaked and scraped to remove hair, which was used from at least the second century BC, vellum, made from calfskin, and wax tablets which could be wiped clean to provide a fresh surface.

Education in the largest sense is any act or experience that has a formative effect on the mind, character or physical ability of an individual. In its technical sense, education is the process by which society deliberately transmits its accumulated knowledge, skills and values from one generation to another. Etymologically, the word education is derived from educare "bring up", which is related to educere "bring out", "bring forth what is within", "bring out potential" and ducere, "to lead". Teachers in educational institutions direct the education of students and might draw on many subjects, including reading, writing, mathematics, science and history.

This process is sometimes called schooling when referring to the education of teaching only a certain subject, usually as professors at institutions of higher learning. There is also education in fields for those who want specific vocational skills, such as those required to be a pilot. In addition there is an array of education possible at the informal level, such as in museums and libraries, with the Internet and in life experience. Many non-traditional education options are now available and continue to evolve. A right to education has been created and recognized by some jurisdictions: since 1952, Article 2 of the first Protocol to the European Convention on Human Rights obliges all signatory parties to guarantee the right to education. At world level, the United Nations' International Covenant on Economic, Social and Cultural Rights of 1966 guarantees this right under its Article 13.

HISTORY OF EDUCATION

The history of education is the history of teaching and learning. Each generation, since the beginning of human evolution and writing, has sought to pass on cultural and social values, traditions, morality, religion and skills to the next generation. The passing on of culture is also known as enculturation and the learning of social values and behaviours is socialization. The history of the curricula of such education reflects human history itself, the history of knowledge, beliefs, skills and cultures of humanity. In pre-literate societies, education was achieved orally and through observation and imitation. The young learned informally from their parents,

extended family and grand parents. At later stages of their lives, they received instruction of a more structured and formal nature, imparted by people not necessarily related, in the context of initiation, religion or ritual. As the customs and knowledge of ancient civilizations became more complex, many skills would have been learned from an experienced person on the job, in animal husbandry, agriculture, fishing, preparation and preservation of food, construction, stone work, metal work, boat building, the making of weapons and defences, the military skills and many other occupations. With the development of writing, it became possible for stories, poetry, knowledge, beliefs, and customs to be recorded and passed on more accurately to people out of earshot and to future generations. In many societies, the spread of literacy was slow; orality and illiteracy remained predominant for much of the population for centuries and even millennia.

Literacy in preindustrial societies was associated with civil administration, law, long distance trade or commerce, and religion. A formal schooling in literacy was often only available to a small part of the population, either at religious institutions or for the wealthy who could afford to pay for their tutors. The earliest known universities, or places of higher education, started teaching a millennium or more ago. Universal education of all children in literacy has been a recent development, not occurring in many countries until after 1850 CE. Even today, in some parts of the world, literacy rates are below 60 per cent. Schools, colleges and universities have not been the only methods of formal education and training. Many professions have additional training requirements, and in Europe, from the Middle Ages until recent times, the skills of a trade were not generally learnt in a classroom, but rather by serving an apprenticeship. Nowadays, formal education consists of systematic instruction, teaching and training by professional teachers. This consists of the application of pedagogy and the development of curricula.

EDUCATION IN PREHISTORY

Most of human history lies in prehistory, the period before the use of writing, and before written history. Throughout pre-history, most education was achieved orally and through observation and imitation. From the origin of our species, thought by many anthropologists to have been around 20,000 years ago in the African savannah, until about 10,000 BC, most humans lived as hunter-gatherers. Some were settled in a given locale/region and others exhibited a nomadic lifestyle across a large territory. These bands or tribes had traditions, beliefs, values, practices and local knowledge which was passed orally for generations from person to person. The young learned informally from their parents, extended family and kin. At later stages of their lives, they received instruction of a more structured and formal nature, imparted by people not necessarily related, in the context of initiation, religion or ritual.

Some forms of traditional knowledge were expressed through stories, legends, folklore, rituals, and songs, without the need for a writing system. Tools to aid this process include poetic devices such as rhyme and alliteration. These methods are illustrative of orality. The stories thus preserved are also referred to as part of an oral tradition. The advent of agriculture prompted the Neo-lithic Revolution, when access to food surplus led to the formation of permanent human settlements, the domestication of some animals and the use of metal tools. Settlement, agriculture and metalwork brought new knowledge and skills to be learned and taught by each generation. As communities grew larger, there was more opportunity for some members to specialize in one skill or activity or another, becoming priests, artisans, traders, builders or labourers. Many skills would have been learned from an experienced person on the job. The increased size of communities also brought changes to methods of leadership, politics and organization, together with early institutions. Society became less egalitarian as chiefdoms, States, city states and early civilizations replaced the earlier bands and tribes. For example, the Uruk period saw the emergence of urban life in Mesopotamia. These early city-states had strong signs of government organization. The cities grew to cover up to 250 acres and up to 10,000-20,000 people by the end of the period. In large settlements, social stratification began to develop, a hierarchical arrangement of social classes or castes within the society. There might be a king and nobles. There were often priests or other religious leaders, because religious beliefs in deities or spirits often formed an important part of a culture. In some societies, the status of women was lower than that of men; in some there were slaves. A person's social class, caste or gender might in turn determine or limit the occupations which he or she might follow and the education that he or she would receive. Before the development of writing, it is probable that there were already epic poems, hymns to gods and incantations and other oral literature. In ancient India, the Vedas were learnt by repetition of various forms of recitation. By means of memorization, they were passed down through many generations.

FORMAL EDUCATION IN ANCIENT CIVILIZATIONS

In many early civilizations, education was associated with wealth and the maintenance of authority, or with prevailing philosophies, beliefs, or religion.

The Middle East

In what became Mesopotamia, the early logographic system of cuneiform script took many years to master. Thus only a limited number of individuals were hired as scribes to be trained in its reading and writing. Only royal offspring and sons of

the rich and professionals such as scribes, physicians, and temple administrators, went to school. Most boys were taught their father's trade or were apprenticed out to learn a trade. Girls had to stay home with their mothers to learn housekeeping and cooking, and to look after the younger children. Later, when a syllabic script became more widespread, more of the Mesopotamian population became literate. Later still in Babylonian times there were libraries in most towns and temples; an old Sumerian proverb averred that "he who would excel in the school of the scribes must rise with the dawn."

There arose a whole social class of scribes, mostly employed in agriculture, but some as personal secretaries or lawyers. Women as well as men learned to read and write, and for the Semitic Babylonians, this involved knowledge of the extinct Sumerian language, and a complicated and extensive syllabary. Vocabularies, grammars, and interlinear translations were compiled for the use of students, as well as commentaries on the older texts and explanations of obscure words and phrases. Massive archives of texts were recovered from the archaeological contexts of Old Babylonian scribal schools, through which literacy was disseminated. The Epic of Gilgamesh, an epic poem from Ancient Mesopotamia is among the earliest known works of literary fiction. The earliest Sumerian versions of the epic date from as early as the Third Dynasty of Ur. Ashurbanipal, a king of the Neo-Assyrian Empire, was proud of his scribal education. His youthful scholarly pursuits included oil divination, mathematics, reading and writing as well as the usual horsemanship, hunting, chariotry, soldierliness, craftsmanship, and royal decorum. During his reign he collected cuneiform texts from all over Mesopotamia, and especially Babylonia, in the library in Nineveh, the first systematically organized library in the ancient Middle East, which survives in part today. In ancient Egypt, literacy was concentrated among an educated elite of scribes. Only people from certain backgrounds were allowed to train to become scribes, in the service of temple, pharaonic, and military authorities. The hieroglyph system was always difficult to learn, but in later centuries was purposely made even more so, as this preserved the scribes' status. The rate of literacy in Pharaonic Egypt during most periods from the third to first millennium BC has been estimated at not more than one per cent, or between one half of one per cent and one per cent. One thousand years later, in ancient Israel and Judah a basic education eventually became more widespread.

The Torah includes commands to read, learn, teach and write the Torah, thus requiring literacy and study. In 64 AD the high priest caused public schools to be opened in every town and hamlet for all children above six or seven years of age. The expense was borne by the community, and strict discipline was observed. Raba fixed the number of pupils at twenty-five for one teacher; if the number was between twenty-five and forty an assistant teacher was necessary; and for over forty, two

teachers were required. The standard education texts were all hand-written until the invention of printing. However significant emphasis was placed on developing good memory skills in addition to comprehension by practice of oral repetition. Although girls were not provided with formal education in the yeshivah, they were required to know a large part of the subject areas to prepare them to maintain the home after marriage, and to educate the children before the age of seven. Despite this schooling system, it would seem that many children did not learn to read and write, because it has been estimated that at least 90 per cent of the Jewish population of Roman Palestine in the first centuries AD could merely write their own name or not write and read at all, or that the literacy rate was about 3 per cent.

India

In ancient India, during the Vedic period from about 1500 BC to 600 BC, most education was based on the Veda and later Hindu texts and scriptures. Vedic education included: proper pronunciation and recitation of the Veda, the rules of sacrifice, grammar and derivation, composition, versification and meter, understanding of secrets of nature, reasoning including logic, the sciences, and the skills necessary for an occupation. Some medical knowledge existed and was taught. There is mention in the Veda of herbal medicines for various conditions or diseases, including fever, cough, baldness, snake bite and others. Education, at first freely available in Vedic society, became over time more discriminatory as the caste system, originally based on occupation, evolved, with the brahman being the most privileged of the castes.

The oldest of the Upanishads - another part of Hindu scriptures - date from around 500 BC. These texts encouraged an exploratory learning process where teachers and students were co-travellers in a search for truth. The teaching methods used reasoning and questioning. Nothing was labeled as the final answer. The Gurukul system of education supported traditional Hindu residential schools of learning; typically the teacher's house or a monastery. Education was free, but students from well-to-do families paid "Gurudakshina," a voluntary contribution after the completion of their studies. At the Gurukuls, the teacher imparted knowledge of Religion, Scriptures, Philosophy, Literature, Warfare, Statecraft, Medicine, Astrology and History. The corpus of Sanskrit literature encompasses a rich tradition of poetry and drama as well as technical scientific, philosophical and generally Hindu religious texts, though many central texts of Buddhism and Jainism have also been composed in Sanskrit.

Two epic poems formed part of ancient Indian education. The Mahabharata, part of which may date back to the eighth century BC, discusses human goals, attempting to explain the relationship of the individual to society and the world and the workings of karma.

The other epic poem, Ramayana, is shorter, although it has 24,000 verses. It is thought to have been compiled between about 400 BC and 200 AD. The epic explores themes of human existence and the concept of dharma. An early centre of learning in India dating back to the 5th century BC was Taxila, which taught the three Vedas and the eighteen accomplishments. It was an important Vedic/Hindu and Buddhist centre of learning from the 6th century BC to the 5th century AD.

China

During the Zhou Dynasty, there were five national schools in the capital city, Pi Yong and four other schools for the aristocrats and nobility, including Shang Xiang. The schools mainly taught the Six Arts: rites, music, archery, charioteering, calligraphy, and mathematics. According to the Book of Rituals, at age twelve, boys learned arts related to ritual and when older, archery and chariot driving. Girls learned ritual, correct deportment, silk production and weaving. It was during the Zhou Dynasty that the origins of native Chinese philosophy also developed. Confucius founder of Confucianism, was a Chinese philosopher who made a great impact on later generations of Chinese, and on the curriculum of the Chinese educational system for much of the following 2000 years. During the Han Dynasty boys were thought ready at age seven to start learning basic skills in reading, writing and calculation. In 124 BC, the Emperor Wudi established the Imperial Academy, the curriculum of which was the Five Classics of Confucius. By the end of the Han Dynasty the Academy enrolled more than 30,000 students, boys between the ages of fourteen and seventeen years.

However education through this period was a luxury. Later, during the Ch'in dynasty, a hierarchy of officials was set up to provide central control over the outlying areas of the empire. To enter this hierarchy, both literacy and knowledge of the increasing body of philosophy was required: "....the content of the educational process was designed not to engender functionally specific skills but rather to produce morally enlightened and cultivated generalists". The Nine rank system was a civil service nomination system during the Three Kingdoms and the Southern and Northern Dynasties in China. Theoretically, local government authorities were given the task of selecting talented candidates, then categorizing them into nine grades depending on their abilities. In practice, however, only the rich and powerful would be selected. The Nine Rank System was eventually superseded by the Imperial examination system for the civil service in the Sui Dynasty.

The Greek and Roman Empires

In the city-states of ancient Greece, most education was private, except in Sparta. For example, in Athens, during the 5th and 4th century BC, aside from two years military training, the state played little part in schooling. Anyone could open a

school and decide the curriculum. Parents could choose a school offering the subjects they wanted their children to learn, at a monthly fee they could afford.

Most parents, even the poor, sent their sons to schools for at least a few years, and if they could afford it from around the age of seven until fourteen, learning gymnastics, music and literacy. Girls rarely received formal education. At writing school, the youngest students learned the alphabet by song, then later by copying the shapes of letters with a stylus on a waxed wooden tablet. After some schooling, the sons of poor or middle class families often learnt a trade by apprenticeship, whether with their father or another tradesman.

By around 350 BC, it was common for children at schools in Athens to also study various arts such as drawing, painting, and sculpture. The richest students continued their education by studying with sophists, from whom, they could learn subjects such as rhetoric, mathematics, geography, natural history, politics, and logic. Some of Athens' greatest schools of higher education included the Lyceum and the Platonic Academy. The education system of the wealthy ancient Greeks is also called Paideia. In the subsequent Roman empire, Greek was the primary language of science. Advanced scientific research and teaching was mainly carried on in the Hellenistic side of the Roman empire, in Greek. The education system in the Greek city-state of Sparta was entirely different, designed to create warriors with complete obedience, courage, and physical perfection. At the age of seven, boys were taken away from their homes to live in school dormitories or military barracks. There they were taught sports, endurance and fighting, and little else, with harsh discipline. Most of the population was illiterate. The first schools in Ancient Rome arose by the middle of the fourth century BC. These schools were concerned with the basic socialization and rudimentary education of young Roman children. The literacy rate in the third century BC has been estimated as around one per cent to two per cent. We have very few primary sources or accounts of Roman educational process until the second century BC, during which there was a proliferation of private schools in Rome.

At the height of the Roman Republic and later the Roman Empire, the Roman educational system gradually found its final form. Formal schools were established, which served paying students. Normally, both boys and girls were educated, though not necessarily together. In a system much like the one that predominates in the modern world, the Roman education system that developed arranged schools in tiers. The educator Quintilian recognized the importance of starting education as early as possible, noting that "memory … not only exists even in small children, but is specially retentive at that age". A Roman student would progress through schools just as a student today might go from elementary school to middle school, then to high school, and finally college. Progression depended more on ability than age with great emphasis being placed upon a student's ingenium or inborn

"gift" for learning, and a more tacit emphasis on a student's ability to afford high-level education. Only the Roman elite would expect a complete formal education.

A tradesman or farmer would expect to pick up most of his vocational skills on the job. Higher education in Rome was more of a status symbol than a practical concern. It has been argued that literacy rates in the Greco-Roman world were seldom more than 20 per cent; averaging perhaps not much above 10 per cent in the Roman empire, though with wide regional variations, probably never rising above 5 per cent in the western provinces, and that the literate in classical Greece did not much exceed 5 per cent of the population.

2

Ancient History

Ancient history is the study of the written past from the beginning of recorded human history to the Early Middle Ages. The span of recorded history is roughly 5,000 years, with Cuneiform script, the oldest discovered form of coherent writing, from the protoliterate period around the 30th century BC. This is the beginning of *history*, as opposed to prehistory, according to the definition used by mosthistorians.

The term classical antiquity is often used to refer to history in the Old World from the beginning of recorded Greek history in 776 BC (First Olympiad). This roughly coincides with the traditional date of the founding of Rome in 753 BC, the beginning of the history of ancient Rome, and the beginning of the Archaic period in Ancient Greece. Although the ending date of ancient history is disputed, some Westernscholars use the fall of the Western Roman Empire in 476 AD, the closure of the Platonic Academy in 529 AD, the death of the emperor Justinian I, the coming of Islam or the rise of Charlemagne as the end of ancient and Classical European history.

In India, the period includes the early period of the Middle Kingdoms, and, in China, the time up to the Qin Dynasty is included.

STUDY

A fundamental difficulty of studying ancient history is that recorded histories cannot document the entirety of human events, and only a fraction of those documents have survived into the present day. Furthermore, the reliability of the information obtained from these surviving records must be considered. Few people were capable of writing histories, as literacy was not widespread in almost any culture until long after the end of ancient history.

The Roman Empire was one of the ancient world's most literate cultures, but many works by its most widely read historians are lost. For example, Livy, a Roman historian who lived in the 1st century BC, wrote a history of Rome called *Ab Urbe Condita* (*From the Founding of the City*) in 144 volumes; only 35 volumes still exist, although short summaries of most of the rest do exist. Indeed, only a minority of the work of any major Roman historian has survived.

Historians have two major avenues which they take to better understand the ancient world: archaeology and the study of source texts. Primary sources are those sources closest to the origin of the information or idea under study. Primary sources have been distinguished from secondary sources, which often cite, comment on, or build upon primary sources.

ARCHAEOLOGY

Archaeology is the excavation and study of artifacts in an effort to interpret and reconstruct past human behaviour. Archaeologists excavate the ruins of ancient cities looking for clues as to how the people of the time period lived. Some important discoveries by archaeologists studying ancient history include:

- The Egyptian pyramids: giant tombs built by the ancient Egyptians beginning about 2600 BC as the final resting places of their royalty.
- The study of the ancient cities of Harappa (India, now Pakistan), Mohenjo-daro (Pakistan), and Lothal in India (South Asia).
- The city of Pompeii: an ancient Roman city preserved by the eruption of a volcano in AD 79. Its state of preservation is so great that it is a valuable window into Roman culture and provided insight into the cultures of the Etruscans and the Samnites.
- The Terracotta Army: the mausoleum of the First Qin Emperor in ancient China.
- The discovery of Knossos by Minos Kalokairinos and Sir Arthur Evans.
- The discovery of Troy by Heinrich Schliemann.

SOURCE TEXT

Most of what is known of the ancient world comes from the accounts of antiquity's own historians. Although it is important to take into account the bias of each ancient author, their accounts are the basis for our understanding of the ancient past. Some of the more notable ancient writers include Herodotus, Thucydides, Polybius, Sima Qian, Sallust, Livy, Josephus, Suetonius, and Tacitus.

The earliest known systematic historical thought emerged in ancient Greece, beginning with Herodotus of Halicarnassus (484 BC–ca.425 BC). Thucydideslargely

eliminated divine causality in his account of the war between Athens and Sparta, establishing a rationalistic element which set a precedent for subsequent Western historical writings. He was also the first to distinguish between cause and immediate origins of an event.

CHRONOLOGY

PREHISTORY

Prehistory is the period before written history. The early human migration patterns in the Lower Paleolithic saw Homo erectus spread across Eurasia. The controlled use of fire occurred about 800 thousand years ago in the Middle Paleolithic. Near 250 thousand years ago, Homo sapiens (modern humans) emerged in Africa. Around 70–60 thousand years ago, homo sapiens migrated out of Africa along a coastal route to South and Southeast Asia and reached Australia. About 50 thousand years ago, modern humans spread from Asia to the Near East. Europe was first reached by modern humans about 40,000 years ago. Finally, about 15 thousand years ago in the Upper Paleolithic, the migration to the Americas occurred. The 10th millennium BC is the earliest given date for the invention of agriculture and the beginning of the ancient era.

Göbekli Tepe was erected by hunter-gatherers in the 10th millennium BC (c. 11,500 years ago), before the advent of sedentism. Together with Nevalý Çori, it has revolutionized understanding of the Eurasian Neolithic. In the 7th millennium BC, Jiahu culture began in China.

By the 5th millennium BC, the late Neolithic civilizations saw the invention of the wheel and the spread of proto-writing. In the 4th millennium BC, the Cucuteni-Trypillian culture in the Ukraine-Moldova-Romania region develops. By 3400 BC, "proto-literate" cuneiform is spread in the Middle East. The 30th century BC, referred to as the Early Bronze Age II, saw the beginning of the literate period in Mesopotamia and Ancient Egypt. Around 27th century BC, the Old Kingdom of Egypt and the First Dynasty of Uruk are founded, according to the earliest reliable regnal eras.

TIMELINE OF ANCIENT HISTORY

MIDDLE TO LATE BRONZE AGE

The Bronze Age forms part of the three-age system. In this system, it follows the Neolithic Age in some areas of the world. In the 24th century BC, the Akkadian Empire was founded. The First Intermediate Period of Egypt (c. 22nd century BC) was followed by the Middle Kingdom of Egypt between the 21st to 17th centuries

BC. The Sumerian Renaissance also developed c. 21st century BC. Around the 18th century BC, the Second Intermediate Period of Egypt began.

By 1600 BC, Mycenaean Greece developed, the beginning of the Shang Dynasty in China emerged and there was evidence of a fully developed Chinese writing system. Also around 1600 BC, the beginning of Hittite dominance of the Eastern Mediterranean region is seen. The time between the 16th to 11th centuries around the Nile is called the New Kingdom of Egypt. Between 1550 BC and 1292 BC, the Amarna Period developed.

EARLY IRON AGE

The Iron Age is the last principal period in the three-age system, preceded by the Bronze Age. Its date and context vary depending on the country or geographical region. During the 13th to 12th centuries BC, the Ramesside Period occurred in Egypt. Around c. 1200 BC, the Trojan War was thought to have taken place. By c. 1180 BC, the disintegration of the Hittite Empire was underway.

In 1046 BC, the Zhou force, led by King Wu of Zhou, overthrows the last king of the Shang Dynasty. The Zhou Dynasty is established in China shortly thereafter. In 1000 BC, the Mannaeans Kingdom begins in Western Asia. Around the 10th to 7th centuries BC, the Neo-Assyrian Empireforms in Mesopotamia. In 800 BC, the rise of Greek city-states begins. In 776 BC, the first recorded Olympic Games are held.

CLASSICAL ANTIQUITY

Classical antiquity is a broad term for a long period of cultural history centred around the Mediterranean Sea, which begins roughly with the earliest-recorded Greek poetry of Homer (9th century BC), and continues through the rise of Christianity and the fall of the Western Roman Empire (5th century AD), ending in the dissolution of classical culture with the close of Late Antiquity.

Such a wide sampling of history and territory covers many rather disparate cultures and periods. “Classical antiquity” typically refers to an idealized vision of later people, of what was, in Edgar Allan Poe’s words, “the glory that was Greece, the grandeur that was Rome!” In the 18th and 19th centuries AD reverence for classical antiquity was much greater in Europe and the United States than it is today. Respect for the ancients of Greece and Rome affected politics, philosophy, sculpture, literature, theatre, education, and even architecture and sexuality.

In politics, the presence of a Roman Emperor was felt to be desirable long after the empire fell. This tendency reached its peak when Charlemagne was crowned ”Roman Emperor” in the year 800, an act which led to the formation of the Holy Roman Empire. The notion that an emperor is a monarch who outranks a mere

king dates from this period. In this political ideal, there would always be a Roman Empire, a state whose jurisdiction extended to the entire civilized world.

Epic poetry in Latin continued to be written and circulated well into the 19th century. John Milton and even Arthur Rimbaud received their first poetic educations in Latin. Genres like epic poetry, pastoral verse, and the endless use of characters and themes from Greek mythology left a deep mark on Western literature.

In architecture, there have been several Greek Revivals, (though while apparently more inspired in retrospect by Roman architecture than Greek). Still, one needs only to look at Washington, DC to see a city filled with large marble buildings with façades made out to look like Roman temples, with columns constructed in the classical orders of architecture.

In philosophy, the efforts of St Thomas Aquinas were derived largely from the thought of Aristotle, despite the intervening change in religion from paganism to Christianity. Greek and Roman authorities such as Hippocrates and Galen formed the foundation of the practice of medicine even longer than Greek thought prevailed in philosophy. In the French theatre, tragedians such as Molière and Racine wrote plays on mythological or classical historical subjects and subjected them to the strict rules of the classical unities derived from Aristotle's *Poetics*. The desire to dancelike a latter-day vision of how the ancient Greeks did it moved Isadora Duncan to create her brand of ballet. The Renaissance was partly caused by the rediscovery of classic antiquity.

EARLY CLASSICAL ANCIENT HISTORY

- 776 BC: First Olympic Games, generally considered the beginning of Classical Antiquity.
- 753 BC: Founding of Rome (traditional date)
- 745 BC: Tiglath-Pileser III becomes the new king of Assyria. With time he conquers neighboring countries and turns Assyria into an empire
- 722 BC: Spring and Autumn Period begins in China; Zhou Dynasty's power is diminishing; the era of the Hundred Schools of Thought
- c.750 BC: Breach of the Marib Dam in Arabia Felix. Three new dams were built by the Sabaeans.
- c 728 BC: Rise of the Median Empire
- 612 BC: Attributed date of the destruction of Nineveh and subsequent fall of Assyria.
- 600 BC: Sixteen Maha Janapadas ("*Great Realms*" or "*Great Kingdoms*") emerge. A number of these Maha Janapadas are semi-democratic republics.

- c. 600 BC: Pandyan kingdom in South India
- 599 BC: Mahavira, founder of Jainism is born as a prince at Kundalavana, who ruled Magadha Empire.
- 563 BC: Siddhartha Gautama (Buddha), founder of Buddhism is born as a prince of the Shakya tribe, which ruled parts of Magadha, one of the Maha Janapadas
- 551 BC: Confucius, founder of Confucianism, is born
- 550 BC: The Achaemenid Empire is founded by Cyrus the Great
- 546 BC: Cyrus the Great overthrows Croesus King of Lydia
- 544 BC: Rise of Magadha as the dominant power under Bimbisara.
- 539 BC: The Fall of the Babylonian Empire and liberation of the Jews by Cyrus the Great
- 529 BC: Death of Cyrus the Great
- 525 BC: Cambyses II of Persia conquers Egypt
- c. 512 BC: Darius I (Darius the Great) of Persia, subjugates eastern Thrace, Macedonia submits voluntarily, and annexes Libya, Persian Empire at largest extent
- 509 BC: Expulsion of the last King of Rome, founding of Roman Republic (traditional date)
- 508 BC: Democracy instituted by Cleisthenes at Athens
- c. 500 BC: Panini standardizes the grammar and morphology of Sanskrit in the text Ashtadhyayi. Panini's standardized Sanskrit is known as Classical Sanskrit.
- 500 BC: Pingala develops system ranks of binary patterns.
- 490 BC: Greek city-states defeat Persian invasion at Battle of Marathon
- 480-479 BC: Greek city states decisively defeat the Persians at the Battle of Salamis and the Battle of Plataea, ending once and for all the Persian threat to Greece.
- 480 BC King Leonidas of Sparta died 10 August
- 475 BC: Warring States Period begins in China as the Zhou king became a mere figurehead; China is annexed by regional warlords.
- c. 469 BC: Birth of Socrates
- 465 BC: Murder of Xerxes I of Persia
- 460 BC: First Peloponnesian War between Athens and Sparta
- 449 BC: End of the Greco-Persian Wars. Macedonia, Thrace and Ionia gain independence from Achaemenid Persia.

- 447 BC: Building of the Parthenon at Athens started
- 424 BC: Nanda dynasty comes to power.
- 404 BC: End of Peloponnesian War between the Greek city-states
- 399 BC: February 15—The Greek philosopher Socrates is sentenced to death by Athenian authorities in Athens, condemned for impiety and the corruption of youth. He refuses to flee into exile and is sentenced to death by drinking hemlock.
- c. 385 BC: The Greek philosopher Plato, a former disciple of Socrates, founds a philosophical school at the Akademia, from land purchased from Akademus, in Athens – later famously known as the Academy. There, Plato, and the later heads of the school, called scholarchs, taught many of the brilliant minds of the day, including the famous Greek philosopher Aristotle
- 335 BC: The Greek philosopher Aristotle founds his philosophical school – known then as the Lyceum (named because it was located near the site of the Lyceum gymnasium in Athens) – and begins teaching there.
- 331 BC: Alexander the Great defeats Darius III of Persia in the Battle of Gaugamela
- 326 BC: Alexander the Great defeats Indian king Porus in the Battle of the Hydaspes River.
- 323 BC: Death of Alexander the Great at Babylon
- 321 BC: Chandragupta Maurya overthrows the Nanda Dynasty of Magadha.
- 307 BC: The Greek philosopher Epicurus founds his philosophical school, the Garden of Epicurus, outside the walls of Athens.
- 305 BC: Chandragupta Maurya seizes the satrapies of Paropanisadai (Kabul), Aria (Herat), Arachosia (Qanadahar) and Gedrosia (Baluchistan) from Seleucus I Nicator, the Macedonian satrap of Babylonia, in return for 500 elephants.
- c. 302 BC: Pandyan dynasty, Chola dynasty, and Chera dynasty rule separate areas in South India
- 294 BC: Zeno of Citium founds the philosophy of Stoicism in Athens (the philosophy derives its namesake from the fact that Zeno and his followers would regularly meet near the Stoa Poikile ("*Painted Porch*") of the Athenian agora.)
- c. 252 BC: Ashoka the Great becomes the emperor of the Mauryan Empire
- c. 252 BC: Thåc Dynasty takes over Viet Nam

- c. 249 BC: Rise of Parthia (Ashkâniân), the third native dynasty of ancient Persia
- c. 233 BC: Death of Emperor Ashoka the Great; Decline of the Mauryan Empire
- 221 BC: Construction of the Great Wall begins.
- c. 220 BC: Qin Shi Huang, ruler of the Qin Dynasty, unifies China (end of Warring States Period)
- c. 220 BC: Simuka, founder of the Satavahanas dynasty, rules area in South India
- 209 BC: Kingdom of Nan Yueh is established by Tch'ao T'o (Trieu Dynasty)
- 208 BC: The Xiongnu replaces the Mongolic Donghu as the dominant tribe of the Mongolian steppe and then five years later defeats the Yuezhi in Gansu, making a cup out of the skull of their leader.
- c. 206 BC: Lew Pang is proclaimed emperor (Kaou-te) and the Han Dynasty is established.
- 202 BC: Scipio Africanus defeats Hannibal at Battle of Zama
- 189 BC: Artaxiad Dynasty in Armenia is founded
- c. 184 BC: Sunga Empire founded.
- 149 BC–146: Third and final Punic War; destruction of Carthage by Rome
- 146 BC: Corinth in Greece was destroyed by Rome and Roman authority became supreme throughout Greece.
- 140 BC: The first system of imperial examinations was officially instituted in China by the Han Dynasty emperor Han Wu Di.
- c. 127 BC: Chang-Kien finds the western lands of civilization and trading opens on routes of the Silk Road.
- 111 BC: The Nam Viet Kingdom (TriÇu Dynasty) is destroyed by the first Chinese domination of Viet Nam.
- 95-55 BC: Tigranes the Great reigns in Armenian empire.
- 53 BC: Led by General Surena, the Parthians decisively defeat a Roman invasion at the Battle of Carrhae
- 49 BC: Conflict between Julius Caesar and Pompey the Great lead to the Roman Civil War.

MID-CLASSICAL ANCIENT HISTORY

- 44 BC: Julius Caesar murdered by Marcus Brutus and others; the end of the Roman Republic and the beginning of the Roman Empire.

- 27 BC: Octavian is proclaimed *princeps* (emperor) by the Roman Senate and adopts the title Augustus (lit. "the august one").
- 6 BC: Earliest estimated date for birth of Jesus of Nazareth
- 5 BC: Birth of Jesus Christ (Ussher chronology)
- 9: Battle of the Teutoburg Forest, the Imperial Roman Army's bloodiest defeat.
- 14: Death of Emperor Augustus (Octavian), ascension of his adopted son Tiberius to the throne
- 29: Crucifixion of Jesus Christ.
- 68: Year of the four emperors in Rome
- 70: Destruction of Jerusalem by the armies of Titus.
- 117: Roman Empire at largest extent under Emperor Trajan
- 192: Kingdom of Champa in Central ViÇt Nam
- 3rd century: The Buddhist Srivijaya Empire established in the Malay Archipelago.
- 220: Three Kingdoms period begins in China after the fall of Han Dynasty.
- 226: Fall of the Parthian Empire and Rise of the Sassanian Empire
- 238: Defeat of Gordian III (238–244), Philip the Arab (244–249), and Valerian (253–260), by Shapur I of Persia, and Valerian is captured
- 280: Emperor Wu established Jin Dynasty providing a temporary unity of China after the devastating Three Kingdoms period.

LATE CLASSICAL ANCIENT HISTORY

- 285: Emperor Diocletian splits the Roman Empire into Eastern and Western Empires
- 313: Edict of Milan legalized Christianity throughout the Roman Empire, and thus ended the previous state-sanctioned persecution of Christians there
- 335: Samudragupta becomes the emperor of the Gupta empire
- 378: Battle of Adrianople, Roman army under Eastern Roman Emperor Valens is defeated by the Germanic tribes
- 395: Roman Emperor Theodosius I outlaws all pagan religions in favour of Christianity
- 410: Alaric I sacks Rome for the first time since 390 BC
- c. 455: Skandagupta repels an Indo-Hephthalite attack on India.

- 476: Romulus Augustus, last Western Roman Emperor is forced to abdicate by Odoacer, a half Hunnish and half Scirian chieftain of the GermanicHeruli; Odoacer returns the imperial regalia to Eastern Roman Emperor Zeno in Constantinople in return for the title of *dux* of Italy; traditionally, the most frequently cited date for the end of the Roman Empire (although the Eastern Roman Empire, based in Constantinople, would still continue to exist until 1453)
- 529 The Eastern Roman Emperor Justinian I ordered the prominent philosophical schools of antiquity throughout the Eastern Roman Empire (including the famous Academy in Athens, among others) to close down—allegedly, because Justinian frowned upon the pagan nature of these schools

CLASSICAL ANCIENT HISTORY END

The transition period from Classical Antiquity to the Early Middle Ages is known as Late Antiquity. Some key dates marking that transition are:

- 293: reforms of Roman Emperor Diocletian
- 395: the division of Roman Empire into the Western Roman Empire and Eastern Roman Empire
- 476: the fall of Western Roman Empire
- 529: closure of Platon Academy in Athens by Byzantine Emperor Justinian I

The beginning of the Middle Ages is a period in the history of Europe following the fall of the Western Roman Empire spanning roughly five centuries from AD 500 to 1000. Aspects of continuity with the earlier classical period are discussed in greater detail under the heading "Late Antiquity". Late Antiquity is the transitional centuries from Classical Antiquity to the Middle Ages in both mainland Europe and the Mediterranean world: generally from the end of the Roman Empire's Crisis of the 3rd century (c. 284) to the Islamic conquests and the re-organization of the Byzantine Empire under Heraclius.

MESOPOTAMIAN CIVILIZATION

The history and culture of Mesopotamian civilization is inextricably connected to the ebb and flow of the Tigris and Euphrates Rivers. The earliest communities developed to the north but since rainfall in that area was so unpredictable, by 5000 B.C. communities had spread south to the rich alluvial plain. The economy of these communities was primarily agricultural and approximately 100-200 people

lived in these permanently established villages. The alluvial plain in southern Mesopotamia ("land between the rivers") was far more fertile than the north but because there was little rainfall, irrigation ditches had to be constructed. Furthermore, the river beds of the Tigris and Euphrates rise and fall with the seasons and they change their course unpredictably. Southern Mesopotamia also had its share of flash floods which could destroy crops, livestock and village homes. Floods and torrential rains were a significant theme in Mesopotamian literature as depicted in the EPIC OF GILGAMESH.

> *The rampant flood which no man can oppose, Which shakes the heavens and causes earth to tremble, In an appalling blanket folds mother and child, Beats down the canebrake's full luxuriant greenery, And drowns the harvest in its time of ripeness.*
>
> *Rising waters, grievous to eyes of man, All-powerful flood, which forces the embankments And mows down mighty trees, Frenzied storm, tearing all things in massed confusion With it in hurling speed.*

Civilization emerged in Mesopotamia because the soil provided a surplus of food. With this surplus, people could settle down to village life and with these new settlements, towns and cities began to make their appearance, a process known as urbanization. With settlements and a surplus of food came an increase in the population, a well-defined division of labour, organization, cooperation and kingship. The emergence of cities involved interaction between people. Most cities evolved from smaller farming villages and with the practice of irrigation, which was necessary for villages distant from the Tigris and Euphrates, a stable food supply was produced. This, in turn, allowed increases in the number of people who inhabited each settlement.

Because the land closest to the river was the most fertile, there was a variation in terms of the wealth of these early farmers, which led to distinct social classes. At the same time, the construction of canals, ditches and dikes essential to irrigation demanded cooperation between different social groups. Decision-making, regulation and control of all food production and herding meant cooperation. And because more food could be produced by less people, some people gave up farming and became craftsmen, laborers, merchants and officials and this too required cooperation. The Mesopotamians built massive temples or ziggurats which housed the priestly class, the human representatives of the gods. The priests controlled the religious life of the community, the economy, land ownership, the employment of workers as well as the management of long distance trade.

Mesopotamian villages and towns eventually evolved into independent and nearly self-sufficient city-states. Although largely economically dependent on one another, these city-states were independent political entities and retained very strong

isolationist tendencies. This isolationism hindered the unification of the Mesopotamian city-states, which eventually grew to twelve in number.

By 3000 B.C., Mesopotamian civilization had made contact with other cultures of the Fertile Crescent (a term first coined by James Breasted in 1916), an extensive trade network connecting Mesopotamia with the rest of Ancient Western Asia. Again, it was the two rivers which served as both trade and transportation routes.

The achievements of Mesopotamian civilization were numerous. Agriculture, thanks to the construction of irrigation ditches, became the primary method of subsistence. Farming was further simplified by the introduction of the plow. We also find the use of wheel-made pottery. Between 3000 and 2900 B.C. craft specialization and industries began to emerge (ceramic pottery, metallurgy and textiles). Evidence for this exists in the careful planning and construction of the monumental buildings such as the temples and ziggurats. During this period (roughly 3000 B.C.), cylinder seals became common. These cylindrical stone seals were five inches in height and engraved with images. These images were reproduced by rolling the cylinder over wet clay. The language of these seals remained unknown until to 20th century. But, scholars now agree that the language of these tablets was Sumerian.

ANCIENT SUMER

The Sumerians inhabited southern Mesopotamia from 3000-2000 B.C. The origins of the Sumerians is unclear — what is clear is that Sumerian civilization dominated Mesopotamian laws, religion, art, literature and science for nearly seven centuries.

The greatest achievement of Sumerian civilization was their CUNEIFORM ("wedge-shaped") system of writing. Using a reed stylus, they made wedge-shaped impressions on wet clay tablets which were then baked in the sun. Once dried, these tablets were virtually indestructible and the several hundred thousand tablets which have been found tell us a great deal about the Sumerians. Originally, Sumerian writing was pictographic, that is, scribes drew pictures of representations of objects. Each sign represented a word identical in meaning to the object pictured, although pictures could often represent more than the actual object.

The pictographic system proved cumbersome and the characters were gradually simplified and their pictographic nature gave way to conventional signs that represented ideas. For instance, the sign for a star could also be used to mean heaven, sky or god. The next major step in simplification was the development of phonetization in which characters or signs were used to represent sounds. So, the character for water was also used to mean "in," since the Sumerian words for "water" and "in" sounded similar. With a phonetic system, scribes could now

represent words for which there were no images (signs), thus making possible the written expression of abstract ideas.

The Sumerians used writing primarily as a form of record keeping. The most common cuneiform tablets record transactions of daily life: tallies of cattle kept by herdsmen for their owners, production figures, lists of taxes, accounts, contracts and other facets of organizational life in the community. Another large category of cuneiform writing included a large number of basic texts which were used for the purpose of teaching future generations of scribes. By 2500 B.C. there were schools built just for his purpose.

The city-state was Sumer's most important political entity. The city-states were a loose collection of territorially small cities which lacked unity with one another. Each city-state consisted of an urban centre and its surrounding farmland. The city-states were isolated from one another geographically and so the independence of each city-state became a cultural norm with important consequences. For instance, it was held that each city-state was the estate of a particular god: Nannar (moon) was said to have watched over the city-state of Ur; Uruk had An (sky), Sippar had Utu (sun) and Enki (earth) could be found at Eridu.

Nippur, the earliest centre of Sumerian religion, was dedicated to Enlil, god of wind (Enlil was supplanted by Marduk at Babylon). Each city-state was sacred since it was carefully guarded by and linked to a specific god or goddess. Located near the centre of each city-state was a temple. Occupying several acres, this sacred area consisted of a ziggurat with a temple at the top dedicated to the god or goddess who "owned" the city.

The temple complex was the true centre of the community. The main god or goddess dwelt there symbolically in the form of a statue, and the ceremony of dedication included a ritual that linked the statue to the god or goddess and thus harnessed the power of the deity for the benefit of the city-state. Considerable wealth was poured into the construction of temples as well as other buildings used for the residences of priests and priestesses who attended to the needs of the gods. The priests also controlled all economic activities since the economy was "redistributive." Farmers would bring their produce to the priests at the ziggurat. The priests would "feed" and "clothe" the gods and then redistribute the remainder to the people of the community.

With its rather large pantheon of gods and goddesses animating all aspects of life, Sumerian religion was polytheistic in nature. By far, the most important deities were An, Enlil, Enki and Ninhursaga. An was the god of the sky and hence the most important force in the universe. He was also viewed as the source of all authority including the earthly power of rulers and fathers alike. In one myth, the gods address them in the following manner:

What you have ordered comes true!

The utterance of Prince and Lord is but what you have ordered, do agree with.

O An! your great command takes precedence, who could gainsay it?

O father of the gods, your command, the very foundations of heaven and earth, what god could spurn it?

Enlil, god of wind, was considered the second greatest power of the universe and became the symbol of the proper use of force and authority on earth. As the god of wind, Enlil controlled both the fertility of the soil and destructive storms. This dual nature of Enlil inspired a justifiable fear of him:

What has he planned?...

What is in my father's heart?

What is in Enlil's holy mind?

What has he planned against me in his holy mind?

A net he spread: the net of an enemy; a snare he set: the snare of an enemy.

He has stirred up the waters and will catch the fishes, he has cast his net, and will bring down the birds too.

Enki was god of the earth. Since the earth was the source of life-giving waters, Enki was also god of rivers, wells, and canals. He also represented the waters of creativity and was responsible for inventions and crafts. Ninhursaga began as a goddess associated with soil, mountains, and vegetation. Eventually she was worshipped as a mother goddess, a "mother of all children," who manifested her power by giving birth to kings.

Although these four deities were supreme, there were numerous gods and goddesses below them. One group included the astral deities, who were all grandchildren and great-grandchildren of An. These included Utu, god of the sun, the moon god Nannar, and Inanna, goddess of the morning and evening star as well as of war and rain. Unlike humans, these gods and goddesses were divine and immortal. But they were not all-powerful since no one god had control over the entire universe. Furthermore, humans were capable of devising ways to discover the will of the gods and to influence them as well.

The relationship of human beings to the gods was based on subservience since, according to Sumerian myth, human beings were created to do the manual labour the gods were unwilling to do for themselves. As a consequence, humans were insecure since they could never be sure of the god's actions. But humans did make attempts to circumvent or relieve their anxiety by discovering the intentions of the gods; these efforts gave rise to the development of the arts of divination, which

took a variety of forms. A common form, at least for kings and priests who could afford it, involved killing animals, such as sheep or goats, and examining their livers or other organs. Supposedly, features seen in the organs of the sacrificed animals foretold of events to come. Private individuals relied on cheaper divinatory techniques. These included interpreting patterns of smoke from burning incense or the pattern formed when oil was poured into water.

The Sumerian art of divination arose from a desire to discover the purpose of the gods. If people could decipher the signs that foretold events, the events would be predictable and humans could act wisely. But the Sumerians also developed cultic arts to influence good powers (gods and goddesses) whose decisions could determine human destiny and to ward off evil powers (demons). These cultic arts included ritualistic formulas, such as spells against evil spirits, or prayers or hymns to the gods to win their positive influence. Since only the priests knew the precise rituals, it is not difficult to understand the important role they exercised in a society dominated by a belief in the reality of spiritual powers.

ANCIENT EGYPT

While the Sumerians, Babylonians, Akkadians and other groups were busy creating a Mesopotamian civilization in the Fertile Crescent of the Ancient Near East, another civilization had appeared to the west. Again, this civilization depended entirely upon geography. It was the fertile valley of the Nile River that allowed Egyptian civilization to flourish over the course of many centuries. It is an area of the world in which much needed natural resources were abundant. Furthermore, the climate of Egypt is very dry and almost changeless. Because of this static, changeless quality, the Egyptians obtained a sense of security from their environment.

For centuries ancient Egyptian civilization flourished in isolation from the rest of the Ancient Near East. Just the same, although Egypt was isolated, it was not unified. Geographically, it was divided between the Black Land and the Red Land, and politically, between Upper and Lower Egypt. Around 3100 B.C., various political factions struggled to gain control. Victory eventually fell to Menes in Upper Egypt. Menes is also known as Narmer. The Egyptians considered the unification of Upper and Lower Egypt as the most important event in their history.

Like Sargon, a king like Narmer ruled as a mediator between men and the gods. But Narmer was also pharaoh. He was not only the mediator between men and the gods, but was himself divine. Pharaoh's rule was eternal and absolute – he ruled not just for the gods, but as a god himself. In assuming the position of king and chief priest, pharaoh shed his human qualities and assumed an unchanging, fixed and divine position. And this was the role that Narmer assumed in 3100 B.C.

The new state also derived authority and stability from the concept of *ma'at*, a quality or behaviour which translates as truth, justice, order and righteousness. *Ma'at* implied a divine force for harmony and stability which emanated from the beginning of time itself. Good rule by pharaoh signified the presence of *ma'at*.

Egyptian religion, like that of Mesopotamia, was polytheistic and each region had its own patron deity. Some of these local or regional gods gained notoriety throughout Egypt. For instance, the god Ptah gained power when the city of Memphis became the capital of Egypt. Later, the god Re of Heliopolis eclipsed that of Ptah. Finally, the god Amon rose to supremacy in Thebes in connection with the political authority of the Thebian pharaoh. As a rule, whenever a new capital was founded, a new supreme god was chosen.

Egyptian gods were often represented as animals – as falcons, vultures, a cobra, dog, cat or crocodile. For the Egyptians, because animals were non-human, they must have possessed religious significance. Other gods, such as Ptah and Amon, were given human representation, but the most important god Re, was not represented at all. The gods created the cosmos – they created order out of chaos. The Sumerians had a similar belief. But the life of the Sumerian was filled with anxiety and pessimism because the gods themselves were unstable and the idea of an afterlife was unknown.

Egyptian religion inspired confidence and optimism in the external order and stability of the world. The gods guided the rhythms of life and death. And what really distinguished Egyptian religion from that of Mesopotamia, was that any man or woman could share in the benefits of an afterlife. As one historian has put it: "death meant a continuation of one's life on earth, a continuation that, with the appropriate precautions of proper burial, prayer, and ritual, would include only the best parts of life on earth – nothing to fear, but on the other hand, nothing to want to hurry out of this world for." Religion was the unifying agent in ancient Egypt. Pharaoh indicated his concern for his people by worshipping the local deities in public ceremonies. The gods protected the living and guaranteed them an afterlife. The Egyptians believed they were living in a fixed, static or unchanging universe in which life and death were part of a continuous, rhythmic cycle. Certain patterns came to be expected – grain had to be harvested, irrigation canals had to be built and pyramids had to be built. Just as the sun rose in the east and set in the west, so too all human life and death passed through regular and predictable patterns.

The first pyramids, built around 2900 B.C., were little more than mudbrick structures built over the burial pits of nobles. These structures protected the body from exposure and also provided a secure place for the personal belongings of the dead noble. By 2600 B.C., mudbrick structures were replaced by the familiar stone pyramid. The pyramids were completely inaccessible structures – once pharaoh

was buried, hallways and passages were sealed and obliterated. In this way, the pyramids would stand eternal, unchanged, and fixed, as they stand today. The pyramid symbolizes much of what we know about ancient Egypt. They reflect the extreme centralization of the Egyptian government as well as rule by pharaoh.

The great pyramids of Giza, built more than 4500 years ago, expressed pharaoh's immortality and divinity. The earliest built of the Giza pyramids is that of Khufu, better known as Cheops, the Greek name given to it by the Greek historian Herodotus, when he visited the pyramids around 480 B.C.. Cheops covers 13 acres and contains two million stone blocks, each weighing 5000 pounds. It's height originally stood at 481 feet. One of the most compelling features of the pyramids, in addition to the architectural feat of just building them, was their mortuary art. Inside the pyramids was the royal burial chamber. The walls of the chamber are covered with hieroglyphics, which detail the life of pharaoh. We find art detailing people fishing and hunting. We also see people seated at banquets. Representations of food and wine were included as well. Jars of wine, grain, fruits and other foods were included, as well as boats, bows, arrows and other objects from the real world. Slaves were often entombed as well. Why? Very simple. Pharaoh would need these things in the afterlife, since death was not final, but an extension of this worldly life. The emphasis on mortuary art was not death but life. Like the seasons, man lives and dies. Death was nothing final but the beginning of yet another cycle. In the next life there would be birds, people, oceans, rivers, desert, food and wine.

From what we have said so far it should be obvious that religion gave the river civilizations of Mesopotamia and Egypt their distinctive character. But this religion was not a religion of comfort or morality. Instead, these polytheistic religions were MYTHOPOEIC. Whereas our world view may be scientific or rational, these river civilizations adopted a world view based on myth. The construction of myths was the first manner in which western civilization attempted to explain life and the universe. Myths explained the creation of the universe as well as the role men and women would play in that universe. Nature, for these earliest river civilizations, was not an inanimate "it." Instead, nature, the world of nature, had a life, will and vitality all its own.

The myth-makers of the Ancient Near East and of Egypt did not seek to rationally or logically explain nature. Instead of natural laws or systematic explanations, these people resorted to divine powers and myths. Although these civilizations certainly exercised their minds to build ziggurats and pyramids, irrigation canals and pottery wheels, cuneiforms and hieroglyphics, they did not advance to the creation of science. They did not deduce abstractions, nor did they make hypotheses or establish general laws of the nature world. These efforts – science and philosophy – were the product of another culture, located in another time and place: the Greeks.

HEBREW CIVILIZATION

Dwarfed by the great empires of the Sumerians, Akkadians, Babylonians and Egyptians, were the Hebrews. Of all the ancient civilizations, it was the Hebrews who exerted perhaps the greatest influence on western society as well as the western intellectual tradition. The Hebrews, a Semitic-speaking people, first appeared in Mesopotamia. For instance, Abraham's family were native to Sumer. But between 1900 and 1500 B.C., the Hebrews migrated from Mesopotamia to Canaan and then into Egypt. At this time, a tribe of Hebrews who claimed to be the descendants of Abraham began to call themselves Israelites ("soldiers of God"). The Hebrews were enslaved by the Egyptian pharaohs until 1250 B.C. when their leader, Moses, led them on an exodus out of Egypt to the Sinai peninsula. Moses persuaded his followers to become worshippers of Yahweh or Jehovah.

The Hebrews who wandered into the Sinai with Moses decided to return to Canaan. The move was not easy and the Hebrews were faced with constant threats from the Philistines who occupied the coastal region. Twelve Hebrew tribes united first under Saul and then his successor, David. By the 10th century, David and his son Solomon had created an Israelite kingdom. Economic progress was made as Israeli people began to trade with neighbouring states. New cities were built and one in particular, Jerusalem, was built by Solomon to honor God.

In 586, the region of Judah was destroyed and several thousand Hebrews were deported to Babylon. (200 years earlier the northern country of Israel was destroyed by the Assyrians. The 586 destruction completed the destruction of the two regions.) The prophets Isaiah, Ezekiel and Jeremiah declared that the Babylonian captivity was God's punishment. The Hebrews, in other words, had brought upon their own captivity because they had violated God's laws. Despite this calamity, the Hebrews survived as people. In the 4th century, Alexander the Great conquered nearly all of the Near East and Palestine was annexed to Egypt and fell under Greek control. And by the 1st and 2nd centuries B.C., the Hebrews lost near total independence under the Romans. But the Hebrews would never give up their faith or their religion.

The Hebrews were, as a people, committed to the worship of one God and His Law as it was presented in the Old Testament. The Old Testament represents an oral history of the Jews and was written, in Hebrew, between 1250 and 150 B.C. The Old Testament was written by religious devotees and not by historians – it therefore contains factual errors, discrepancies and imprecise statements. Still, much of the 39 books of the Old Testament are also reliable as history. No historian who wishes to understand the religious faith of the Jews can do so without mastering the Old Testament.

There is only one god in the Old Testament – although the books of the Old Testament emphasize the values of human experience. Its heroes are not gods and goddesses but men and women, both strong and weak. What separates the religious beliefs of the Hebrews from the belief systems of Egypt or Mesopotamia was clearly their monotheism. The Hebrews regarded God as fully sovereign – He ruled all and was subject to no laws Himself. Unlike Near Eastern gods, Jehovah was not created – God is eternal and the source of all creation in the universe. He created and governed the world and shaped the moral laws that govern humanity.

God was transcendent – that is, He is above nature and not part of nature. In this sort of religion, there is no place for a sun god or moon god. Nature was demystified – it was no longer super-natural, but natural. That is, the Hebrews conceived nature as an example of God's handiwork. This is very important because once nature was demystified scientific thought could begin. However, the Hebrews were neither philosophers nor were they scientists. They were concerned with God's will and not with man's capacity to explain away or understand nature. In other words, God's existence was based not on Reason or rational investigation, but on religious conviction or faith alone. Not Reason but Revelation was the cornerstone of the Hebrew faith.

This monotheism made possible for a new awareness of the individual. In God, the Hebrews developed an awareness of the Self or the "I" – the individual was self-conscious and aware of his own moral autonomy and worth. With this in mind, the Hebrews believed that man was a free agent – man had the capacity to choose between good and evil. Although God was omnipotent He was also just and merciful. He did not want His followers to be slaves. Instead, men and women were to fulfil their morality by freely making the choice to do good or evil. God does not control mankind – rather, men must have the freedom to choose.

There is only one God and the Hebrews believed that the worship of idols would deprive people of the freedom God had given them. This belief was opposed to Near Eastern polytheism which used images to represent their gods and goddesses. For the Hebrews, God is incapable of being represented in any form whatsoever.

Because God was the centre of all life only He was worthy of worship. Therefore, the Hebrews would give no ultimate loyalty to kings or generals. To do so would be to violate God's law to have "no other God but me." So, the Hebrews were morally free. But, this freedom came with one solemn condition. Freedom did not mean, do as you please. Instead, it meant voluntary obedience to those moral commands which God had given to the Hebrews through Moses.

For the Hebrews, to know God did not mean to understand him with the intellect, nor did it mean to rationally prove his existence, something which preoccupied medieval Christian theologians for five hundred years. To know God, one just had

to be righteous, moral, loving, merciful and just. When men and women loved God, they were improved.

One of the central religious principles of the Hebrew faith is that God had made a special agreement with his people. This agreement is called the Covenant. From the book of *Exodus* we read: "Now therefore, if ye will hearken unto My voice indeed, and keep My covenant, then ye shall be Mine own treasure from all peoples; for all the earth is Mine; and ye shall be unto Me a kingdom of priests and a holy nation." The Hebrews, then, were conscious of themselves as God's chosen people. They did not believe they were better than anyone else – instead, they believed that God had rescued them from Egyptian bondage and selected them to receive his laws.

This was a pretty heavy responsibility to say the very least. Moses received the 10 Commandment – a code of moral "oughts." To violate the laws of God would mean the covenant – their special agreement with God – would be broken. This could lead to national disaster and the destruction of the Hebrew nation. The bottom line is this: Hebrew society had the moral obligation to make justice prevail – at the same time, evil had to be eradicated. This sense of moral obligation (the ought) was written into Hebrew law. The poor, widows, children and the sick were all protected by law and rich and poor were to be treated under the same laws, something unheard of in the Code of Hammurabi. The significance of all this is clearly ethical and moral. The individual was clearly more important than his or her private property.

Lastly, the Hebrews were perhaps the first culture of the ancient western world to show any awareness of historical time. The events of their past were carefully celebrated. They also envisioned a great day in the future when God would establish peace on earth, prosperity, happiness and brotherhood. History was conceived as a vast drama, a drama just full of moral significance. Through history, God's presence is made known. History, then, had a purpose and meaning. And this kind of awareness would soon become part of the western intellectual tradition itself.

PROMINENT CIVILIZATIONS

COMPARATIVE TIMELINE

SOUTHWEST ASIA (NEAR EAST)

The Ancient Near East is considered the cradle of civilization. It was the first to practice intensive year-round agriculture; created the first coherent writing system, invented the potter's wheel and then the vehicular- and mill wheel, created the first centralized governments, law codes and empires, as well as introducing social

stratification, slavery and organized warfare, and it laid the foundation for the fields of astronomy and mathematics.

MESOPOTAMIA

Mesopotamia is the site of some of the earliest known civilizations in the world. Early settlement of the alluvial plain lasted from the Ubaid period (late 6th millennium BC) through the Uruk period (4th millennium BC) and the Dynastic periods (3rd millennium BC) until the rise of Babylon in the early 2nd millennium BC. The surplus of storable foodstuffs created by this economy allowed the population to settle in one place instead of migrating after crops and herds. It also allowed for a much greater population density, and in turn required an extensive labour force and division of labour. This organization led to the necessity of record keeping and the development of writing (c. 3500 BC).

Babylonia was an Amorite state in lower Mesopotamia (modern southern Iraq), with Babylon as its capital. Babylonia emerged when Hammurabi (fl. c. 1728–1686 BC, according to the short chronology) created an empire out of the territories of the former kingdoms of Sumer and Akkad. The Amorites being a Semitic people, Babylonia adopted the written Semitic Akkadian language for official use; they retained the Sumerian language for religious use, which by that time was no longer a spoken language. The Akkadian and Sumerian cultures played a major role in later Babylonian culture, and the region would remain an important cultural centre, even under outside rule. The earliest mention of the city of Babylon can be found in a tablet from the reign of Sargon of Akkad, dating back to the 23rd century BC.

The Neo-Babylonian Empire, or Chaldea, was Babylonia under the rule of the 11th ("Chaldean") dynasty, from the revolt of Nabopolassar in 626 BC until the invasion of Cyrus the Great in 539 BC. Notably, it included the reign of Nebuchadrezzar II who conquered Judah and Jerusalem.

Akkad was a city and its surrounding region in central Mesopotamia. Akkad also became the capital of the Akkadian Empire. The city was probably situated on the west bank of the Euphrates, between Sippar and Kish (in present-day Iraq, about 50 km (31 mi) southwest of the centre of Baghdad). Despite an extensive search, the precise site has never been found. Akkad reached the height of its power between the 24th and 22nd centuries BC, following the conquests of king Sargon of Akkad. Because of the policies of the Akkadian Empire towards linguistic assimilation, Akkad also gave its name to the predominant Semitic dialect: the Akkadian language, reflecting use of *akkadû* ("in the language of Akkad") in the Old Babylonian period to denote the Semitic version of a Sumerian text.

Assyria was originally (in the Middle Bronze Age) a region on the Upper Tigris river, named for its original capital, the ancient city of Assur. Later, as a nation and

empire that came to control all of the Fertile Crescent, Egypt and much of Anatolia, the term "Assyria proper" referred to roughly the northern half of Mesopotamia (the southern half being Babylonia), with Nineveh as its capital. The Assyrian kings controlled a large kingdom at three different times in history. These are called the *Old* (20th to 15th c. BC), *Middle* (15th to 10th c. BC), and *Neo-Assyrian* (911–612 BC) kingdoms, or periods, of which the last is the most well known and best documented. Assyrians invented excavation to undermine city walls, battering rams to knock down gates, as well as the concept of a corps of engineers, who bridged rivers with pontoons or provided soldiers with inflatable skins for swimming.

Mitanni was an Indo-Iranian empire in northern Mesopotamia from c. 1500 BC. At the height of Mitanni power, during the 14th century BC, it encompassed what is today southeastern Turkey, northern Syria and northern Iraq, centred around its capital, Washukanni, whose precise location has not been determined by archaeologists.

ANCIENT PERSIA

Elam is the name of an ancient civilization located in what is now southwest Iran. Archaeological evidence associated with Elam has been dated to before 5000BC. According to available written records, it is known to have existed beginning from around 3200 BC – making it among the world's oldest historical civilizations – and to have endured up until 539 BC. Its culture played a crucial role in the Gutian Empire, especially during the Achaemenid dynastythat succeeded it, when the Elamite language remained among those in official use. The Elamite period is considered a starting point for the history of Iran.

The Medes were an ancient Iranian people. The established their own empire by the 6th century BC, having defeated the Neo-Assyrian Empire with the Chaldeans. The Medes are credited with the foundation of the first Iranian empire, the largest of its day until Cyrus the Great established a unified Iranian empire of the Medes and Persian, often referred to as the Achaemenid Persian Empire, by defeating his grandfather and overlord, Astyages the king of Media.

The Achaemenid Empire was the first of the Persian Empires to rule over significant portions of Greater Persia, and followed the Median Empire as the second great empire of the Persian people. It is noted in western history as the foe of the Greek city states in the Greco-Persian Wars, for freeing the Israelites from their Babylonian captivity, and for instituting Aramaic as the empire's official language. Because of the Empire's vast extent and long endurance, Persian influence upon the language, religion, architecture, philosophy, law and government of nations around the world lasts to this day. At the height of its power, the Achaemenid dynasty encompassed approximately 8.0 million square kilometres, held the greatest

percentage of world population to date, and was territorially the largest empire of classical antiquity.

Parthia was an Iranian civilization situated in the northeastern part of modern Iran. Their power was based on a combination of the guerrilla warfare of a mounted nomadic tribe, with organizational skills to build and administer a vast empire – even though it never matched in power and extent the Persian empires that preceded and followed it. The Parthian empire was led by the Arsacid dynasty, which reunited and ruled over the Iranian plateau, after defeating and disposing the Hellenistic Seleucid Empire, beginning in the late 3rd century BC, and intermittently controlled Mesopotamia between 150 BC and 224 AD. It was the third native dynasty of ancient Iran (after the Median and the Achaemenid dynasties). Parthia had many wars with the Roman Empire.

The Sassanid Empire, lasting the length of the Late Antiquity period, is considered to be one of Iran's most important and influential historical periods. In many ways the Sassanid period witnessed the highest achievement of Persian civilization, and constituted the last great Iranian Empire before the Muslim conquest and adoption of Islam. Persia influenced Roman civilization considerably during the Sassanids' times, and the Romans reserved for the Sassanid Persians alone the status of equals. Their cultural influence extended far beyond the empire's territorial borders, reaching as far as Western Europe, Africa, China and India and played a role in the formation of both European and Asiatic medieval art.

ARMENIA

The early history of the Hittite empire is known through tablets that may first have been written in the 17th century BC but survived only as copies made in the 14th and 13th centuries BC. These tablets, known collectively as the Anitta text, begin by telling how Pithana the king of Kussara or Kussar (a small city-state yet to be identified by archaeologists) conquered the neighbouring city of Neša (Kanesh). However, the real subject of these tablets is Pithana's son Anitta, who conquered several neighbouring cities, including Hattusa and Zalpuwa (Zalpa).

Assyrian inscriptions of Shalmaneser I (c. 1270 BC) first mention *Uruartri* as one of the states of Nairi – a loose confederation of small kingdoms and tribal states in Armenian Highland in the 13th - 11th centuries BC. Uruartri itself was in the region around Lake Van. The Nairi states were repeatedly subjected to attacks by the Assyrians, especially under Tukulti-Ninurta I (c. 1240 BC), Tiglath-Pileser I (c. 1100 BC), Ashur-bel-kala (c. 1070 BC), Adad-nirari II (c. 900), Tukulti-Ninurta II (c. 890), and Ashurnasirpal II (883-859 BC).

The Kingdom of Armenia was an independent kingdom from 190 BC to 387 ÀD, and a client state of the Roman and Persian empires until 428. Between 95 BC

- 55 BC under the rule of King Tigranes the Great, the kingdom of Armenia became a large and powerful empire stretching from the Caspian to the Mediterranean Seas. During this short time it was considered to be the most powerful state in the Roman East.

ARABIA

The history of Pre-Islamic Arabia before the rise of Islam in the 630s is not known in great detail. Archaeological exploration in the Arabian peninsula has been sparse; indigenous written sources are limited to the many inscriptions and coins from southern Arabia. Existing material consists primarily of written sources from other traditions (such as Egyptians, Greeks, Persians, Romans, *etc.*) and oral traditions later recorded by Islamic scholars.

The first known inscriptions of the Kingdom of Hadhramaut are known from the 8th century BC. It was first referenced by an outside civilization in an Old Sabaic inscription of Karab'il Watar from the early 7th century BC, in which the King of Hadramaut, Yada‘'il, is mentioned as being one of his allies.

Dilmun appears first in Sumerian cuneiform clay tablets dated to the end of fourth millennium BC, found in the temple of goddess Inanna, in the city of Uruk. The adjective *Dilmun* refers to a type of axe and one specific official; in addition, there are lists of rations of wool issued to people connected with Dilmun.

The Sabaeans were an ancient people speaking an Old South Arabian language who lived in what is today Yemen, in south west Arabian Peninsula; from 2000 BC to the 8th century BC. Some Sabaeans also lived in D'mt, located in northern Ethiopia and Eritrea, due to their hegemony over the Red Sea. They lasted from the early 2nd millennium to the 1st century BC. In the 1st century BC it was conquered by the Himyarites, but after the disintegration of the first Himyarite empire of the Kings of Saba' and dhu-Raydan the Middle Sabaean Kingdom reappeared in the early 2nd century. It was finally conquered by the Himyarites in the late 3rd century.

The ancient Kingdom of Awsan with a capital at Hagar Yahirr in the wadi Markha, to the south of the wadi Bayhan, is now marked by a tell or artificial mound, which is locally named Hagar Asfal. Once it was one of the most important small kingdoms of South Arabia. The city seems to have been destroyed in the 7th century BC by the king and mukarrib of Saba Karib'il Watar, according to a Sabaean text that reports the victory in terms that attest to its significance for the Sabaeans.

The Himyar was a state in ancient South Arabia dating from 110 BC. It conquered neighbouring Saba (Sheba) in c.25 BC, Qataban in c.200 AD and Hadramaut c.300 AD. Its political fortunes relative to Saba changed frequently until it finally

conquered the Sabaean Kingdom around 280 CE. It was the dominant state in Arabia until 525 AD. The economy was based on agriculture.

Foreign trade was based on the export of frankincense and myrrh. For many years it was also the major intermediary linking East Africa and the Mediterranean world. This trade largely consisted of exporting ivory from Africa to be sold in the Roman Empire. Ships from Himyar regularly traveled the East African coast, and the state also exerted a considerable amount of political control of the trading cities of East Africa.

The Nabataean origins remain obscure. On the similarity of sounds, Jerome suggested a connection with the tribe Nebaioth mentioned in *Genesis*, but modern historians are cautious about an early Nabatean history. The Babylonian captivity that began in 586 BC opened a power vacuum in Judah, and as Edomites moved into Judaean grazing lands, Nabataean inscriptions began to be left in Edomite territory (earlier than 312 BC, when they were attacked at Petra without success by Antigonus I). The first definite appearance was in 312 BC, when Hieronymus of Cardia, a Seleucid officer, mentioned the Nabateans in a battle report. In 50 BC, the Greek historian Diodorus Siculus cited Hieronymus in his report, and added the following: "Just as the Seleucids had tried to subdue them, so the Romans made several attempts to get their hands on that lucrative trade."

Petra or Sela was the ancient capital of Edom; the Nabataeans must have occupied the old Edomite country, and succeeded to its commerce, after the Edomites took advantage of the Babylonian captivity to press forward into southern Judaea. This migration, the date of which cannot be determined, also made them masters of the shores of the Gulf of Aqaba and the important harbor of Elath. Here, according to Agatharchides, they were for a time very troublesome, as wreckers and pirates, to the reopened commerce between Egypt and the East, until they were chastised by the Ptolemaic rulers of Alexandria.

The Lakhmid Kingdom was founded by the Lakhum tribe that immigrated out of Yemen in the 2nd century and ruled by the Banu Lakhm, hence the name given it. It was formed of a group of Arab Christians who lived in Southern Iraq, and made al-Hirah their capital in (266). The founder of the dynasty was 'Amr and the son Imru' al-Qais converted to Christianity. Gradually the whole city converted to that faith. Imru' al-Qais dreamt of a unified and independent Arab kingdom and, following that dream, he seized many cities in Arabia.

The Ghassanids were a group of South Arabian Christian tribes that emigrated in the early 3rd century from Yemen to the Hauran in southern Syria, Jordan and the Holy Land where they intermarried with Hellenized Roman settlers and Greek-speaking Early Christian communities. The Ghassanid emigration has been passed down in the rich oral tradition of southern Syria. It is said that the Ghassanids

came from the city of Ma'rib in Yemen. There was a dam in this city, however one year there was so much rain that the dam was carried away by the ensuing flood. Thus the people there had to leave. The inhabitants emigrated seeking to live in less arid lands and became scattered far and wide. The proverb "They were scattered like the people of Saba" refers to that exodus in history. The emigrants were from the southern Arab tribe of Azd of the Kahlan branch of Qahtani tribes.

LEVANT

Though the Ugaritic site is thought to have been inhabited earlier, Neolithic Ugarit was already important enough to be fortified with a wall early on. The first written evidence mentioning the city comes from the nearby city of Ebla, c. 1800 BC. Ugarit passed into the sphere of influence of Egypt, which deeply influenced its art.

Concerning the Kingdom of Israel and the Kingdom of Judah, the Book of Genesis traces the beginning of Israel to three patriarchs of the Jewish people, Abraham, Isaac and Jacob, the last also known as *Israel* from which the name of the land was subsequently derived. Jacob, called a "wandering Aramaean" (Deuteronomy 26:5), the grandson of Abraham, had travelled back to Harran, the home of his ancestors, to obtain a wife.

Whilst returning from Haran to Canaan, he crossed the Jabbok, a tributary on the Arabian side of the Jordan River (Genesis 32:22-33). After having sent his family and servants away that night, he wrestled with a strange man at a place henceforth called Peniel, who in the morning asked him his name. As a result, he was renamed "Israel", because he had "wrestled with God" and became, in time, the father of twelve sons by Leah and Rachel, (daughters of Laban), and their maidservants Bilhah and Zilpah.

The twelve were considered the "Children of Israel". These stories of the origins of the Israelites locate them first on the east bank of the Jordan. The stories of Israel move to the west bank with the story of the sacking of Shechem (Genesis 34:1-33), after which the hill area of Canaan is assumed to have been the historical core of the area of Israel.

PHOENICIANS

Phoenicia was an ancient civilization centred in the north of ancient Canaan, with its heartland along the coastal regions of modern day Lebanon, Syria and Israel. Phoenician civilization was an enterprising maritime trading culture that spread across the Mediterranean between the period of 1550 BC to 300 BC.

A written reference, Herodotus's account (written c. 440 BC) refers to a memory from 800 years earlier, which may be subject to question in the fullness of genetic results. (*History,* I:1). This is a legendary introduction to Herodotus' brief retelling of some mythical Hellene-Phoenician interactions. Though few modern archaeologists would confuse this myth with history, a grain of truth may yet lie therein.

EGYPT

Ancient Egypt was a long-lived civilization geographically located in northeastern Africa. It was concentrated along the middle to lower reaches of the Nile River reaching its greatest extension during the second millennium BC, which is referred to as the New Kingdom period. It reached broadly from the Nile Delta in the north, as far south as Jebel Barkal at the Fourth Cataract of the Nile. Extensions to the geographical range of ancient Egyptian civilization included, at different times, areas of the southern Levant, the Eastern Desert and the Red Sea coastline, the Sinai Peninsulaand the Western Desert (focused on the several oases). Ancient Egypt developed over at least three and a half millennia. It began with the incipient unification of Nile Valley polities around 3500 BC and is conventionally thought to have ended in 30 BC when the early Roman Empire conquered and absorbed Ptolemaic Egypt as a province. (Though this last did not represent the first period of foreign domination, the Roman period was to witness a marked, if gradual transformation in the political and religious life of the Nile Valley, effectively marking the termination of independent civilizational development).

The civilization of ancient Egypt was based on a finely balanced control of natural and human resources, characterised primarily by controlled irrigation of the fertile Nile Valley; the mineral exploitation of the valley and surrounding desert regions; the early development of an independent writing system and literature; the organisation of collective projects; trade with surrounding regions in east/central Africa and the eastern Mediterranean; finally, military ventures that exhibited strong characteristics of imperial hegemony and territorial domination of neighbouring cultures at different periods. Motivating and organizing these activities were a socio-political and economic elite that achieved social consensus by means of an elaborate system of religious belief under the figure of a (semi)-divine ruler (usually male) from a succession of ruling dynasties and which related to the larger world by means of polytheistic beliefs.

NUBIA

Kushite state was formed before a period of Egyptian incursion into the area. The Kushite civilization has also been referred to as Nubia. The first cultures arose in Sudan before the time of a unified Egypt, and the most widespread is known as

the Kerma civilization. It is through Egyptian, Hebrew, Roman and Greek records that most of our knowledge of Kush (Cush) comes. It is also referred to as Ethiopia in ancient Greek and Roman records. According to Josephus and other classical writers, the Kushite Empire covered all of Africa, and some parts of Asia and Europe at one time or another. The Kushites are also famous for having buried their monarchs along with all their courtiers in mass graves. The Kushites also built burial mounds and pyramids, and shared some of the same gods worshipped in Egypt, especially Amon and Isis.

AXUM

The Axumite Empire was an important trading nation in northeastern Africa, growing from the proto-Aksumite period c. 4th century BC to achieve prominence by the 1st century AD. Its ancient capital is found in northern Ethiopia, the Kingdom used the name "Ethiopia" as early as the 4th century. Aksum is mentioned in the 1st century AD *Periplus of the Erythraean Sea* as an important market place for ivory, which was exported throughout the ancient world, and states that the ruler of Aksum in the 1st century AD was Zoscales, who, besides ruling in Aksum also controlled two harbours on the Red Sea: Adulis (near Massawa) and Avalites (Assab). He is also said to have been familiar with Greek literature. It is also the alleged resting place of the Ark of the Covenant and the home of the Queen of Sheba. Aksum was also the first major empire to convert to Christianity.

LAND OF PUNT

The Land of Punt, also called Pwenet, or Pwene by the ancient Egyptians, was a trading partner known for producing and exporting gold, aromatic resins, African blackwood, ebony, ivory, slaves and wild animals. Information about Punt has been found in ancient Egyptian records of trade missions to this region. The exact location of Punt remains a mystery. The mainstream view is that Punt was located to the south-east of Egypt, most likely on the coast of the Horn of Africa. The earliest recorded Egyptian expedition to Punt was organized by Pharaoh Sahure of the Fifth Dynasty (25th century BC) although gold from Punt is recorded as having been in Egypt in the time of king Khufu of the Fourth Dynasty of Egypt. Subsequently, there were more expeditions to Punt in the Sixth Dynasty of Egypt, the Eleventh dynasty of Egypt, the Twelfth dynasty of Egypt and the Eighteenth dynasty of Egypt. In the Twelfth dynasty of Egypt, trade with Punt was celebrated in popular literature in "Tale of the Shipwrecked Sailor".

NOK CULTURE

The Nok culture appeared in Nigeria around 1000 BC and mysteriously vanished around 200 AD. The civilization's social system is thought to have been highly

advanced. The Nok civilization was considered to be the earliest sub-Saharan producer of life-sized Terracotta which have been discovered by archaeologists. A Nok sculpture resident at the Minneapolis Institute of Arts, portrays a sitting dignitary wearing a "Shepherds Crook" on the right arm, and a "hinged flail" on the left. These are symbols of authority associated with ancient Egyptian pharaohs, and the god Osiris, which suggests that an ancient Egyptian style of social structure, and perhaps religion, existed in the area of modern Nigeria during the late Pharonic period. (Informational excerpt copied from Nigeria and Nok culture articles)

CARTHAGE

Carthage was founded in 814 BC by Phoenician settlers from the city of Tyre, bringing with them the city-god Melqart. Ancient Carthage was an informal hegemony of Phoenician city-statesthroughout North Africa and modern Spain from 575 BC until 146 BC. It was more or less under the control of the city-state of Carthage after the fall of Tyre to Babylonian forces. At the height of the city's influence, its empire included most of the western Mediterranean. The empire was in a constant state of struggle with the Roman Republic, which led to a series of conflicts known as thePunic Wars. After the third and final Punic War, Carthage was destroyed then occupied by Roman forces. Nearly all of the territory held by Carthage fell into Roman hands.

SOUTH ASIA

The earliest evidence of human civilization in South Asia is from the Mehrgarh region (7000 BC to 3200 BC) of Pakistan. Located near the Bolan Pass, to the west of the Indus River valley and between the present-day Pakistani cities of Quetta, Kalat and Sibi, Mehrgarh was discovered in 1974 by an archaeological team directed by French archaeologist Jean-François Jarrige, and was excavated continuously between 1974 and 1986.

The earliest settlement at Mehrgarh—in the northeast corner of the 495 acres (2.00 km^2) site—was a small farming village dated between 7000 BC–5500 BC. Early Mehrgarh residents lived in mud brick houses, stored their grain in granaries, fashioned tools with local copper ore, and lined their large basket containers with bitumen. They cultivated six-row barley, einkorn and emmer wheat, jujubes and dates, and herded sheep, goats and cattle. Residents of the later period (5500 BC to 2600 BC) put much effort into crafts, including flint knapping, tanning, bead production, and metal working. The site was occupied continuously until about 2600 BC.

In April 2006, it was announced in the scientific journal Nature that the oldest evidence in human history for the drilling of teeth in vivo (*i.e.,* in a living person)

was found in Mehrgarh. Mehrgarh is sometimes cited as the earliest known farming settlement in South Asia, based on archaeological excavations from 1974 (Jarrige et al.).

The earliest evidence of settlement dates from 7000 BC. It is also cited for the earliest evidence of pottery in South Asia. Archaeologists divide the occupation at the site into several periods. Mehrgarh is now seen as a precursor to the Indus Valley Civilization.

INDUS VALLEY CIVILIZATION

The Indus Valley Civilization (c. 3300–1700 BC, flourished 2600–1900 BC), abbreviated IVC, was an ancient civilization that flourished in the Indus and Ghaggar-Hakra river valleys primarily in what is now Pakistan, although scattered settlements linked to this ancient civilization have been found in eastern Afghanistan, Bahrain, eastern Iran, western India and Turkmenistan. Another name for this civilization is the Harappan Civilization, after the first of its cities to be excavated, Harappa in the Pakistani province of Punjab. The IVC might have been known to the Sumerians as the Meluhha, and other trade contacts may have included Egypt, Africa, however the modern world discovered it only in the 1920s as a result of archaeological excavations and rail road building. Prominent historians of Ancient India would include Ram Sharan Sharma and Romila Thapar.

MAHAJANAPADAS

The births of Mahavira and Buddha in the 6th century BC mark the beginning of well-recorded history in the region. Around the 5th century BC, the ancient region of Pakistan was invaded by theAchaemenid Empire under Darius in 522 BC forming the easternmost satraps of the Persian Empire. The provinces of Sindh and Panjab were said to be the richest *satraps* of the Persian Empire and contributed many soldiers to various Persian expeditions. It is known that a *Indian* contingent fought in Xerxes' army on his expedition to Greece. Herodotus mentions that the Indus satrapy supplied cavalry and chariots to the Persian army. He also mentions that the Indus people were clad in armaments made of cotton, carried bows and arrows of cane covered with iron. Herodotus states that in 517 BC Darius sent an expedition under Scylax to explore the Indus. Under Persian rule, much irrigation and commerce flourished within the vast territory of the empire. The Persian empire was followed by the invasion of the Greeks under Alexander's army. Since Alexander was determined to reach the eastern-most limits of the Persian Empire he could not resist the temptation to conquer Pakistan, which at this time was parcelled out into small chieftain- ships, who were feudatories of the Persian Empire. Alexander amalgamated the region into the expanding Hellenic empire. The *Rigveda*, in Sanskrit, goes back to about 1500

BC. The Indian literary tradition has an oral history reaching down into the Vedic period of the later 2nd millennium BC.

Ancient India is usually taken to refer to the "golden age" of classical Hindu culture, as reflected in Sanskrit literature, beginning around 500 BC with the sixteen monarchies and 'republics' known as the Mahajanapadas, stretched across the Indo-Gangetic plains from modern-day Afghanistan to Bangladesh. The largest of these nations were Magadha, Kosala, Kuru and Gandhara. Notably, the great epics of Ramayana and Mahabharata are rooted in this classical period.

Amongst the sixteen Mahajanapadas, the kingdom of Magadha rose to prominence under a number of dynasties that peaked in power under the reign of Ashoka Maurya, one of India's most legendary and famous emperors. During the reign of Asoka, the four dynasties of Chola, Chera, and Pandyawere ruling in the South, while the King Devanampiya Tissa was controlling the Anuradhapura Kingdom (now Sri Lanka). These kingdoms, while not part of Asoka's empire, were in friendly terms with the Maurya Empire. There was a strong alliance existed between Devanampiya Tissa (250–210 BC) and Ashoka of India, who sent Arahat Mahinda, four monks, and a novice being sent to Sri Lanka. They encountered Devanampiya Tissa at Mihintale. After this meeting, Devanampiya Tissa embraced Buddhism the order of monks was established in the country. Devanampiya Tissa, guided by Arahat Mahinda, took steps to firmly establish Buddhism in the country.

The Satavahanas started out as feudatories to the Mauryan Empire, and declared independence soon after the death of Ashoka (232 BC). Other notable ancient South Indian dynasties include the Kadambas of Banavasi, western Ganga dynasty, Badami Chalukyas, Western Chalukyas, Hoysalas, Kakatiya dynasty, Pallavas, Rashtrakutas of Manyaketha and Satavahanas.

MIDDLE KINGDOMS

The period between AD 320–550 is known as the Classical Age, when most of North India was reunited under the Gupta Empire (ca. AD 320–550). This was a period of relative peace, law and order, and extensive achievements in religion, education, mathematics, arts, Sanskrit literature and drama. Grammar, composition, logic, metaphysics, mathematics, medicine, and astronomy became increasingly specialized and reached an advanced level. The Gupta Empire was weakened and ultimately ruined by the raids of Hunas (a branch of the Hephthalites emanating from Central Asia). Under Harsha (r. 606–47), North India was reunited briefly.

The educated speech at that time was Sanskrit, while the dialects of the general population of northern India were referred to as Prakrits. The South Indian Malabar Coast and the Tamil people of the Sangam age traded with the Graeco-Roman world. They were in contact with the Phoenicians, Romans, Greeks, Arabs, Syrians,

Jews, and the Chinese. The regions of South Asia, primarily present-day Pakistan and India, were estimated to have had the largest economy of the world between the 1st and 15th centuries AD, controlling between one third and one quarter of the world's wealth up to the time of the Mughals, from whence it rapidly declined during British rule.

EAST ASIA

CHINA: ANCIENT ERA

Written records of China's past dates from the Shang Dynasty in perhaps the 13th century BC, and takes the form of inscriptions of divination records on the bones or shells of animals—the so-called *oracle bones*. Archaeological findings providing evidence for the existence of the Shang Dynasty, c. 1600–1046 BC is divided into two sets. The first, from the earlier Shang period (c. 1600–1300) comes from sources at Erligang, Zhengzhou and Shangcheng. The second set, from the later Shang or Yin period, consists of a large body of oracle bone writings. Anyang in modern day Henan has been confirmed as the last of the nine capitals of the Shang (c. 1300–1046 BC).

By the end of the 2nd millennium BC, the Zhou Dynasty began to emerge in the Yellow River valley, overrunning the Shang. The Zhou appeared to have begun their rule under a semi-feudal system. The ruler of the Zhou, King Wu, with the assistance of his brother, the Duke of Zhou, as regent managed to defeat the Shang at the Battle of Muye. The king of Zhou at this time invoked the concept of the Mandate of Heaven to legitimize his rule, a concept that would be influential for almost every successive dynasty. The Zhou initially moved their capital west to an area near modern Xi'an, near the Yellow River, but they would preside over a series of expansions into the Yangtze River valley. This would be the first of many population migrations from north to south in Chinese history.

SPRING AND AUTUMN

In the 8th century BC, power became decentralized during the Spring and Autumn Period, named after the influential Spring and Autumn Annals. In this period, local military leaders used by the Zhou began to assert their power and vie for hegemony. The situation was aggravated by the invasion of other peoples from the northwest, such as the Quanrong, forcing the Zhou to move their capital east to Luoyang. This marks the second large phase of the Zhou dynasty: the Eastern Zhou. In each of the hundreds of states that eventually arose, local strongmen held most of the political power and continued their subservience to the Zhou kings in name only. Local leaders for instance started using royal titles for themselves. The Hundred Schools

of Thought of Chinese philosophy blossomed during this period, and such influential intellectual movements as Confucianism, Taoism, Legalism and Mohism were founded, partly in response to the changing political world. The Spring and Autumn Period is marked by a falling apart of the central Zhou power. China now consists of hundreds of states, some only as large as a village with a fort.

WARRING STATES

After further political consolidation, seven prominent states remained by the end of 5th century BC, and the years in which these few states battled each other is known as the Warring States Period. Though there remained a nominal Zhou king until 256 BC, he was largely a figurehead and held little power. As neighbouring territories of these warring states, including areas of modern Sichuan and Liaoning, were annexed, they were governed under the new local administrative system of commandery and prefecture. This system had been in use since the Spring and Autumn Period and parts can still be seen in the modern system of Sheng and Xian. The final expansion in this period began during the reign of Ying Zheng, the king of Qin. His unification of the other six powers, and further annexations in the modern regions of Zhejiang, Fujian, Guangdong and Guangxi in 214 BC enabled him to proclaim himself the First Emperor.

JAPAN

Japan first appeared in written records in AD 57 with the following mention in China's *Book of the Later Han*: "Across the ocean from Luoyang are the people of Wa. Formed from more than one hundred tribes, they come and pay tribute frequently." The *Book of Wei*, written in the 3rd century, noted the country was the unification of some 30 small tribes or states and ruled by ashaman queen named Himiko of Yamataikoku.

During the Han Dynasty and Wei Dynasty, Chinese travelers to Kyûshû recorded its inhabitants and claimed that they were the descendants of the Grand Count of the Wu. The inhabitants also show traits of the pre-sinicized Wu people with tattooing, teeth-pulling and baby-carrying. The *Book of Wei* records the physical descriptions which are similar to ones on *Haniwa* statues, such men with braided hair, tattooing and women wearing large, single-piece clothing.

KOREA

According to the Samguk Yusa and other Korean medieval-era Folklore collection, Gojoseon was the first Korean kingdom. Gojoseon was founded in 2333 BC by the legendary ruler Dangun, said to be descended from the Lord of Heaven. Then, Korea was governed for Jizi and the 40th generation descendant. According

to Records of the Grand Historian, Korea was founded by Wiman from China in 197 BC. In 105 BC, Han Dynasty China ruined Korea and ruled for about 400 years.

The Three Kingdoms (Baekje, Goguryeo, and Silla) conquered other successor states of Gojoseon and came to dominate the peninsula and much of Manchuria. The three kingdoms competed with each other both economically and militarily; Goguryeo and Baekje were the more powerful states for much of the three kingdoms era. At times more powerful than the neighbouring Sui Dynasty, Goguryeo was a regional power that defeated massive Chinese invasions multiple times. As one of the Three Kingdoms of Korea, Silla gradually extended across Korea and eventually became the first state since Gojoseon to cover most of Korean peninsula in 676. In 698, former Goguryeo general Dae Jo-yeong founded Balhae as the successor to Goguryeo.

Unified Silla itself fell apart in the late 9th century, giving way to the tumultuous Later Three Kingdoms period (892-936), which ended with the establishment of the Goryeo Dynasty. After the fall of Balhae in 926 to the Khitan, much of its people were absorbed into Goryeo Dynasty.

VIETNAM

Around 3000 BC, the 15 different Viet ethnic tribes lived together in many areas with other inhabitants. Due to increasing needs to control floods, fights against invaders, and culture and trade exchanges, these tribes living near each other tended to gather together and integrate into a larger mixed group. Among these Lac Viet tribes was the Van Lang, which was the most powerful tribe. The leader of this tribe later joined all the tribes together to found the HÓng Bàng Dynasty in 2897 BC. He became the first in a line of earliest Vietnamese kings, collectively known as the Hùng kings (Hùng Výõng). The Hùng kings called the country, which was then located on the Red River delta in present-day northern Vietnam, Vãn Lang. The people of Vãn Lang were referred to as the L¡c ViÇt. The next generations followed in their father's footsteps and kept this appellation. Based on historical documents, researchers correlatively delineated the location of Vãn Lang Nation to the present day regions of North and north of Central Vietnam, as well as the south of present-day Kwangsi (China).

The Đông Sõn culture was a prehistoric Bronze Age culture that was centred at the Red River Valley of northern Vietnam. Its influence flourished to other parts of Southeast Asia, including the Indo-Malayan Archipelago from about 2000 BC to 200 AD. The theory based on the assumption that bronze casting in eastern Asia originated in northern China; however, this idea has been discredited by archaeological discoveries in northeastern Thailand in the 1970s. In the words of

one scholar, "Bronze casting began in Southeast Asia and was later borrowed by the Chinese, not vice versa as the Chinese scholars have always claimed. Evidence of early kingdoms of Vietnam other than the Đông Sõn culture in Northern Vietnam was found in CÕ Loa, the ancient city situated near present-day Hà NÙi.

MONGOLS

North-western Mongolia was Turkic while southwestern Mongolia had come under Indo-European (Tocharian and Scythian) influence. In antiquity, the eastern portions of both Inner and OuterMongolia were inhabited by Mongolic peoples descended from the Donghu people, including the Xianbei, Wuhuan, Rouran, Tuoba, Murong, Shiwei, Kumo Xi and Khitan. These were Tengriisthorse-riding pastoralist kingdoms that had close contact with the Chinese. The Donghu are first mentioned by Sima Qian as already existing in Inner Mongolia north of the state of Yan in 699-632 BC. The Mongolic-speaking Xianbei (208 BC-234 AD) originally formed a part of the Donghu confederation, but existed even before that time, as evidenced by a mention in the Guoyu section which states that during the reign of King Cheng of Zhou (reigned 1042-1021 BC) the Xianbei came to participate at a meeting of Zhou subject-lords at Qiyang (now Qishan County) but were only allowed to perform the fire ceremony under the supervision of Chu (Zi), since they were not vassals by covenant. As a nomadic confedation composed of the Xianbei and Wuhuan, the Donghu were prosperous in the 4th century BC, forcing surrounding tribes to pay tribute and constantly harassing the State of Zhao (325 BC, during the early years of the reign of Wuling) and the State of Yan (in 304 BC General Qin Kai was given as a hostage to the Donghu).

In 208 BC Xiongnu emperor Modu Chanyu, in his first major military campaign, defeated the formerly superior Donghu, who split into the Xianbei and Wuhuan. The Xianbei fled east all the way to Liaodong. In 49 AD the Xianbei ruler Bianhe attacked the Xiongnu and killed 2000 people after having received generous gifts from Emperor Guangwu of Han. In 54 AD the Xianbei rulers Yuchoupen and Mantu presented themselves to the Han emperor and received the titles of wang and gou. Until 93 AD the Xianbei were quietly protecting the Chinese border from Wuhuan and Xiongnu attacks and received ample rewards. From 93 AD the Xianbei began to occupy the lands of the Xiongnu. 100,000 Xiongnu families changed their name to Xianbei. In 97 AD Feijuxian in Liaodong was attacked by the Xianbei, and the governor Qi Sen was dismissed for inaction. Other Xianbei rulers who were active before the rise of the Xianbei emperor Tanshihuai (141-181) were Yanzhiyang, Lianxu and Cizhiqian. The Xianbei gave rise to different Mongolic branches, for example the Rouran (330-555), Khitan (388-1218) and Shiwei (444-present day). The Khitans developed the Khitan scripts in 920-925 CE. The Rouran king Shelun was the first major leader of the

steppes to adopt (in 402 CE) the title of Khagan (ïSWl) or Qiudoufa Khan (which was originally a title used by Xianbei nobles). The Mongols of Genghis Khan were the Menggu sub-tribe of the Shiwei Xianbei. The first surviving Mongolian text is the Stele of Yisüngge, a report on sports in Mongolian script on stone, that is most often dated at the verge of 1224 and 1225. Other early sources are written in Mongolian, Phagspa (decrets), Chinese (the Secret history), Arabic (dictionaries) and a few other western scripts.

HUNS

The Huns left practically no written records. There is no record of what happened between the time they left Mongolian Plateau and arrived in Europe 150 years later. The last mention of the northern Xiongnu was their defeat by the Chinese in 151 at the lake of Barkol, after which they fled to the western steppe at Kangju (centred on the city of Turkistan in Kazakhstan). Chinese records between the 3rd and 4th century suggest that a small tribe called Yueban, remnants of northern Xiongnu, was distributed about the steppe of Kazakhstan.

AMERICAS

In pre-Columbian times, several large, centralized ancient civilizations developed in the Western Hemisphere, both in Mesoamerica and western South America.

ANDEAN CIVILIZATIONS

Central Andes in South America has the largest ancient civilization register, spanning for 4,500 years from Norte chico to the latest Inca empire.

MESOAMERICA

Mesoamerican ancient civilizations included the Olmecs and Mayans. Between 1800 and 300 BC, complex cultures began to form and many matured into advanced Mesoamerican civilizations such as the: Olmec, Izapa, Teotihuacan, Maya, Zapotec, Mixtec, Huastec, Tarascan, "Toltec" and Aztec, which flourished for nearly 4,000 years before the first contact with Europeans. These civilizations' progress included pyramid-temples, mathematics, astronomy, medicine, and theology.

The Zapotec emerged around 1500 years BC. They left behind the great city Monte Alban. Their writing system had been thought to have influenced the Olmecs but, with recent evidence, the Olmec may have been the first civilization in the area to develop a true writing system independently. At the present time, there is some debate as to whether or not Olmec symbols, dated to 650 BC, are actually a form of writing preceding the oldest Zapotec writing dated to about 500 BC. Olmec symbols found in 2002 and 2006 date to 650 BC and 900 BC respectively, preceding

the oldest Zapotec writing. The earliest Mayan inscriptions found which are identifiably Maya date to the 3rd century BC in San Bartolo, Guatemala.

EUROPE

ETRURIA

The history of the Etruscans can be traced relatively accurately, based on the examination of burial sites, artifacts, and writing. Etruscans culture that is identifiably and certainly Etruscan developed in Italy in earnest by 800 BC approximately over the range of the preceding Iron Age Villanovan culture. The latter gave way in the 7th century to a culture that was influenced by Greek traders and Greek neighbours in Magna Graecia, the Hellenic civilization of southern Italy.

From the descendants of the Villanovan people in Etruria in central Italy, a separate Etruscan culture emerged in the beginning of the 7th century BC, evidenced by around 7,000 inscriptions in an alphabet similar to that of Euboean Greek, in the non-Indo-European Etruscan language. The burial tombs, some of which had been fabulously decorated, promotes the idea of an aristocratic city-state, with centralized power structures maintaining order and constructing public works, such as irrigation networks, roads, and town defences.

GREECE

Ancient Greece is the period in Greek history lasting for close to a millennium, until the rise of Christianity. It is considered by most historians to be the foundational culture of Western Civilization. Greek culture was a powerful influence in the Roman Empire, which carried a version of it to many parts of Europe.

The civilization of the ancient Greeks has been immensely influential on the language, politics, educational systems, philosophy, science, art, and architecture of the modern world, fuelling the Renaissance in Europe and again resurgent during various neo-Classical revivals in 18th and 19th century Europe and The Americas.

Ancient Greece was the Greek-speaking world in ancient times. It includes not only to the geographical peninsula of modern Greece, but also to areas of Hellenic culture that were settled in ancient times by Greeks: Cyprus and the Aegean islands, the Aegean coast of Anatolia (then known as Ionia), Sicily and southern Italy (known as Magna Graecia), and the scattered Greek settlements on the coasts of Colchis, Illyria, Thrace, Egypt, Cyrenaica, southern Gaul, east and northeast of the Iberian peninsula, Iberia, Taurica and further to the east in exotic Asian cities such as Taxila, Sagala and Jhelum in modern day Pakistan.

During its twelve-century existence, the Roman civilization shifted from a monarchy to an oligarchic republic to a vast empire. It came to dominate Europe and the entire area surrounding the Mediterranean Sea through conquest and assimilation. However, a number of factors led to the eventual decline of the Roman Empire. The western half of the empire, including Hispania, Gaul, and Italy, eventually broke into independent kingdoms in the 5th century; the Eastern Roman Empire, governed from Constantinople, is referred to as the Byzantine Empire after AD 476, the traditional date for the "fall of Rome" and subsequent onset of the Middle Ages.

ROME

Ancient Rome was a civilization that grew out of the city-state of Rome, originating as a small agricultural community founded on the Italian Peninsula in the 9th century BC. In its twelve centuries of existence, Roman civilization shifted from a monarchy to an oligarchic republic to an increasingly autocratic empire.

Roman civilization is often grouped into "classical antiquity" with ancient Greece, a civilization that inspired much of the culture of ancient Rome. Ancient Rome contributed greatly to the development of law, war, art, literature, architecture, and language in the Western world, and its history continues to have a major influence on the world today. The Roman civilization came to dominate Europe and the Mediterranean region through conquest and assimilation.

Throughout the territory under the control of ancient Rome, residential architecture ranged from very modest houses to country villas. A number of Roman founded cities had monumental structures. Many contained fountains with fresh drinking-water supplied by hundreds of miles of aqueducts, theatres, gymnasiums, bath complexes sometime with libraries and shops, marketplaces, and occasionally functional sewers.

LATE ANTIQUITY

The Roman Empire underwent considerable social, cultural and organizational change starting with reign of Diocletian, who began the custom of splitting the Empire into Eastern and Westernhalves ruled by multiple emperors. Beginning with Constantine the Great the Empire was Christianized, and a new capital founded at Constantinople. Migrations of Germanic tribes disrupted Roman rule from the late 4th century onwards, culminating in the eventual collapse of the Empire in the West in 476, replaced by the so-called barbarian kingdoms. The resultant cultural fusion of Greco-Roman, Germanic and Christian traditions formed the cultural foundations of Europe.

GERMANIC TRIBES

Migration of Germanic peoples to Britain from what is now northern Germany and southern Scandinavia is attested from the 5th century (*e.g.,* Undley bracteate). Based on Bede's *Historia ecclesiastica gentis Anglorum*, the intruding population is traditionally divided into Angles, Saxons, and Jutes, but their composition was likely less clear-cut and may also have included ancient Frisians and Franks. The *Anglo-Saxon Chronicle* contains text that may be the first recorded indications of the movement of these Germanic Tribes to Britain. The Angles and Saxons and Jutes were noted to be a confederationin the Greek Geographia written by Ptolemy in around AD 150.

The Anglo-Saxon is the term usually used to describe the peoples living in the south and east of Great Britain from the early 5th century AD.Benedictine monk Bede identified them as the descendants of three Germanic tribes: the Angles, the Saxons, and the Jutes, from the Jutland peninsula and Lower Saxony (German: Niedersachsen, Germany). The Angles may have come from Angeln, and Bede wrote their nation came to Britain, leaving their land empty. They spoke closely related Germanic dialects. The Anglo-Saxons knew themselves as the "Englisc," from which the word "English" derives.

The Celts were a diverse group of tribal societies in Iron Age Europe. Proto-Celtic culture formed in the Early Iron Age in Central Europe (Hallstatt period, named for the site in present-day Austria). By the later Iron Age (La Tène period), Celts had expanded over wide range of lands: as far west as Ireland and the Iberian Peninsula, as far east as Galatia (central Anatolia), and as far north as Scotland. By the early centuries AD, following the expansion of theRoman Empire and the Great Migrations of Germanic peoples, Celtic culture had become restricted to the British Isles (Insular Celtic), with the Continental Celtic languages extinct by the mid-1st millennium AD.

Viking refers to a member of the Norse (Scandinavian) peoples, famous as explorers, warriors, merchants, and pirates, who raided and colonized wide areas of Europe beginning in the late 8th. These Norsemen used their famed longships to travel. The Viking Age forms a major part of Scandinavian history, with a minor, yet significant part in European history.

DEVELOPMENTS

RELIGION AND PHILOSOPHY

New philosophies and religions arose in both east and west, particularly about the 6th century BC. Over time, a great variety of religions developed around the

world, with some of the earliest major ones being Hinduism, Buddhism, and Jainism in India, and Zoroastrianism in Persia. The Abrahamic religionstrace their origin to Judaism, around 1800 BC.

The ancient Indian philosophy is a fusion of two ancient traditions: Sramana tradition and Vedic tradition. Indian philosophy begins with the *Vedas* where questions related to laws of nature, the origin of the universe and the place of man in it are asked. Jainism and Buddhism are continuation of the Sramana school of thought. The Sramanas cultivated a pessimistic world view of the samsara as full of suffering and advocated renunciation and austerities. They laid stress on philosophical concepts like Ahimsa, Karma, Jnana, Samsara and Moksa. While there are ancient relations between the Indian Vedas and the Iranian Avesta, the two main families of the Indo-Iranian philosophical traditions were characterized by fundamental differences in their implications for the human being's position in society and their view on the role of man in the universe.

In the east, three schools of thought were to dominate Chinese thinking until the modern day. These were Taoism, Legalism and Confucianism. The Confucian tradition, which would attain dominance, looked for political morality not to the force of law but to the power and example of tradition. Confucianism would later spread into the Korean peninsula and Goguryeo and towards Japan.

In the west, the Greek philosophical tradition, represented by Socrates, Plato, and Aristotle, was diffused throughout Europe and the Middle East in the 4th century BC by the conquests of Alexander III of Macedon, more commonly known as Alexander the Great. After the Bronze and Iron Age religions formed, the rise and spread of Christianity through the Roman world marked the end of Hellenistic philosophy and ushered in the beginnings of Medieval philosophy.

SCIENCE AND TECHNOLOGY

In the history of technology and ancient science during the growth of the ancient civilizations, ancient technological advances were produced in engineering. These advances stimulated other societies to adopt new ways of living and governance.

The characteristics of Ancient Egyptian technology are indicated by a set of artifacts and customs that lasted for thousands of years. The Egyptians invented and used many basic machines, such as the ramp and the lever, to aid construction processes. The Egyptians also played an important role in developing Mediterranean maritime technology including ships and lighthouses.

The history of science and technology in India dates back to ancient times. The Indus Valley civilization yields evidence of hydrography, metrology and sewage collection and disposal being practiced by its inhabitants. Among the fields of science and technology pursued in India were Ayurveda, metallurgy, astronomy

and mathematics. Some ancient inventions include plastic surgery, cataract surgery, Hindu-Arabic numeral system and Wootz steel. The history of science and technology in China show significant advances in science, technology, mathematics, and astronomy. The first recorded observations of comets and supernovae were made in China. Traditional Chinese medicine, acupuncture and herbal medicine were also practiced.

Ancient Greek technology developed at an unprecedented speed during the 5th century BC, continuing up to and including the Roman period, and beyond. Inventions that are credited to the ancient Greeks such as the gear, screw, bronze casting techniques, water clock, water organ, torsion catapult and the use of steam to operate some experimental machines and toys. Many of these inventions occurred late in the Greek period, often inspired by the need to improve weapons and tactics in war.

Roman technology is the engineering practice which supported Roman civilization and made the expansion of Roman commerce and Roman military possible over nearly a thousand years. The Roman Empire had the most advanced set of technology of their time, some of which may have been lost during the turbulent eras of Late Antiquity and the Early Middle Ages. Roman technological feats of many different areas, like civil engineering, construction materials, transport technology, and some inventions such as the mechanical reaper went unmatched until the 19th century.

Qanats which likely emerged on the Iranian plateau and possibly also in the Arabian peninsula sometime in the early 1st millennium BC spread from there slowly west- and eastward.

MARITIME ACTIVITY

The history of ancient navigation began in earnest when men took to the sea in planked boats and ships propelled by sails hung on masts, like the Ancient Egyptian Khufu ship from the mid-3rd millennium BC. According to the Greek historian Herodotus, Necho II sent out an expedition of Phoenicians, which in three years sailed from the Red Sea around Africa to the mouth of the Nile. Many current historians tend to believe Herodotus on this point, even though Herodotus himself was in disbelief that the Phoenicians had accomplished the act.

Hannu was an ancient Egyptian explorer (around 2750 BC) and the first explorer of whom there is any knowledge. He made the first recorded exploring expedition, writing his account of his exploration in stone. Hannu travelled along the Red Sea to Punt, and sailed to what is now part of eastern Ethiopia and Somalia. He returned to Egypt with great treasures, including preciousmyrrh, metal and wood.

WARFARE

Ancient warfare is war as conducted from the beginnings of recorded history to the end of the ancient period. In Europe, the end of antiquity is often equated with the fall of Rome in 476. In China, it can also be seen as ending in the 5th century, with the growing role of mounted warriors needed to counter the ever-growing threat from the north.

The difference between prehistoric warfare and ancient warfare is less one of technology than of organization. The development of first city-states, and then empires, allowed warfare to change dramatically. Beginning in Mesopotamia, states produced sufficient agricultural surplus that full-time ruling elites and military commanders could emerge. While the bulk of military forces were still farmers, the society could support having them campaigning rather than working the land for a portion of each year. Thus, organized armies developed for the first time.

These new armies could help states grow in size and became increasingly centralized, and the first empire, that of the Sumerians, formed in Mesopotamia. Early ancient armies continued to primarily use bows and spears, the same weapons that had been developed in prehistoric times for hunting. Early armies in Egypt and China followed a similar pattern of using massed infantry armed with bows and spears.

ARTWORK AND MUSIC

Ancient music is music that developed in literate cultures, replacing prehistoric music. Ancient music refers to the various musical systems that were developed across various geographical regions such as Persia, India, China, Greece, Rome, Egypt and Mesopotamia. Ancient music is designated by the characterization of the basic audible tones and scales. It may have been transmitted through oral or written systems. Arts of the ancient world refers to the many types of art that were in the cultures of ancient societies, such as those of ancient China, Egypt, Greece, India, Persia, Mesopotamia and Rome.

3

Rigvedic Education

THE RIG VEDA AS THE SOURCE OF HINDU CIVILIZATION

The Rig Veda is established as the earliest work not merely of the Hindus, but of all Indo-European languages and humanity. It lays the foundation upon which Hindu Civilization has been building up through the ages. Broadly speaking, it is on a foundation of plain living and high thinking. Life was simple but though high and of farthest reach, wandering through eternity. Some of the prayers of the Rig Veda, like the widely known Gayatri mantram also found in Samaveda and Yajur veda touch the highest point of knowledge and sustain human souls to this day.

The Rig Veda itself exhibits an evolution and the history of the Rigveda is a history of the culture of the age. The Rig veda, in the form in which we have it now, is a compilation out of old material, a collection and selection of 1,017 hymns out of the vast literature of hymns which have been accumulating for a long period.

When the Rigvedic texts was thus fixed and appropriated for purposes of the Samhita, its editors had to think out the principles on which the hymns could be best arranged. These show considerable literary skill, originality of design, and insight into religious needs. First, it represents Rishis were chosen and their works were utilized to constitute six different Mandalas. These Rishis are Gritsamada, Visvamitra, Vamadeva, Atril, Kanva, Bharadvaja, and Vasistha.

When the highest knowledge was thus built up by these Seers and revealed and stored up in the hymns, there were necessarily evolved the methods by which such knowledge could be acquired, conserved, and transmitted to posterity. Thus every

Rishi was a teacher who would start by imparting to his son the texts of the knowledge he had personally acquired and such texts would be the special property of his family. Each such family of Rishis was thus functioning like a Vedic school admitting pupils for instruction in the literature or texts in its possession. The relations between teacher and taught was well established in the Rig Veda. The methods of education naturally varied with the capacity of pupils. Self-realization by means of tapas would be for the few. The Rig Veda shows a lively sense of the immutable laws governing Creation. Its best expression is iii. 56, I, a hymn of Visvamitra. It means that the Vratas or Cosmic Laws which are at the root of creation, operate for all time and regularly, which can never be violated by anyone however clever or wise. There is no one in earth or heaven who by his power or supreme knowledge can set them at naught. "They cannot bend like mountains."

"Then at the beginning, before creation, there was neither Being nor non-Being. There was neither the atmosphere nor the heavens beyond. What did it contain? Where? And under whose direction? Were there waters, and the bottomless deep?" Commenting on these Vedic hymns Count Maurice Maseterlinck in is book The Great Secret (Citadel Pub ASIN: 0806511559) says:

> *"Is it possible to find, in our human annals, words more majestic, more full of solemn anguish, more august in tone, more devout, more terrible? Where, from the depths of an agnosticism, which thousands of years have augmented, can we point to a wider horizon? At the very outset, it surpasses all that has been said, and goes farther than we shall even dare to go. No spectacle could be more absorbing than this struggle of our forefathers of five to ten thousand years ago with the Unknowable, the unknowable nature of the causeless Cause of all Causes. But of this cause, or this God, we should never have known anything, had He remained self-absorbed, had He never manifested Himself." Thus it is, say the Laws of Manu, "that, by an alternation of awakening and repose, the immutable Being causes all this assemblage of creatures, mobile and immobile, eternally to return to life and to die." He exhales Himself, or expels His breath, throughout the Universe, innumerable worlds are born, multiply and evolve. He Himself inhales, drawing His breath, and Matter enters into Spirit, which is but an invisible form of Matter: and the worlds disappear, without perishing, to reintegrate the Eternal cause, and emerge once more upon the awakening of Brahma-that is, thousands of millions of years later; to enter into Him so it has been and ever shall be, through all eternity, without beginning, without cessation, without end."*

"When the world had emerged from the darkness," says the Bhagavata Puranam, "the subtle elementary principle produced the vegetable seed which first of all gave life to the plants. From the plants, life passed into the fantastic creatures

which were born of the slime in the waters; then, through a series of different shapes and animals, it came to Man." They passed in succession by way of the plants, the worms, the insects, the serpents, the tortoises, cattle, and the wild animals-such is the lower stage," says Manu again, who adds, "Creatures acquired the qualities of those that preceded them, so that the farther down its position in the series, the greater its qualities.

"Have we not here the whole of Darwinian evolution confirmed by geology and foreseen at least 6,000 years ago? On the other hand, is this not the theory of Akasa which we more clumsily call the ether, the sole source of all substances, to which our science is returning? Is it true that the recent theories of Einstein deny ether, supposing that radiant energy-visible light, for example-is propagated independently through a space that is an absolute void. But the scientific ether is not precisely the Hindu Akasa which is much more subtle and immaterial being a sort of spiritual element or divine energy, space uncreated, imperishable, and infinite."

WOMEN AS RISHIS

The history of the most of the known civilizations show that the further back we go into antiquity, the more unsatisfactory is found to be the general position of women. Hindu civilization is unique in this respect, for here we find a surprising exception to the general rule. The further back we go, the more satisfactory is found to be the position of women in more spheres than one; and the field of education is most noteworthy among them. There is ample and convincing evidence to show that women were regarded as perfectly eligible for the privilege of studying the Vedic literature and performing the sacrifices enjoined in it down to about 200 B.C. This need not surprise us, for some of the hymns of the Rig Veda are the composition of twenty sage-poetesses.

Women were then admitted to fulfill religious rites and consequently to complete educational facilities. Women-sages were callee Rishikas and Brahmavadinis. The Rig Veda knows of the following Rishikas: 1.Romasa 2.Lopamudra 3.Apala 4. Kadru 5.Visvavara 6. Ghosha 7. Juhu 8. Vagambhrini 9. Paulomi 10 Jarita 11. Sraddha-Kamayani 12. Urvasi 13. Sarnga 14. Yami 15. Indrani 18. Savitri 19. Devajami 20. Nodha 21 Akrishtabhasha 22. Sikatanivavari 23. Gaupayana.

The Brahmavadinis were the products of the educational discipline of brahmacharaya for which women also were eligible. Rig Veda refers to young maidens completing their education as brahmacharinis and then gaining husbands in whom they are merged like rivers in oceans. Yajurveda similarly states that a daughter, who has completed her brahmacharya, should be married to one who is learned like her. A most catholic passage occurs in YajurVeda (xxvi, 2) which enjoins the imparting of Vedic knowledge to all classes, Brahmins and Rajanyas,

Sudras, Anaryas, and charanas (Vaisyas) and women. No one can recite Vedic prayers or offer Vedic sacrifices without having undergone the Vedic initiation (Upanayana).

It is, therefore, but natural that in the early period the Upanayana of girls should have been as common as that of boys. The Arthava Veda (xi. 5.8) expressly refers to maidens undergoing the Brahmacharya discipline and the Sutra works of the 5th century B.C. supply interesting details in its connection. Even Manu includes Upanayana among the sanskaras (rituals) obligatory for girls (II.66). Music and dancing was also taught to them. Brahmavadins used to marry after their education was over, some of them like Vedavati, a daughter of sage Kusadhvaja, would not marry at all.

WOMEN IN EDUCATION

Radha Kumud Mookerji (1884-1964) Indian historian, has noted: "An important feature of this educational system should not be missed. The part taken in intellectual life by women like Gargi who could address a Congress of philosophers on learned topics, or like Maitreyi, who had achieved the highest knowledge, that of Brahma. The Rigveda shows us some women as authors of hymns, such as Visvavara, Ghosha, and Apala."

The Vedic women received a fair share of masculine attention in physical culture and military training. The Rigveda tells us that many women joined the army in those days. A form of chariot race was one of the games most popular during the Vedic period. People were fond of swinging. Ball games were in vogue in those days by both men and women. Apart from this, a number of courtyard games like" Hide and seek" and "Run and catch" were also played by the girls. Playing with dice became a popular activity. The dices were apparently made of Vibhidaka nuts. From the Rigveda, it appears that the Vedic Aryans knew the art of boxing.

EDUCATION IN THE EPICS

Takshashila was a noted centre of learning. The story is told of one of its teachers named Dhaumya who, had three disciples named Upamanyu, Aruni, and Veda.

HERMITAGES

The Mahabharata tells of numerous hermitages where pupils from distant parts gathered for instruction round some far-famed teachers. A full-fledged Asrama is described as consisting of several Departments which are enumerated as following:

1. Agnisthana, the place for fire-worship and prayers

2. Brahma-sthana, the Department of Veda
3. Vishnusthana, the Department for teaching Raja-Niti, Arthaniti, and Vartta
4. Mahendrasthana, Military Section
5. Vivasvata-sthana, Department of Astronomy
6. Somasthana, Department of Botany
7. Garuda-sthana, Section dealing with Transport and Conveyances
8. Kartikeya-sthana, Section teaching military organization, how to form patrols, battalions, and army.

The most important of such hermitage was that of the Naimisha, a forest which was like a university. the presiding personality of the place was Saunaka, to whom was applied the designation of Kulapati, sometimes defined as the preceptor of 10,000 disciples.

The hermitage of Kanva was another famous centre of learning, of which a full description is given. It is situated on the banks of the Malini, a tributary of the Sarayu River. It was not a solitary hermitage, but an assemblage of numerous hermitages round the central hermitage of Rishi Kanva, the presiding spirit of the settlement. There were specialists in every branch of learning cultivated in that age; specialists in each of the four Vedas; in sacrificial literature and art; Kalpa-Sutras; in the Chhanda (Metrics), Sabda (Vyakarana), and Nirukta. There were also Logicians, knowing the principles of Nyaya, and of Dialectics (the art of establishing propositions, solving doubts, and ascertaining conclusions). There were also specialists in the physical sciences and art. There were, for example, experts in the art of constructing sacrificial altars of various dimensions and shapes (on the basis of a knowledge of Solid Geometry); those who had knowledge of the properties of matter (dravyaguna); of physical processes and their results of causes and their effect; and zoologists having a special knowledge of monkeys and birds. It was thus a forest University where the study of every available branch of learning was cultivated.

The hermitage of Vyasa was another seat of learning. There Vyasa taught the Vedas to his disciples. Those disciples were highly blessed Sumantra, vaisampayana, Jamini of great wisdom, and Paila of great ascetic merit." They were afterwards joined by Suka, the famous son of Vyasa.

Among the other hermitages noticed by the Mahabharata may be mentioned those of Vasishtha and Visvamitra and that in the forest of Kamyaka on the banks of the Saraswati. But a hermitage near Kurkshetra deserves special notice for the interesting fact recorded that it produced two noted women hermits. There "leading from youth the vow of brahmacharya, a Brahmin maiden was crowned with ascetic success and ultimately acquiring yogic powers, she became a tapassiddha", while another lady, the daughter not of a Brahmin but a Kshatriya, a child not of poverty

but affluence, the daughter of a king, Sandilya by name, came to live there the life of celibacy and attained spiritual pre-eminence.

PERIOD OF PANINI

When we study how these institutions grew we find that students approached the learned souls for the acquisition of knowledge. Parents, too encouraged it and sent their boys to the institutions. When their number began to increase the institutions formed with these students began to grow gradually. With the lapse of time these institutions turned into Universities and were maintained with the munificent gift of the public and the state. In this way many institutions were formed of which Taxila, Ujjain, Nalanda, Benares, Ballavi, Ajanta, Madura and Vikramsila were very famous. Taxila was famous for medicine and Ujjain for Astronomy. Both were pre-Buddhist. Jibaka the well known medical expert and the state physician of the King of Magadha of the 6th century B.C. and Panini the famous grammarian of the 7th century B.C. and Kautilya, the authority on Arthasastra, of the 4th century B.C. were students of Taxila.

Education as revealed in the grammatical Sutras of Panini, together with the works of Katyayana and Patanjali. The account of education in the Sutra period will not be complete without the consideration of the evidence of the grammatical literature as represented in the works of Panini and his two famous commentators, Katyayana and Patanjali. Panini throws light on the literature of his times. Four classes of literature are distinguished. There is evidence that girls have been admitted in Vedic schools or Charanas. Panini refers to this specially. A Kathi is a female student of Katha school. There are hostels for female students and they are known as Chhatrisala. Each Charana or school has an inner circle of teachers known as Parisad. Their decisions on doubts about the reading and the meaning of Vedic culture are binding. Pratisakyas are said to be the product of such Parisad. The academic year has several terms. Each term is inaugurated by a ceremony called Upakarnmana and ends by the Utsarga ceremony. Holidays (Anadhyayas) are regularly observed on two Astamis (eight day of the moon) two Chaturdasis (fourteenth day of the moon), Amavasya, Purnima and on the last day of each of the four seasons, called Chaturmasi. Besides these Nitya (regular) holidays there are Naimittika (occasional) holidays due to accidental circumstances, eg. storms, thunder, rain, fog, fire, eclipses *, etc.*

BUDDHIST EDUCATION

BUDDHISM AS A PHASE OF HINDUISM

Buddhist education can be rightly regarded as a phase of the ancient Hindu system of education. Buddhism, itself, especially in its original and ancient form,

is, as has been admitted on all hands, rooted deeply in the pre-existing Hindu systems of thought and life.

Max Muller in Chips from a German Workshop (i 434), "To my mind, having approached Buddhism after a study of the ancient religion of India, the religion of the Veda, Buddhism has always seemed to be, to a new religion, but a natural development of the Indian mind in its various manifestations, religious, philosophical, social, and political."

Auguste Barth (1834-1916) in The Religions of India, p. 101 calls Buddhism: "a Hindu phenomenon, a natural product, so to speak, of the age and social circle that witnessed its birth", and "when we attempt to reconstruct its primitive doctrine and early history we come upon something so akin to what we meet in the most ancient Upanishads and in the legends of Hinduism that it is not always easy to determine what features belong peculiarly to it."

T. W. Rhys Davids (1843-1922) in Buddhism p. 34 calls Gautama Buddha "the creature of his times", of whose philosophy it must not be supposed that "it was entirely of his own creation." He wrote: "The fact we should never forget is that Gautama was born and brought up and lived and died a Hindu. On the whole, he was regarded by the Hindus of that time a Hindu. Without the intellectual work of his predecessors, his work, however, original, would have been impossible. He was the greatest and wisest and best of the Hindus and, throughout his career, a characteristic India."

Edward Washburn Hopkins (1857-1932) goes so far as to assert (The Religions of India p. 298) that "the founder of Buddhism did not strike out a new system of morals; he was not a democrat; he did not originate a plot to overthrow the Brahminic priesthood; he did not invent the order of monks." Hermann Oldenberg (1854-1920): "For hundreds of years before Buddha's time, movements were in progress in Indian thought which prepared the way for Buddhism."

THE BUDDHA WAS A PRODUCT OF THE HINDU SYSTEM

The thesis also receives a most conclusive confirmation from the details of the Buddha's own career as preserved in the traditional texts. The details show how largely Buddha was himself the product of the then prevailing Hindu educational systems. We see how in the very first step that he takes towards the Buddhahood, the renunciation of the home and the world, the world of riches to which he is born, he was not at all singular but following the path trodden by all seekers after truth in all ages and ranks of society.

Our ancient literature is full of examples of the spirit of acute, utkata, vairagya under which the rich, the fortunate, and the noble not less than the poor, the destitute

and the lowly, the young with a distaste for life before tasting it as much as the old who have had enough of it, even women and maidens, as eagerly leave their homes and adopt the ascetic life as a positive good as their dear ones entreat them to desist such a step. The Buddha's next step was to place himself under the guidance of two successive gurus.

The first was the Brahmin, Alara Kalama, at Vesali, having a following of 300 disciples who taught him the successive stages of meditation and the doctrine of the Atman, from which the Buddha turns back dissatisfied on the ground that it "does not lead to aversion, absence of passion, cessation, quiescence, knowledge, supreme wisdom and Nirvana, but only as far as the realm of nothingness". Next he attaches himself to the sage of Rajagaha with 700 pupils, Uddaka, the disciple of Rama but "he gained no clear understanding from his treatment of the soul." As Rhys David points out "Gotama, either during this period or before must have gone through a very systematic and continued course of study in all the deepest philosophy of the time."

In the Lalitavistara Sastra, the education of Buddha as a child, aged eight by the Sage Vishvamitra, who says:

Let us turn to Numbers. Count after me
Until you reach lakh (= one hundred thousand):
One, two, three, four, up to ten
Then in tens, up to hundreds and thousands,
After which, the child named the numbers,
Then the decades and the centuries, without stopping.
And once he reached lakh, which he whispered in silence,
Then came koti, nahut, ninnahut, khamba,
viskhamba, abab, attata,
Up to kumud, gundhika, and utpala
Ending with pundarika (leading)
Towards paduma, making it possible to count
Up to the last grain of the finest sand
Heaped up in mountainous heights.

TAKSHASILA/TAXILA-THE MOST ANCIENT UNIVERSITY

Takkasila was the most famous seat of learning of ancient India. Takkasila was also the capital of Gandhara and its history goes back into hoary antiquity. It was founded by Bharata and named after his son Taksha, who was established there as

its ruler. Janamejaya's serpent sacrifice was performed at this very place. As a centre for learning the fame of the city was unrivalled in the 6th century B.C. Its site carries out the idea held by the ancient Hindus of the value of natural beauty in the surroundings of a University. The valley is "a singularly pleasant one, well-watered by a girdle of hills." The Jatakas tell us of how teachers and students lived in the university and the discipline imposed on the latter, sons of Kings and themselves future rulers though they might be! The Jatakas (No. 252) thinks that this discipline was likely "to quell their pride and haughtiness".

It attracted scholars from different and distant parts of India. Numerous references in the Jatakas show how thither flocked students from far off Benares, Rajagaha, Mithila, Ujjain, from the Central region, Kosala, and Kuru kingdoms in the North country. The fame of Takkasila as a seat of learning was of course due to that of its teachers. They are always spoken of as being "world renowned" being "authorities", specialists, and experts in the subject they professed. Of one such teacher we read: "Youths of the warrior and brahmin castes came from all India to be taught the art by him" Sending their sons a thousand miles away from home bespeaks the great concern felt by their parents in their proper education.

As shown in the case of the medical student, Jivaka, the course of study at Takila extended to as many as seven years. Jataka No. 252 records how parents felt if they could see their sons return home after graduation at Taxila. One of the archery schools at Taxila had on its roll call, 103 princes from different parts of the country. King Prasenajit of Kosala, a contemporary of the Buddha, was educated in the Gandhara capital. Prince Jivaka, an illegitimate son of Bimbusara, spent seven years at Taxila in learning medicine and surgery.

Takshasila a Centre for Higher Education: The students are always spoken of as going to Takshasila to "complete their education and not to begin it." They are invariably sent at the age of sixteen or when they "come of age".

DIFFERENT COURSES OF STUDY

The Jatakas contain 105 references to Takshasila. "The fame of Takshasila as a seat of learning was, of course, due to that of its teachers. They are always spoken of as being 'world-renowned,' being authorities, specialists and experts in the subjects they professed. It was the presence of scholars of such acknowledged excellence and widespread reputation that caused a steady movement of qualified students from all classes and ranks of society towards Takshasila from different and distant parts of the Indian continent, making it the intellectual capital of India of those days.

Thus various centres of learning in the different parts of the country became affiliated, as it were, to the educational centre or to the central University of

Takshasila, which exercised a kind of intellectual suzerainty over the world of letters in India." Takshashila was destroyed by the Huns in 455 A.D.

The Jatakas constantly refer to students coming to Takkasila to complete their education in the three Vedas and the eighteen Sippas or Arts. Sometimes the students are referred to as selecting the study of the Vedas alone or the Arts alone. The Boddisatta (Buddha) is frequently referred to as having learned the three Vedas by heart. Takshila was famous for military training, wrestling, archery and mountain-climbing.

Science, Arts and Crafts: The Jatakas mention of subjects under scientific and technical education. Medicine included a first hand study of the plants to find out the medicinal ones. Takkasila was also famous for some of its special schools. One of such schools was the Medical Schools which must have been the best of its kind in India. It was also noted for its School of Law which attracted student from distant Ujjeni. Its Military School were not less famous, which offered training in Archery. Thus the teachers of Takkasila were as famous for their knowledge of the arts of peace as for that of war. Much attention was paid to the development of social and cultural activities in all possible ways. Dancing and dramatic groups, singers and musicians and other artists were given encouragement and offered employment. During the Sangam epoch in South India, the three principal arts, Music, Dance and Drama were practiced intensively and extensively throughout the country, and the epic of Silappadikaram contains many references to the practice of these arts.

Next, to Takkasila ranks Benares as a seat of learning. It was, however, largely the creation of the ex-students of Takkasila who set up as teachers at Benares, and carried thither the culture of that cosmopolitan educational centre which was molding the intellectual life of the whole of India. There were again certain subjects in the teaching of which Benares seems to have specialized. There is an expert who was "the chief of his kind in all India."

HERMITAGES AS CENTRES OF HIGHEST LEARNING

Lastly, it is to be noted that the educational system of the times produced men of affairs as well as men who renounced the world in the pursuit of Truth. The life of renunciation indeed claimed many an ex-student of both Takksila and Benares. In the sylvan and solitary retreats away from the haunts of men, the hermitages served as schools of higher philosophical speculation and religious training where the culture previously acquired would attain its fruitage.

There are accounts of education written by eye witness who were foreigners, like the pilgrims from China who regarded India, as its Holy Land. The very fact of the pilgrimage of Chinese scholars like Fa-Hien or Hiuen Tsang to India testifies to

the tribute paid by China to the sovereignty of Indian thought and culture which made its influence felt beyond the bounds of India itself in distant countries which might well be regarded as then constituting a sort of a Greater India.

The duration of Fa-Hien's travel in India was for fifteen years. "After Fa-Hien set out from Ch'ang-gan it took him six years to reach Central India; and on his return took him three years to reach Ts'ing-chow. A profound and abiding regard for the learning and culture of India was needed to feed and sustain such a long continued movement. Indeed, the enthusiasm for Indian wisdom was so intense, the passion for a direct contact with its seats was so strong, that it defied the physical dangers and difficulties which lay so amply in the way of its realization. Besides, Chinese scholars, I-tsing refers to "the Mongolians of the North" sending students to India.

The teachers themselves were most exemplary. Hiuen Tsang says of the Brahmins: "The teachers (of the Vedas) must themselves have closely studied the deep and secret principles they contain, and penetrated to their remotest meaning. They then explain their general sense, and guide their pupils in understanding the words which are difficult.

They urge them on and skillfully conduct them. They add luster to their poor knowledge and stimulate the desponding." Studies were pursued unremittingly, and Hiuen Tsang says: "The day is not sufficient for asking and answering profound questions. From morning till night they engage in discussion; the old and the young mutually help one another."

Attached to the university was a kind of post-graduate department, a group of learned Brahmins known collectively as a parishad. A parishad seems usually to have consisted of ten men; four 'walking encyclopedias' each of whom had learnt all the four Vedas by heart, three who had specialized in one of the Sutras, and representative of the three orders of brahmachari grihastha and vanaprastha-student, householder and hermit.

The parishad gave decisions on disputed points of religion of learning. I-Tsing reports that at the end of their course of studies, 'to try the sharpness of their wit' some men 'proceed to the king's court to lay down before it the sharp weapon of their abilities: there they present their schemes and show their talent, seeking to be appointed in the practical government..."

It is interesting to note that the study of Sanskrit was continued in Buddhist monasteries. At the Pataliputra monastery Fa-Hien stayed for three years "learning Sanskrit books and the Sanskrit speech and writing out the Vinaya rules." Archery is found mentioned in the Jataka stories. The Bhimsena Jataka tells that Boddhisatva learnt archery at Takshila. Wrestling was popular and descriptions of such breath-holding bouts in wrestling are available in the Jataka stories. Two kinds of games

called Udyana Krida or garden games and Salila Krida or water sports are also mentioned. Archery was also popular among the women during this period, as can be seen from the Ahicchatra images. Hunting, elephant fighting, Ram fighting, and Partridge fighting were the other important games of this period.

Takshashila, the most ancient Hindu University, was destroyed by the barbarian White Huns in 455 A.D. Sir John Marshall, Director General of Archaeology in India, has given a most interesting account, but he says regretfully,

"The monuments of Taxila were wantonly and ruthlessly devastated in the course of the same (fifth) century. This work of destruction is almost certainly to be attributed to the hordes of barbarian white Huns, who after the year 455 A.D. swept down into India in ever increasing numbers carrying sword and fire wherever they went, and not only possessed themselves of the kingdom of the Kinshans, but eventually overthrew the great empire of the Guptas. From this calamity Taxila never again recovered."

UNIVERSITIES OF ANCIENT INDIA

1. *Takkasila:* Takkasila also known as Taxila-for information on this university, please refer to the above passages.
2. *Mithila:* Mithila, was a stronghold of Brahminical culture at its best in the time of the Upanishads, under its famous Philosopher-king Janaka who used to send our periodical invitations to learned Brahmins of the Kuru-Panchala country to gather to his court for purpose of philosophical discussions. Under him Eastern India was vying with North-Western India in holding the palm of learning. In those days, the name of the country was not Mithila but Videha. In the time of the Ramayana, the Mahabharata, and Buddhist literature, Mithila retained the renown of its Vedic days.

Its subsequent political history is somewhat chequered. When Vijaya Sen was King of Bengal, Nanyadeva of the Karnataka dynasty was King of Mithila in A.D. 1097. King Vijaya defeated him but was defeated by his son Gangadeva who recovered Mithila from him. This Karnataka Dynasty ruled Mithila for the period c. A.D. 115-1395, followed by the Kamesvara Dynasty which ruled between c. A.D. 1350-1515. It was again followed by another dynasty of rulers founded by Mahesvara Thakkura in the time of Akbar, and this dynasty has continued up to the present time.

Mithila as a seat of learning flourished remarkably under these later kings. The Kamesvara period was made famous in the literary world by the erudite and versatile scholar, Jagaddhara, who wrote commentaries on a variety of texts, the Gita, Devi-mahatmya, Meghaduta, Gita-Govinda, Malati-Madhava, and the like, and original

treatises on Erotics, such as Rasika-Sarvasva-Sangita-Sarvasva. The next scholar who shed luster on Mithila was the poet Vidyapati, the author of Maithili songs or Padavali generally. He has inspired for generations the later Vaishava writers of Bengal.

Mithila made conspicious contributions in the realm of severe and scientific subjects. It developed a famous School of Nyaya which flourished from the twelfth to the fifteenth century A.D. under the great masters of Logic, Gangesa, Vardhamana, Pakshadhara, and others. This School of New Logic (Navya Nyaya) was founded by Gangesa Upadhyaya and his epoch-making work named "Tattva Chinatmani", a work of about 300 pages whose commentaries make up over 1,000,000 pages in three centuries of its study. Gangesa is supposed to have lived after A.D. 1093-1150, the time of Ananada Suri and Amarachandra Suri, whose opinions he has quoted.

By its scholastic activities Mithila in those days, like Nalanda, used to draw students from different parts of India for advanced and specialized studies in Nyaya or Logic, of which it was then the chief centre.

3. *Nalanda:* Nalanda was the name of the ancient village identified with modern Baragaon, 7 miles north of Rajgir in Bihar. The earliest mention of the place is that in the Buddhist scriptures which refer to a Nalanda village near Rajagriha with a Pavarika Mango Park in Buddha's time. The Jain texts carry the history earlier than the Buddhist. IT was the place where Mahavira had met Gosala and was counted as a bahira or suburb of Rajagriha where Mahavira had spent as many as fourteen rainy seasons. Nalanda, when Fa-hien visited it, was called Nala and was known as the place "where Sariputta was born, and to which also he returned, and attained here his pari-nirvana. Nalanda was not a sectarian or a religious university in the narrow sense of the term, imparting only Buddhist thought. Subjects other than Buddhism were taught as fervently. Almost all sciences, including the science of medicine were taught. So were the Upanishads and the Vedas. Panini's grammar, the science of pronunciation (Phonetics), etymology, Indology and Yoga were all included in the curricula. Surprisingly, even archery was taught at Nalanda. Hiuen Tsang himself learnt Yogasastra from Jayasena.

Knowledge of Sanskrit was essential for all entrants in spite of the fact that Sakyamuni delivered his sermons in Pali. Knowledge of Sanskrit meant complete mastery of Sanskrit grammar, literature and correct pronunciation, and was compulsory to enter the portals of the university. On the authority of Hiuen Tsang, we can safely say that the entrants to Nalanda were supposed to be well-versed in "Beda" *i.e.,* Veda, Vedanta, Samakhya, Nyaya and Vaisesika. I-Tsing also confirms this in his accounts.

Nalanda was an example of the Guru-Shishya parampara, a great Indian tradition. The authority of the Guru (teacher) over the shishya (student) was absolute, and yet, dissent was permitted in academic matters.Free education: Out of the income of the estate. In Nalanda, swimming, breathing exercises and yoga formed an integral part of the curriculum. Harshavardhana, of the Gupta dynasty was a great sportsman and he encouraged his subjects as well. Another great contemporary of Harsha, Narasimhan or Mamallah was also a great wrestler. He belonged to the Pallava dynasty.

Yuan Chawang, a Chinese student at Nalanda, wrote: "In the establishment were some thousand brethren, all men of great learning and ability, several hundreds being highly esteemed and famous; the brethren were very strict in observing the precepts and regulations of their order; learning and discussing, they found the day too short. Day and night they admonished each other, juniors and seniors mutually helping to perfection....Hence foreign students came to the institution to put an end to their rounds and then become celebrated and those who shared the name of Nalanda, were all treated with respect, wherever they went."

Though Buddhism and Hinduism became arrayed in opposite philosophical camps, they were both given their places in the university curriculum. There was no intellectual isolationism of the type that characterizes modern sectarian institutions of the Christian world. According to eminent Indian historian, R C Dutt, "Buddhism never assumed a hostile attitude towards the parent religion of India; and the fact that the two religions existed side by side for long centuries increased their tolerance of each other. Hindus went to Buddhist monasteries and universities, and Buddhist learnt from Brahmin sages."

According to Alain Danielou (1907-1994) son of French aristocracy, author of numerous books on philosophy, religion, history and arts of India: "Hiuen Tsang, the Chinese traveler, stayed five years at Nalanda University, where more than seven thousand monks lived. He mentions a very considerable literature in Sanskrit and other works on history, statistics and geography, none of which have survived. He also writes of officials whose job it was to write records of all important events. At Nalanda, studies included the Vedas, the Upanishads, cosmology (Sankhya), realist or scientific philosophy (Vaisheshika), logic (Nyaya), to which great importance was attached, and Jain and Buddhist philosophy. Studies also included grammar, mechanics, medicine, and physics. Medicine was highly effective, and surgery was quite developed. The pharmacopoeia was enormous, and astronomy was very advanced. The earth's diameter had been calculated very precisely. In physics, Brahmagupta had discovered the law of gravity."

4. *Vallabi:* Valabhi in Kathiawad was also a great seat of Hindu and Buddhist learning. It was the capital of an important kingdom and a port

of international trade with numerous warehouses full of rarest merchandise. During the 7th century, however, it was more famous as a seat of learning. I-tsing informs us that its fame rivaled with that of Nalanda in eastern India.

5. *Vikramasila:* Like Nalanda and Vallabhi, the University of Vikramsila was also the result of royal benefactions. Vikramasila, found by king Dharmapala in the 8th century, was a famous centre of international learning for more than four centuries. King Dharmapala (c. 775-800 A. D) was its founder, he built temples and monasteries at the place and liberally endowed them. He had the Vihara constructed after a good design. He also erected several halls for the lecturing work. His successors continued to patronize the University down to the 13th century. The teaching was controlled by a Board of eminent teachers and it is stated that this Board of Vikramsila also administered the affairs at Nalanda. The University had six colleges, each with a staff of the standard strength of 108 teachers, and a Central Hall called the House of Science with its six gates opening on to the six Colleges. It is also stated that the outer walls surrounding the whole University was decorated with artistic works, a portrait in painting of Nagarjuna adorning the right of the principal entrance and that of Atisa on the left. On the walls of the University were also the painted portraits of Pandits eminent for their learning and character.

Grammar, logic, metaphysics, ritualism were the main subjects specialized at the institution. Destruction of Vikramsila by Moslems: In 1203, the University of Vikramasila was destroyed by the Mahomadens under Bakhtyar Khilji. As related by the author of Tabakat-i-Nasari:

"the greater number of the inhabitants of that place were Brahmins and the whole of these Brahmins had their heads shaven; and they were all slain. There were a great number of books on religion of the Hindus (Buddhists) there; and when all these books came under the observation of the Musalmans, they summoned a number of Hindus that they might give them information respecting the import of these books; but the whole of the Hindus had been killed. On becoming acquainted (with the contents of those books), it was found that the whole of that fortress and city was a college, and, in the Hindu tongue, they call a college a Bihar (Vihara)."

After the destruction of the Vikramsila University, Sri Bhadra repaired to the University of Jagadala whence he proceeded to Tibet, accompanied by many other monks who settled down there as preachers of Buddhism.

6. *Jagaddala:* Its foundation by King Rama Pala. According to the historical Epic Ramacharita, King Ram Pala, of Bengal and Magadha, who reigned

between A.D. 108-1130, founded a new city which he called Ramavati on the banks of the rivers Ganga and Karatoya in Varendra and equipped the city with a Vihara called Jagadala. The University could barely work for a hundred years, till the time of Moslem invasion sweeping it away in A.D. 1203. But in its short life it has made substantial contributions to learning through its scholars who made it famous by their writings.

7. *Odantapuri:* Very little is known of this University, although at the time of Abhayakaragupta there were 1,000 monks in residence here. Odanatapuri is now known for the famous scholar named Prabhakara who hailed from Chatarpur in Bengal. It appears that this University had existed long before the Pala kings came into power in Magadha. These kings expanded the University by endowing it with a good Library of Brahmanical and Buddhist works. This Monastery was taken as the model on which the first Tibetan Buddhist Monastery was built in 749 A.D. under King Khri-sron-deu-tsan on the advice of his guru, Santarakshita.
8. *Nadia:* Nadia is the popular name of Navadvipa on the Bhagirathi at its confluence with Jalangi. Once it was a centre of trade borne by the Bhagirathi between Saptframa)on the river Sarasvati near Hoogly) and the United Provinces, and in the other direction by the Jalangi between Saptagrama and Eastern Bengal.
9. *Madura Sangham:* Madura Sangham was another seat of learning. The Sangham was known for its learning and academic prestige. Writing about the Tamil institutions, Dr. Krishnaswami Aiyangar (1871-1947) remarks: "There are two features with regard to these assemblies that call for special remark. The first, the academics were standing bodies of the most eminent men among the learned men of the time in all branches of knowledge. The next, it was the approval of this learned body that set the seal of authority on the works preserved to it." Scholars were honored irrespective of sex. Aiyangar continues: "A Ruler of Tanjore, poet, musician, warrior, and administrator, did extraordinary honour to a lady of Court, by name Ramachandramha, who composed an epic on the achievements of her patron, Raghunatha Nayaka of Tanjore. It appears that she was accorded honour of Kanaka-Ratna Abhisheka (bath in gold and gems). She was, by assent of the Court, made to occupy the position of "Emperor of Learning."
10. *Benares:* Benares has always been a culture centre of all India fame and even in the Buddha's day it was already old. Though not a formal university, it is a place unique in India, which has throughout the ages provided the most suitable atmosphere for the pursuit of higher studies. The method of instruction as also the curriculum followed there in early

times was adopted from Taxila. Benares University was famous for Hindu culture. Sankaracharya as a student was acquainted with this university. Benares is the only city in India which has its schools representing every branch of Hindu thought. And there is no spiritual path which has not its centre in Benares with resident adherents. Every religious sect of the Hindus has its pilgrimage there. In ancient days, Sarnath figured as a recognized seat of Buddhist learning. Rightly, therefore, it is this holy city the very heart of spiritual India. Alberuni, the noted Arabian historian, mentioned Benares as a great seat of learning and Bernier, who visited India, described it "as a kind of university, but it resembled rather the school of ancients, the masters being spread over different parts of the town in private houses."

11. Kachipuram was another such institution of learning in South India. It came to be known as Dakshina Kasi, Southern Kashi. Huien Tsang visited it about 642. A.D. and found Vaishnavite and Shaivite Hindus, Digambara Jain and Mahayan Buddhists studying together.
12. Navadvip belonged to comparatively recent times and was founded by Sena Kings of Bengal in about 1063 A.D. and soon rose to be a great centre of learning. It imparted instruction in Vedas, Vedangas, Six Systems especially Nyaya. Chaitanya was a product of Navadvipa. It had 500-600 students, when A. H Wilson visited it in 1821, drawn from Bengal, Assam, Nepal and South India.

In 1867, Edward B Cowell (1826-1903) professor of Sanskrit in Cambridge and author of The aphorisms of Sandilya or The Hindu doctrine of faith, recorded his opinion in these words: "I could not help looking at these unpretending lecture-halls with a deep interest, as I thought of the pundits lecturing there to generation after generation of eager, inquisitive minds. Seated on the floor with his 'corona' of listening pupils round him, the teacher expiates on those refinements of infinitesmal logic which makes a European's brain dizzy to think of, but whose labyrinth a trained Nadia student will thread with unfaltering precision."

THE EDUCATIONAL SAMSKARAS

THE ORIGIN

Ceremonies performed in connection with the arrival of youth are universally prevalent. The youth is welcomed into the tribe with proper ceremonies. The Parsis, the Christians, the Mohammandans , *etc.* all have rites specially meant for this purpose. Even the savage tribes of the world perform some kind of ceremonies for

greeting the youth into their fold. These ceremonies are as important as any other class of social procedure. Their basis is civil. Their object is to prepare the young men for entering on the active duties of citizenship.

The importance of the clan is realized and the people are anxious to preserve the life of their community unimpaired. To meet this end the followers of the race are disciplined to shoulder the burden of the elders. Thus the ceremony in question arose out of the civil needs of the community. But in course of time it received a religious colouring, as every phase of early life was saturated with the idea of religion, and every communal function was in the need of religious sanction for its validity.

FORMS OF INITIATION

Initiation of young men takes place in different ways in different tribes and religions. Some savage tribes initiate their youths by tests of endurance. In certain communities girls are initiated by observing a temporary seclusion. A few tribes rearrange the taboos for a young man when he enters the life. Mutilation of the body is another method of initiation in some wild tribes. The Mohammadans still initiate their young men by means of circumcision.

THE HINDU INITIATION

The scheme of education framed by the ancient Hindus to initiate the young men for preparing them for full citizenship of the community marked a great advance over the primitive idea of initiation. Here we find that the conception of race was cultural, and it was on the basis of cultural fitness that one could seek admission into, and claim the full rights and privileges of, the community. Without the Upanayana none could call himself a twice born. One who would not undergo this samskara was excommunicated and debarred from all the privileges of the race. The initiation was a passport to the literary treasures of the Hindus.

It was also a means of communion with the society, because without it none could marry an Aryan girl. Thus the Hindu ideal made universal education the indispensable test and insignia of their community. The most striking fact in connection with the Upanayana is that by virtue of its performance the initiated ranked as a Dvija or twice born. This transformation of man's personality by means of religious ceremonies compares well with the Christian rite of baptism, which is regarded as a sacrament and carries with it a spiritual effect to reform the life of man. If we look beneath the surface of the ceremonies, we cannot but recognize in it the expression of a deep human conviction that man, due to his contact with the world, loses his native purity, and that he must be born again to enter the spiritual kingdom again.

THE ANTIQUITY OF THE UPANAYANA

The Upanayana ceremonies are of a hoary antiquity. The corresponding Parsi rite called Naujat (The New Birth), by which Parsi children, both boys and girls, receive religious initiation after they have attained the age of six years and three months, indicates that the Upanayana or the initiation of the child originated in the period when both the Indo-Aryans and the Iranians were living together.

THE VEDIC PERIOD

The word "Brahmacharya" is twice mentioned in the Rigveda in the sense of the life of a religious student. We also get a reference to a student who has just performed his Upanayana samskara. In the Atharvaveda the Vedic student is extolled in two hymns which give many details of the Upanayana samskara found in the later day ceremonies. The Vedic student was called "Brahmachari" and the teacher "Acharya." The initiation of the student was regarded a second birth: "The teacher, taking him in charge, makes the Vedic student an embryo within; he bears him in his belly three nights: the gods gather unto him to see him when born."

The student wore sacred girdle, put on the deerskin, kept long beard, practiced austerity, collected fuel and offered them in the sacred fire: "The Vedic student fills the worlds, with fuel, girdle, toil and fervor. The Vedic student goes… clothing himself in the black antelope skin, consecrated and long bearded." The student also begged alms: "This broad earth, and the sky, the Vedic student first brought as alms." All these characteristics of a student reappear in the post Vedic literature on the ritual.

During the Brahmana period the Upanayana assumed almost a ceremonious shape and its procedure was going to be fixed. The student betook himself to the teacher and announced his intention to become a student: "I have come for Brahmacharya; let me be a Brahmachari." The teacher, then, asked the name of the student and took him in charge. After this he grasped the hands of the student with appropriate verses and commended him to the protection of deities and beings. He also delivered the five commandments to him for guidance of his conduct. Then the student was taught the sacred Gayatri mantra and the teacher observed continence for three days: "When one has admitted a Brahmana to a term of studentship, he should not carry sexual intercourse *, etc.*" the procedure given above is the prototype from which the later day procedure evolved.

In the Upanishadic period the theory of the four Ashramas seems to have been established and "Brahmacharya" or a student's life became a respected institution. The importance of the teacher was recognized even for Brahmavidya and the Acharya was the final resort. Upanayana was no more than going to a teacher and being admitted as a pupil. But admission was not open to all. Students were admitted

when they had satisfied the condition laid down by the teacher: "This knowledge should not be imparted to the sceptic, to the wicked and the vicious , *etc.*"

The Brahmacharins resided and boarded at the house of their gurus and in return rendered many personal services, such as tending his cows and looking after the sacrificial fire. From the story of Satyakama Jabala we learn that he was asked to stay with the cows of the guru and return only when they had increased to a thousand. Moreover, the student helped his guru by begging alms also. The usual period of studentship was from the twelfth to twentyfourth year of a man. But longer periods are also mentioned.

The age at which studentship began and the period spent at the house of the guru varied according to the individual inclination and capacity. To give an instance, svetaketu commenced his studentship at twelve and studied for twelve years. The Upanisads also inform us that every time a man approached a new teacher, he had to perform his Upanayana anew. The story of Aruni tells that even old man could become a pupil for a time. The teacher was held in high respect. It is preached that devotion to the teacher is necessary for the highest kind of knowledge. At the end of the student life many practical instructions were given which are of very high value, such as "Speak the truth. Lead a pious life , *etc.*"

THE SUTRA AND LATER PERIODS

The Upanayana samskara became fully established in the time of the Gruhyasutras. All the Gruhyasutras presuppose that Upanayana was universal and incumbent of every twice born. They lay down all the regulations and every possible detail of the ceremony. The development of the ritualistic side of the samskara was complete by the time of the Sutras. The Dharmasutras and Smritis do not contribute anything to the ritual proper. They take up the link supplied by the Gruhaysutras about the social side of the samskara and develop it. They give full information and discussions about the age of the child to be initiated, the lawful recipients, the duties of a student and his conduct. In these rules and regulations many changes were introduced at different times which will be shown in their respective places. The Paddhatis, that were written still later, follow the ritual of their particular Vedic school in general, but at the same time admit many local customs prevalent in their times.

THE MEANING OF THE TERM UPANAYANA

The conception of Upanayana has undergone many changes in course of time. In the Atharvaveda the word "Upanayana" is used in the sense of "taking charge of a student." Here it meant the initiation of the child by a teacher into sacred lore. "Upanayana" connoted the same thing during the Brahmana period, as it is evident

by the initiation of a student in the Satapatha-brahmana. Even in the Sutra period the proposal of the student for studentship and its acceptance by the teacher is the central point in the Samskara.

But later on when the mystic significance of theUpanayana increased, the idea of the second birth through the Gayatri mantra overshadowed the original idea of initiation for education. Manu says, "In the Vedic birth of the student, symbolized by wearing girdle made of Munja grass, Savitri is the mother and the teacher the father." By many writers the samskara itself is called "The teaching of Savitri" (Savitrivandanam) Apararka remarks on the word "Upanayana" used by Yajnavalkya, "By Upanayana is understood the establishment of connection between pupil and Savitri, which is performed by the teacher."

In still alter times the word "Upanayana" was used only in the physical sense, that is, taking the pupil near the teacher by his guardians. By the Upanayana samskara was meant that rite through which the child was taken to the teacher. One authority extends the meaning of the word "Upanayana" and does not restrict it to the educational sense alone: "The rite through which a man is initiated into the vows of the guru, the Vedas, the restraints, observances and the vicinity of a god, is called Upanayana." In the latest development of the samskara its educational sense had departed altogether. The word "Upanayana" is used in sense of a ceremonial farce which is performed sometimes before the marriage of a twice born.

In this sense it is called "Janeoo," that is, a ceremony in which a boy is invested with the Sacred Thread. What a mockery of fate! The sacred thread as such is not mentioned in the Gruhyasutras. It was a later substitute for the upper garment which was put on at the time of sacrifice. One did not know that this insignificant decarative substitute would outweigh the original elements of the samskara. But when not education but a badge became the sign of regeneration, the sacred thread reigned supreme.

THE PURPOSE OF THE SAMSKARA

The purpose of the samskara has also suffered various vicissitudes. Originally education was the main purpose and ritual or ceremoniously taking the initiate to the teacher an ancillary item. It was not only at the first initiation of a boy but at the beginning of every branch of the Veda, that the Upanayana was performed. Evidence is available to show that such was the case.

In the Upanisads we come across a number of cases where a man underwent the rite of Upanayana when approaching a guru for learning a new branch of philosophy. Yajnavalkya regards the reading of the Vedas the highest object of the Upanayana: "The teacher, having initiated the pupil with the Mahavyarhrtis, should teach him Vedas and the rules of conduct."

According to Apastamba and Bharadvaja, the Upanayana was meant for learning. "Upanayana is the sacrament of a person desirous of learning." But in course of time the performance of the ritual and the Vratadesa or the commandments for observing vows became the chief object and education a secondary one. Gautama was the first exponent of this school: "Being consecrated by forty eight samskaras a man goes to the vicinity of Brahman and Rishis." According to Manu also the ritual purifies this life as well as the other. Angira also thinks that the samskara properly performed produces Brahmanhood. When the Upanayana was an educational samskara, the Vratadesa or the delivery of commandments by the initiator was a secondary performance, but when it became a bodily samskara the ritualistic significance rose into importance.

In the latest of its development, the Upanayana became a religious achievement (Purushartha) bereft of any educational intention. Even the mad, the dumb, the deaf or otherwise disabled persons who were originally excluded from the right of performing this samskara were required to undergo the ceremony.

THE AGE

The first problem to be considered in connection with the Upanayana samskara was: at what age of initiate should it be performed? The general rule given in the Gruhyasutras and endorsed by the later authorities was that the Upanayana ceremony of a Brahman boy should be performed in the eighth year, that of a Kshatriya in the eleventh and that of a Vaisya in the twelfth. As regards the basis of this differentiation many speculations have been offered. Some writers regard it as a fancy and self conceit of the Brahmans.

As the number of letters in the Savitri mantras of the Brahmans, Kshatriyas and the Vaisyas happened to be eight, eleven and twelve, the Brahmans took fancy to them and determined the respective ages of the boys of the upper three classes for initiation at eight, eleven and twelve. They quote Medhatithi and the Viramitrodaya to support their view. According to another set of scholars the differentiation was based on the intellectual superiority of the Brahmans; rentiation was based on the intellectual superiority of the Brahmans; the Brahman child was more intelligent than the Kshatriya and the Vaisya children.

In connection with the first speculation it should be noted that the observations of Medhatithi and the Viramitrodaya, far removed from the time of the Sutras, may be fanciful, but relation between the Savitri mantra and the age of the initiate cannot be traced in the Gruhyasutras. Equality of letters is accidental which gave rise to the fancy of later day writers, to whom Upanayana was a farce and not a real necessity. Moreover, there is no sanctity attached to these numbers in Hindu religion. So, it is difficult to believe that the difference in age for the performance of the

samskara, a ceremony full of consequences in the beginning, originated from mere fancy. The second speculation also cannot be supported. Baudhayana recommends any year between eight and sixteen for a Brahman boy. So, it seems quite improbable that earlier age for their children was due to the superior intellect or the superiority complex of the Brahmans.

The more plausible basis of differentiation seems to be that, in early times, the father was the teacher in case of the Brahman Brahmacharins. Therefore, it was inconvenient to them if they were initiated at an early age, because they had not to leave their homes for education. But quite different was the case with the Kshatriya and the Vaisya children. They had to part with their parents for receiving education. Therefore, they would have been put to troubles, had they been separated from their parents in a very young age.

Thus paternal feelings were responsible, to a great extent, for the higher age at which the initiation should be performed. There was one more operative factor in fixing the age of the Kshatriya and the Vaisya children. The Brahmanical education that began after the Upanayana was mostly religious and priestly and consisted of Vedic and allied studies. The Brahmans had to busy themselves earlier with this kind of education, because their further prospects depended on the knowledge of the Vedic lore.

But the professions of the Kshatriya and the Vaisyas were different. No doubt, they had to maintain a racial standard of culture by undergoing a literary education, but they had to specialize in the military art and administration, and commerce and agriculture respectively. So, these two classes joined the Brahmanical education later, as they were not required to pass the same course of studies as the Brahman students. Thus, caste differentiation originated from practical necessity and not out of fancy and superiority complex of the Brahmans.

Optional ages were prescribed for securing special merits. In the opinion of Baudhayana "One desirous of holy lustre should perform the Upanayana in the seventh year, of long life in the eighth year, glory in the ninth year, of food in the tenth, of cattle in the twelfth, of talent in the thirteenth, of strength in the fourteenth, of brothers in the fifteenth and of all in the sixteenth." Manu also says, "The Upanayana of a Brahmana child desirous of holy lustre should be performed in the fifth year, that of a Kshatriya child desirous of power, in the sixth year and that of a Vaisya child desirous of wealth in the eighth year."

At the first, sight the wide options meant for different merits look fanciful. But when we take into consideration the change which the conception of Upanayana underwent in course of time, their rationale becomes evident. In the beginning the Upanayana marked the commencement of the primary education. Therefore, an early age was preferred and the earliest possible age for the Upanayana was fixed

at five. But when the Upanayana ceased to signalize the primary education and was performed at the beginning of the secondary education, higher age was prescribed for this purpose, though it was always within the period of educational suitability. The age should be such that the mind of the student be still receptive and he may get sufficient time to study. The same age, however, would not suit every child. So, intermediate options were allowed to meet the need of every type of children. But at whatever time it may be performed, it was regarded always meritorious, because it was considered to be a sacrament full of religious significance.

The last limit for the performance of the Upanayana samskara in the case of a Brahman student was sixteen, of the Kshatriya twenty two and of the Vaisya twenty four. When the Upanayana became a compulsory bodily samskara, it had got to be performed howsoever late it may be. The underlying purpose was to enlist all the possible young men of the community and stamp them with the peculiar culture of the race. For the Brahman the age was still earlier, as he was the custodian of the Aryan religion and the teacher of the Aryan race. The Kshtriyas and the Vaisyas, who were less enthusiastic about priestly education could be initiated later. Twenty four was the last age, because it was the time about which marriage generally took place.

The Upanayana must be performed sometimes before the marriage of a twice born. Mitramisra, a seventeenth century writer, permits Upanayana up to twenty four years of a Brahman, thirty three of a Kshatriya and thirty six of a Vaisya. This was the time when India was under full hold of muslims. The performance of religious ceremonies was not a certain and safe thing. So, even wider scope was allowed for contingency. Probably it would have helped the reconversion of the new Muslims into the Hindu fold also.

THE VRATYA

One, who inspite of the wide option allowed by the scriptures would not abide by the rules, was regarded fallen from the status of a twice born and excommunicated from the community. According to Manu, "If after the last prescribed time people remain uninitiated, they become Vratyas, fallen from Savitri, discarded by the Aryans." These non conformists were debarred from all religious and social privileges of the Aryans. Non abidance to the rule, in some cases, may have been due to carelessness, or adverse circumstances. But in the majority of cases it was deliberate. Hence, the severe punishment was inflicted upon them and they were classed with a non Aryan tribe, the Vratyas, and classed with the Sudras.

It would not be out of place to trace briefly the history of the word "Vratya" to make the connection between the Vratyas and the nonconformance with the Vedic

initiation more clear. In the Atharvaveda the word Vratya is used not in the sense of "one who has not performed his Upanayana" but it is employed in the sense of the Highest Brahman: "The Highest Brahman is conceived and exalted as the Vratya both as the heavenly Vratya, identified with the Great God (Mahadeva), the Lord Isana or Rudra, and his prototype, the earthly Vratya. The Vratyas were certain, probably Eastern tribes, whether aryan or non Aryan, but certainly living outside the pale of Brahmanism, revving about in lands on rough wagon covered with boards in a rather warlike fashion, owners of cattle, having their own peculiar customs and religious cults." According to some scholars the word "Vratya" is used in the sense of a non Aryan tribe. While others hold that it denotes the earliest worshippers of Rudra and Siva. Mr. J. W. Haver regards "Vratya" as the ecstatics of the Kshatriya class and the forerunners of the later day Yogins.

The Vratyas were Aryan in race, though they were not Vedic in religion. This inference is supported by the fact that the door of Aryandom was always open for them if they sought admission, while it was closed against the Sudras. Thus, though the exact sense of the term is not certain, it is clear that it was not used in the Samrta sense. That is, in the sense of a person who has not performed the Upanayana. But because the Vratya dissented from the Vedic religion, those, who did not perform their Samskara, in later times, were classed with them. They were called "Vratyas" because after observing certain vratas (sacrificial ceremonies) they could be admitted into the Aryan community. According to the scriptures, persons outcasted for nonperformance were eligible to readmission into the Aryan fold after performing the Vratyasoma sacrifice.

THE UPANAYANA NOT COMPULSORY IN THE BEGINNING

Though the Gruhyasutras and the later literature on the rituals presuppose that the case before the sutra period. It may be argued that during the Atharvavedic times, the Upanayana was regarded as a second birth and, most probably, all the twice born received their status from this rite. But the idea of the second birth was not peculiar to the Upanayana only. It was also associated with the initiation which was performed before a sacrifice.

So the significance of the second birth in the Vedic time was religious and not social; and not all the persons of the upper three classes were compulsorily required to perform the Upanayana samskara. For a very long time before the rules laid down in the Gruhyasutras crystallized, the Upanayana was a voluntary ceremony. Whosoever desired to learn, approached his guru and performed the initiation ceremony, while his cousins, not willing to do so, remained without any initiation. The Upanayana was confined to literary and priestly families only. This is borne out by Aruni's advice to his son Svetaketu that he should pass through the life of a student, because members of his family did not claim Brahmanhood by birth.

It should be also noted that the Sarama theory, though recognized, was not universally observed. The word "Vratya," as already pointed out, did not denote a person who had not performed his Upanayana, but it was used in the sense of a person who did not offer Soma sacrifice or keep the sacred fire. In the Smriti and subsequent times many disabilities were imposed for not performing the Upanayana ceremony. But no such punishment was inflicted on the defaulter in the Vedic times. the social status of the Vratyas suffered in no ways, as it is evident from their exaltation in the Atharvaveda. It is, therefore, quite clear that the Upanayana samskara was not regarded compulsory, rather it was a privilege to be availed of by a willing person for entry into the sacred library of the race.

THE UPANAYANA BECOMES COMPULSORY

The Upanayana samskara became compulsory somewhere towards the close of the Upanisadic period. There were many factors that led to it. First of all there was the cultural factor. For any advancing civilization education is essential. In order to make education universal, the Upanayana was made compulsory. Every Aryan was compelled to spend at least some years at the house of a teacher or in some educational institution. The next but the allied factor was that the mass of literature and learning was increasing.

Different branches of learning evolved. Therefore, in order to preserve the sacred literature the services of the entire community were conscripted by making the Upanayana a compulsory samskara. The third factor was a purely religious one. The Upanayana came to be believed to have possessed sanctifying power. One May or may not receive education but he must consecrate his person. This undue importance attached to the sanctity of the samskara was also instrumental in making it compulsory for all. The last factor was racial. The Indo-Aryans had to distinguish themselves from the non Aryan population round them. In the first contact with the non Aryans they were superior to, and distinct from them by their colour and culture both.

But in course of time these characteristics dwindled, and there arose the danger of fusion with them and thus of lowering the standard of their civilization. The Upanayana which was already prevalent in the society, served a good means for differentiation. The Aryans, who may not devote the period of youth to education, but underwent the ceremony and put on the Sacred Thread, were called the regenerate and distinguished from the Sudras, the later day no Aryan population. The Upanayana was called a second birth in the sense that it heightened the social status of the recipients. All the Aryans became twice born. A non Aryan having only one physical birth was certainly regarded inferior to an Aryan.

RIDICULOUS CONSEQUENCES OF COMPULSION

When the Upanayana became a compulsory samskara people gradually forgot its real purpose and many ridiculous consequences followed. Formerly when it was purely an educational samskara, persons inherently incompetent for education were excluded from the right of performance. But when it became a bodily samskara, the opinion was advocated that the Upananyana should be performed in the case of the dumb, deaf, blind , *etc.* also. A few Smriti writers dissented from this view. But the majority accepted this absurd procedure in order to enable even disabled persons to marry, by providing them with a badge of superior casts.

Another consequence of the Upanayana being a bodily samskara was that a fresh Upanayana was prescribed for a person, when he happened to be defiled by drinking wine, eating onion , *etc.* This repetition presents a sad contrast to the fact that in the Vedic times it was repeated when the student began a new branch of the Vedas. The most absurd consequence that followed the degradation of the Upanayana from its original purpose was that even the Upanayana of trees came to be performed. A fourteenth century Carnatic inscription records that a Brahman performed the Upanayana ceremony of four peepal trees.

THE UPANAYANA PARTLY NEGLECTED DURING THE MEDIAEVAL PERIOD

So long as the Brahmanical culture had a strong hold over the Hindus, the compulsion was followed regularly. But during the Muslim period of Indian history, Hinduism received a rude shock. The religious life of the people was endangered and many high and prosperous families of the Kshatriyas and the Vaisyas were reduced to agriculturists. The theory became current that there are no Kshatriyas and the Vaisyas in the Kali age. Though it was not universally accepted, the majority of the Vaisyas and the Kshatriyas of many localities dispensed with the Upanayana samskara. From the ninteenth century, however, owing to cultural revival by orthodox associations, they are again becoming particular about performing the Upanayana samskara.

WHO TOOK THE CHILD TO THE TEACHER?

Another problem was: Who should take the child to the Acharya? In early times, in the Brahman families, it was the father who taught the boy. So, there was no need of discussing the problem. But the non Brahman children were taken to the Brahman teacher. Moreover, when education developed and the art of teaching was specialized, the Brahman children also went to efficient teachers for study.

Therefore, for proper initiation the question of taking the student to the Acharya came to be discussed. In the opinion of Pitamaha, the father, the grandfather, the

uncle and an elder brother were rightful guardians of a boy, and, in the absence of the former the latter took the student to the teacher. In the absence of the above natural guardians an elderly member of the same caste was also authorized to conduct the child to the Acharya. But when there was none to do so, or none would care to take the child to the teacher, the pupil himself went to the Acharya for initiation.

THE SELECTION OF THE TEACHER

The selection of a teacher was determined by certain considerations. The best possible teacher was sought for, because the main object of the Upanayana was the acquisition of knowledge and the building of character. If the teacher himself was lacking in knowledge or virtue, he could not elevate the life of the student. "From darkness to darkness he goes, whom an ignorant person initiates. Therefore, one should desire an initiator, who comes of a good family who is learned and who is self controlled." "A Brahmana who is well read, of good family, of good character, purified by penance, should initiate a child." A man was asked not to make a person his teacher who was not firm in his character, for "hands besmeared with fat cannot be purified with blood." Vyasa recommends a person for teachership "who is a Brahmana entirely devoted to the Vedas, who comes of a good family, whose profession is the performance of Vedic sacrifices, who is pure who is particular about the study of his own Vedic shakha and who has no lethargy."

Some further qualification of an Acharya are given by Yama as follows: "An Acharya should be truthful, courageous, capable, merciful towards all creatures, believer in God, firm in the study of the Vedas and pure in character." These considerations were binding or respected when the Upanayana was an educational samskara. When it ceased to be so, they could be dispensed with. Later on, it was not meant for education but consecration. The Acharya was not expected to teach the initiate. His only business was to perform the ceremony with the recital of the Vedic verses. So, anybody who could do so was approached for this purpose. At present, in many cases, the Acharya is dispensed with altogether. To save expenses and botherations, people go to a sacred place, dip the Sacred Thread into the water poured on the deity and put it round the neck of a boy. It is due to the appalling ignorance of the real purpose of the samskara on the one side and the non religious character of the modern life on the other.

THE CEREMONIES AND THEIR SIGNIFICANCE

In the beginning the Upanayana samskara must have been very simple. In early times when the sacred Vedic lore was handed down from generation to generation in priestly families, the father himself was the guru. In this case, the formalities observed with him naturally should have been limited. The very ancient teachership of the

father is proved by the parable of gods, men and demons all spending their student life under the guidance of their common father Prajapati. During the Upanisadic period also there are instances of students studying with their fathers. Original parental simplicity is reechoed in the Upanisads, where in many cases the Upanayana is very simple. The student approached his teacher with sacrificial fuel in his hands, thereby showing that he intended to be his pupil and that he was ready to serve the teacher. There are other instances where an oral request on the part of the student and its acceptance on the part of the Acharya was all that constituted an Upanayana. But these are sporadic cases of simplicity. Even before the close of the Vedic period, the ceremony was assuming a complicated character. The Upanayana of the Athavavedic time included many items of the later day ritual. During the Brahmana period noted for sacrificial elaboration, the Upanayana samskara was developed and its ceremonious character is evident from the details available in them. The Gruhyasutras describe a full-fledged ritual with well-developed details. The samskara in its onward march also gathered many nonVedic and popular materials under its auspices.

THE TIME

An auspicious time was selected for the performance of the samskara. Generally the Upanayana took place when the sun was in the northern hemisphere but in the case of the Vaisya children, its southern course was also prescribed. Different seasons were meant for different castes. The Upanayana of a Brahman was performed in spring, of a Kshatriya in summer, of a Vaisya in autumn and of a Rathakara in the rainy season. These different seasons were symbolical of the temperament of occupation of different castes. The moderation of spring symbolized the moderate life of a Brahman; the heat of summer represented the fervour of a Kshatriya; autumn, when the commercial life of ancient India reopened after the rainy season, suggested the wealth and prosperity of a Vaisya; and the easy time of rains indicated facility for a chariot maker. The later astrological works associated different kinds of merits with different months from Magha to Ashadha: "A boy whose Upanayana is performed in the month of Magha becomes wealthy, in the month of Phalguna intelligent, in Chaitra talented and well versed in the Vedas, in Vaisakha provided with all kinds of enjoyments, in Jyestha wise and great, and in Ashadha a great conqueror of enemies and famous Pandit." The bright half of the month was preferred, as it was delightful time for any social function and its brightness was symbolical of knowledge and learning. Holidays, Parvans, inauspicious times and the days of natural abnormality were avoided.

PREPARATIONS

Before the actual ceremony took place, a canopy was set up under which the samskara would be performed. A day before the ceremony, many pauranic

performances took place. The most auspicious god Ganesha, was propitiated and several other goddesses, Sri, Laksmi, Dharti, Medha, Pusti, Sraddha, and Sarasvati were worshipped. On the previous night, the candidate was smeared all over with a yellow substance, and a silver ring was tucked to his top knot. After that, he was commanded to spend the whole night in absolute silence. It was a mystic rite which prepared the candidate for the second birth, the yellowish powder gave a show of embryonic atmosphere and absolute silence made the boy a speechless child anew.

THE JOINT MEAL

The next morning the mother and the child ate together for the last time. It was rather an unusual procedure in a Hindu Samskara. According to Dr. Altekar it marked the end of an irregular life of a child and reminded the boy that he was no longer an irresponsible child and that he had to lead a systematic life thence onward. But it might have been the parting feast of the mother and the child also. It was a sad touching ceremony. It expressed the deep affection of the mother for her child. After his Upanayana the mother no more could take food with him as a rule. The very idea moved the mother to show her last affectionate feeling. Both the ideas may have operated in the above ceremony. But there seem to be some more factors that gave rise to it.

The boy not only could not take food with his mother, but also was going to be separated from her for a long time. The mother could not enjoy his company during this period. So her heart was heavy on the occasion and the most impressive act of love that she could do was to eat with the child in the morning. The ceremony was a protracted one. In order that he may not get hungry during the ceremony, he was fed before it began. After the mother's feast, a number of young men were entertained. It was a party which was given to the playmates of the candidate at the departure of their friend to the teacher's home.

THE BATH

After the feast was over the father and the mother took the child to the canopy, where the sacrificial fire was burning in the altar. The first scriptural item of the ceremony was the feeding of the Brahmans, an act always meritorious and in this case symbolical of Brahmayajna and Brahmacharya. Which the life of the student was going to be after this Upanayana. Then the boy was shaved in the ordinary was by the barber. But sometimes to economize the expenses, though not sanctioned by the scriptures, the haircutting ceremony was postponed till now and it was performed before the thread giving. When the shaving was finished, the boy was bathed. It was a ceremony essential to every Samskara. Washing purified both, the mind and the body of the recipient.

THE KAUPINA

The bath being over, the boy was given a Kaupina to cover his private parts. The social consciousness had already dawned upon the mind of the boy, but from now he had particularly to observe the social decorum and to maintain his own dignity and self respect. Then the boy went near the Acharya and announced his intention to become a Brahmmachari: "I have come hither for the sake of studentship. I will be a student." Having accepted his request the Acharya offered him clothes with the verse, "In the way in which Brihaspati put the garment of immortality on Indra, thus I put this garment on thee, for the lake of long life, of old age, of strength, of splendour."

The Hindu idea of decorum required that, when engaged in a religious ceremony, the upper part of the body should be covered with a piece of cloth. On the occasion of the Upanayana, therefore, the young scholar was offered an upper garment, because from this time his proper religious life began. From the ancient literature we know that the original piece of the upper garment offered at this occasion was the deer-skin. We are informed by the Gopatha Brahmana that the deer-skin was symbolical of spiritual and intellectual pre-eminence. By putting it on, the student was constantly asked to become a youth of ideal character and deep scholarship.

In the early pastoral life of the Aryans the use of the deer-skin was a need. Its hoary antiquity lent it a sanctity and in course of time it became a religious luxury. Its use, however, was limited to bedding. When the Aryans became agriculturists and spinning and weaving came into existence, a cotton cloth was offered to the student. According to the Apastamba and the Baudhayana Gruhyasutras, this piece of cloth should have been woven in the house of the Brahmacharin just before the ceremony. The Gruhyasutras prescribe clothes made of different stuffs for different castes.

The clothes of a Brahman student should be made of sana (hemp), that a Kshatriya of Ksuma (silk), and that of Vaisya of Kutapa (the Kusagrass). But, optionally, clothes made of cotton were prescribed for all. Formerly on purely religious grounds, white and unwashed clothes were offered, no doubt symbolizing the purity of life. But, later on, practical sense prevailed on the religious motive, though it was still tinged with symbolism. The clothes of a Brahman should be Kasaya (reddish) that of a Kshatriya Manjishtha (dyed with madder) and that of a Vaisya Haridra (yellow). The clothes were dyed because thereby they would not get shabby very soon. Different colours preserved the distinction of castes. The deep rooted fascination for white clothes, however, did not die away and many Smritis insist that the colour of the clothes of a Brahmachari should be white. At present the above distinctions have vanished away and clothes dyed in Haridra (yellow) are offered to all the twice born.

THE GIRDLE

Next, the Acharya tied round the waist of the youth the girdle with the verse, "Here has come to me, keeping away evil words, purifying mankind as a purifier, clothing herself by power of inhalation and exhalation, with strength, this sisterly goddess, the blessed girdle" or with "A youth well attired, dressed, come hither, He, being born, becomes glorious. Wise sages extol him, devout ones, turning their minds to gods." Or silently. The girdle was originally meant to support the Kaupina. But, later on, it was turned to serve as a religious symbolism. It was made of triple cord, which symbolised that the student was always encircled by the three Vedas.

The girdle also informed the student that his belt was "a daughter of Faith and a sister of the sages, possessed the power of protecting his purity and chastity and would keep him away from evil." Like the upper garment, the girdle was also made of different stuffs for different castes, and even for one single caste options were allowed according to different Vedic schools. The girdle of a Brahman was made of Munja grass, that of Kshatriya of a bowstrings and that of a Vaisya of wool, it must be even and goodlooking. Its use at present is momentary, and soon after the Upanayana it is substituted by a cotton girdle.

THE SACRED THREAD

After the tying of the girdle came the most important item of the samskara, according to the later authority, the investing the student with the Sacred Thread. It should be, however, observed that it was unknown to the early writers on ritual. None of the Gruhyasutras contains the prescription of wearing the Sacred Thread. It seems that the upper garment which was offered to the youth was the prototype from which the sacred thread descended, though both the prototypes (but not for sacrificial purpose) and the imitation were retained by the later authorities. The very name of the Sacred Thread, "Yajnopavita" supplies a clue to its original nature.

The scriptures prescribe that cotton cords should be worn by the Brahmana. Woolen by the Kshatriyas and linen by the Vaisyas. But the option of cotton cords is found for all. It seems that it was due to the convenience of getting cotton threads. The Sacred Thread was of different colour according to different castes; the Brahmans wore white, the Kshatriyas red and the Vaisyas yellow. It is said that it corresponded with the colour of the mind of the above castes. But the differentiations was afterwards removed and at present the Vaisya colour, yellow, has been adopted universally.

The Sacred Thread is spun by a virgin Brahman girl and twisted by a Brahman. In it as many knots are made as there are Pravaras amongst the ancestors of the wearer. The composition of the Sacred Thread is full of symbolism and significance.

Its length is ninetysix time as the bredth of the four fingers of a man, which is equal to his height. Each of the four fingers represents one of the four states the soul of a man experiences from time to time, namely, waking, dreaming, dreamless sleep and absolute Brahmanhood. The three folds of the cord are also symbolical. They represent the three Gunas, reality, passion and darkness, out of which the whole universe is evolved.

The care is taken that the twist of the thread must be upward. It was done, so that the Sattvaguna or the good quality of reality may predominate in a man, and so he may attain spiritual merits. The three cords remind the wearer that he has to pay off the Three Debts he owes to the ancient seers, the ancestors and the gods. The three cords are tied together by a knot called Brahmangranthi, which symbolises Brahma, Vishnu and Siva. Besides, extra knots are made in the cords to indicate the various Pravaras of a particular family.

The Acharya, while investing the student with the Sacred Thread repeated an appropriate Mantra, asking for strength, long life and illumination for the boy, the boy looking, in the meanwhile, towards the sun. A Brahmachari can put on only one set of the Sacred Thread. A householder is given privilege to wear two, one for himself and one for his wife. There are different methods of wearing the Sacred Thread at different occasions. While performing an auspicious ceremony one should be Upaviti, this is, the Sacred Thread should hang from his left shoulder, at the performance of some inauspicious ceremony a man should be Prachinaviti, that is, the Sacred Thread should hang from the right shoulder; and at times he is called Niviti when the Sacred Thread is worn round the neck like a garland.

THE AJINA

Then the Ajina or deer-skin was presented to the pupil. The word "Ajina" denotes generally the skin of an animal *e.g.,* a gazelle, as well as that of a goat. The use of skin as cloth in ancient times is shown by the adjective "Clothed in skins." (Ajina-version), and the farriers' trade is mentioned. The Maruts were also noted for wearing deerskins. The wild ascetics of a late Rigvedic hymn seem to be clad in skin. The Ajina was first used as an upper garment. But, later on, when cotton cloth was supplied in its place, it was utilized for a seat. In early times the country was covered with forest and skins were found in abundance. But when forests were cleared, there became paucity of hide, and blanket was prescribed.

The ancient tradition was adhered to, though the skin was reduced to threads which is now represented by three strands fastened to the Sacred Thread at the time of the Upanayana samskara. Different kinds of skins were prescribed for different castes. The Paraskara Gruhyasutra says, "The upper garment of a Brahmana should be an antelope skin; that of a Rajanya the skin of a spotted deer; that of a

Vaisya goats' or cows' skin; or if the prescribed sort of garment is not to be had, a cows hide should be worn by all, because to that belongs the first place among all kinds of garments." The cow's skin was easily available; that is why it was a general option for all. According to Visnu tiger skin was also worn by the Vedic student. But it was a rarity. The skin was of practical use in the forest life of early times. Because it was generally used by hermits and ascetics, it began to gather sanctity round it. When it became connected with the religious ceremony the writers on Dharma invested it with symbolism. The Gopatha Brahmana says that the lovely deer skin was symbolical of holy lustre and intellectual and spiritual preeminence. The student, while putting it on, was reminded that he should attain the spiritual and intellectual position of a Rishi.

THE STAFF

A Staff was given by the Acharya to the student, who accepted with the verse, "My staff which fell down to the ground in the open air, that I take up again for the sake of long life, of holy lustre and of holiness." According to some authorities the scholar should grasp the staff with the verse that was recited while taking a staff at the time of entering on a long sacrifice. The latter prescription was based on the fact that sutdentship was regarded as a long sacrifice. The Manava Gruhyasutra observes that really speaking, the student is a traveler on the long road of knowledge.

The staff was the symbol of a traveler and while accepting it, the student prayed that he may reach safely the end of his long and arduous journey. One authority, however, remarks that the staff was the symbol of a watchman. The student was armed with the staff and charged with the duty of protecting the sacred Vedas. According to some, the purpose of the staff was to protect the student not only from the human foes but from the demons and evil spirits as well. Aparaka on the Yajnavalkya Smriti points out that the staff could also serve the purpose of making the student self confident and self reliant, when he went out in the forest for collected sacred fuels, for tending the cattle of his guru or when he traveled in darkness.

The type of the staff was determined by the caste of the student. The staff of a Brahman was of Palasa wood, that of a Kshatriya was of Udumbara wood, and that of a Vaisya was of Vilva wood. Options, however, were allowed which were based on local fashion or the availability of a particular wood in the locality. But as the wood of a staff was not of a great consequence, so all could use all kinds of wood. But some limit the staff to the sacrificial trees only. The length of the staff was also fixed according to the Varna of the student.

"The staff of the Brahmana measured up to his hair, that of a Kshatriya up to his forehead and that of a Vaisya up to his nose." Vasistha prescribes quite the reverse which shows that there was no real significance in the above distinction except the

caste difference. Elegance of the staff was also taken into consideration. According to Agautama and Paithinasi the staff should be unbroken, unscratched and with bark. Manu says that it should be straight, without any scratch, fine looking not causing uneasiness and not burnt by fire. In some cases, even at present, all these rules relating the staff are respected, but in the majority of the student. The reason is that, now a days, it has no practical utility, the initiate not being expected to go outside his home to a hermitage in the forest.

SYMBOLICAL PERFORMANCES

After the student was fully equipped with the necessities of a student life in ancient times, a series of symbolical acts followed before the Acharya properly took the student in his charge. The first of them was that the teacher, with his joined hands, filled the students' joined hands with water with the verse, "Ye water." This was symbolical of purification. The student required sanctification before he could legitimatively learn the Gayatri mantra. Asvalayana says, "The teacher having uttered mantras pour water in the joined hands of the student, so that he may be purified to receive the Savitri mantra." Next, the teacher made the student look at the sun with, "That eye , *etc.*" the life of the student was perfect discipline regulated to the minutest details. The sun represents the Cosmic Law which governs the whole universe. The student was asked to learn from the sun the observance of unswerving duty and discipline. Asvalayana, again observes; "The sun is witness to all actions; he is the Lord of all vows, time, action and virtues; therefore he should be properly worshipped."

TOUCHING THE HEART

After this, the teacher touched the heart of the pupil reaching over his right shoulder with the words, "Into my will I take thy heart , *etc.*" the same verse was recited at the time of the marriage ceremonies also, with the only change of deity, in that case being Prajapati, while here it is Bruhaspati. The "Lord of Prayers" or the "Presiding deity of Learning" was requested to unite the hearts of the Acharya and the pupil. This prayer was intended to emphasize that relation between the teacher and the taught was not formal and mercenary but real and sacred. Realization of this fact was necessary. No progress in education was possible unless there was complete harmony, a deep sympathy and a wholehearted communion between the guru and the initiate.

MOUNTING THE STONE

Then the student was asked to mount a stone with the words, "Tread on this stone; like a stone be firm. Tread the foes down; turn away the enemies." According to the Manava Gruhyasutra, the student, by mounting a stone, was asked to be

steadfast in the pursuit of his studies. In the opinion of the Bharadvaja Gruhyasutra. However, stone was also symbolical of strength. The purpose of the rite was to make the student ada mantine in his physique and character. The stone delivered a good sermon to the student that the firmness of determination and strength of character are the most essential needs of a successful student career.

TAKING THE CHARGE

Now the proper taking the charge of the student began. The teacher seized the student's right hand and asked his name. The pupil replied, "I am N. N. Sir!" the teacher, again enquired whose pupil he was, whereupon the student replied "Yours." The Acharya correcting his answer said, "Indra's pupil art thou; Agni is thy teacher; I am thy teacher, N. N.!" Thus the teacher took the boy in his charge for education and protection. But thinking himself not omnipresent and all powerful, he commended the student to the protection of gods and all creatures, that were requested to guard him everywhere. "To Prajapati I give thee in charge. To the god Savitri I give thee in charge. To Heaven and Earth I give thee in charge. To all being I give thee in charge for the sake of freedom form harm."

THE COMMANDMENTS

Then after a cirmumambulation of the fire, and offerings to it, the teacher, taking hold of the student, delivered the following commandments: "A student art thou. Take water keep silence. Put fuel on the fire. Take water." This commandment is found as early as in the Satapatha Brahmana which besides, offers some explanation of the text also. "Sip water. Water doubtless means ambrosia: Sip ambrosia is thus he tells him; do thy work: work doubtlessmeans vigour; exert vigour is what he tells him; put on fuel: enkindle thy mind with fire, with holy lustre is what he thereby tells him; do not sleep: "do not die" is what he therby says to him , *etc.*" The commandment was a practical advice as well as a symbolical performance.

THE SAVITRI MANTRA

Next, the most sacred Savitri Mantra was taught to the student. If he could not follow it just on that day, it could be recited to the boy after one year, six months, twntyfour days, twelve days or three days. The teacher, looking at the face of the child, uttered the Savitri Mantra, "Let us meditate on the most excellent light of the Creator (The Sun); May he guide our intellect." The mantra was recited Pada by Pada, then hemistich by hemistich, and the third time the whole verse. To a Brahman the Acharya recited the Savitri mantra in the Gayatri metre, to a Rajanya in Tristubha and to a Vaisya in Jagati, or to persons of all castes in the Gayatri metre. The last option has now obtained universality. The teaching of the sacred mantra signalised the second birth of the child, as the teacher was regarded the

father and Savitri the mother of the child. In early times the teacher himself was supposed to have conceived the child: "By laying his right hand on the pupil, the teacher becomes pregnant with him; In the third night he is born as a Brahman with the Savitri." The prayer was simple but significant. It was very appropriate to students whose prime business was to stimulate and develop their mind.

THE SACRED FIRE

The rite of first enkindling and feeding of the sacred fire was performed after the teaching of the Gayatri mantra. The verses uttered here were full of educational significance. The student wiped with his hand the ground round the fire with the formula. "Agni, glorious one, make me glorious. As thou glorious Agni, art glorious, thus, O glorious one, bring me to glory. As thou Agni are the preserver of the treasure of sacrifice for the gods, thus may I become the preserver of the treasure of the Vedas for men." Then he put fuels on the fire with the prayer. "To Agni I have brought a piece of wood, to the great Jatavedas, As thou, Agni, are inflamed by wood, thus I am inflamed by life, insight, vigour, offspring, cattle, holy lustre… May my teacher be the father of living sons; May I be full of insight, not forgetful of what I have learnt; may I become full of glory and splendour, of holy lustre and enjoyer of food. Svaha!" the sacred fire was the symbol of Life and Light, for which the student strove. It was the centre of all religious activities of the Indo Aryans. Its worship began in the student career and continued throughout his life.

THE ROUNDS FOR ALMS

Then followed the stundet's going the rounds for alms. This was the ceremonious beginning of what was going to be the chief means of his maintenance throughout his student career. On the day of the Upanayana he begged from only those who would not refuse, *e.g.*, his mother and other relatives. The decorum required that a Brahmana student should beg addressing the woman whom he asks for alms with the word, "Lady" inserted in the middle; a Vaisya with the word put at the end. It cannot be said how far the custom of begging was universal in ancient India. But the ceremony of begging emphasized on the student's mind the fact that, being a non-economic entity, he was dependent on the public charity and he should discharge his duties to society when he would become its earning member. Begging of alms, in early times if not universal, must have been common, at least, in the case of Brahman and other poor students, as it is still practiced by poor Brahman students. But in later times, excepting some rare cases, it fell into disuse.

LAST FEATURES

At present a few new features, unknown to the scriptures, have been introduced in the Upanayana samskara which are located after the ceremonial begging. The

student undertakes a mimic performance. He enacts a comedy of going on educational mission to Benares or Kashmir. But he is persuaded by his maternal uncle or brother in law who allures him by promising a bride. What a tragedy of the educational ideal of the Upanayana samskara. The Samavartan that was performed at completion of the studies, is now staged on the same day, simply for the emergency of child marriage.

TRIRATRA VRATA

After the initiation ceremonies were over, the student was required to observe three days' continence, which was called "Triratra vrata." This continence might extend to twelve days or one year. It was the beginning of a rigourous training. He was not to eat saline food, he had to sleep on the ground, and he was forbidden to take meat and wine and to sleep in the day time. At the end of the vow, the Medhajanana ritual was performed in order to evoke divine help in the sharpening of the intellect, memory and retaining power. It was called Medhajanana, because by performing it one could get intellect fit to grasp the Vedic knowledge. Saunaka says, "The Sun born Goddess, the preserver of this world, Herself is Medha. One who desires success in learning should worship her with a view to stimulate talent." At present, the Upanayana having no educational purpose, these ancillary rites of educational significance have been dropped.

THE DAWN OF A NEW ERA

When the Upanayana was a living samskara performed at the beginning of the student career, it must have created a very impressive atmosphere. It marked the dawn of a new era in the life of the initiate. He was no more a child and was introduced to the life of perfect and stern discipline. The ceremony symbolized the fact that the student was a traveller, starting for the boundless realm of knowledge. To reach is destination, he was asked to be firm and steadfast, like a stone, in his determination. A complete harmony between him and his Acharya was also essential.

In his mission, the student was assured the help of all gods and creatures. The ideals before him were Indra, the lord of all gods. And Agni, the most brilliant element in the world, the one suggestive of power and position and the other indicative of life and light. If the student acted up to the symbolisms and suggestions of the samskaras, he was bound to be a successful scholar and full-fledged man, fit to share the responsibilities of the world.

4

Education System in Ancient India

The ideal of education has been very grand, noble and high in ancient India. Its aim, according to Herbert Spencer is the 'training for completeness of life' and the molding of character of men and women for the battle of life. The history of the educational institutions in ancient India shows how old is her cultural history.

It points to a long history. In the early stage it is rural, not urban. British Sanskrit scholar Arthur Anthony Macdonell (1854-1930) author of A History of Sanskrit Literature says "Some hundreds of years must have been needed for all that is found" in her culture.

The aim of education was at the manifestation of the divinity in men, it touches the highest point of knowledge. In order to attain the goal the whole educational method is based on plain living and high thinking pursued through eternity.

As the individual is the chief concern and centre of this Education, education also is necessarily individual. It is an intimate relationship between the teacher and the pupil. The relationship is inaugurated by a religious ceremony called Upanayana. It is not like the admission of a pupil to the register of a school on his payment of the prescribed fee. The spiritual meaning of Upanayana, and its details inpsired by that meaning, are elaborated in many texts and explained below in the proper place. By Upanayana, the teacher, "holding the pupil within him as in a womb, impregnates him with his spirit, and delivers him in a new birth." The pupil is then known as Dvija, "born afresh" in a new existence, "twice born" (Satapatha Brahmana). The education that is thus begun is called by the significant term Brahmacharya, indicating that it is a mode of life, a system of practices.

This conception of education molds its external form. The pupil must find the teacher. He must live with him as in member of his family and is treated by him in every way as his son. The school is a natural formation, not artificial constituted. It is the home of the teacher. It is a hermitage, amid sylvan surrounding, beyond the distractions of urban life, functioning in solitude and silence.

The constant and intimate association between teacher and taught is vital to education as conceived in this system. The pupil is imbibe the inward method of the teacher, the secrets of his efficiency, the spirit of his life and work, and these things are too subtle to be taught. It seems in the early Vedic or Upanishadic times education was esoteric. The word Upanishad itself suggests that it is learning got by sitting at the feet of the master. The knowledge was to be got, as the Bhagavad Gita says, by obeisance, by questioning and serving the teacher.

India has believed in the domestic system in both Industry and Education, and not in the mechanical methods of large production in institutions and factories turning out standardized articles.

"A most wonderful thing was notice in India is that here the forest, not the town, is the fountain head of all its civilization. Wherever in India its earliest and most wonderful manifestations are noticed, we find that men have not come into such close contact as to be rolled or fused into a compact mass. There, trees and plants, rivers and lakes, had ample opportunity to live in close relationship with men. In these forests, though there was human society, there was enough of open space, of aloofness; there was no jostling. Still it rendered it all the brighter. It is the forest that nurtured the two great ancient ages of India, the Vaidic and the Buddhist. As did the Vaidic Rishis, Buddha also showered his teaching in the many woods of India. The current of civilization that flowed from its forests inundated the whole of India."

FROM THE BEGINNING TO 10TH C.A.D.

In ancient India a child followed the occupation of his father, either religious or professional and his training in that particular field was provided by his father in his house. Over a period of time two system of education developed, the Vedic and the Buddhist. As the name indicates in the former system Vedas, Vedangas, Upanishads and other allied subjects were taught while in the latter system, thoughts of all the major school of Buddhism was taught. While Sanskrit was the medium of instruction in the Vedic system of education, Pali was the medium of instruction in the Buddhist system of education. But both system offered vocational education apart from religious education of their respective faiths. There was also a purely vocational system of education wherein master craftsmen and artisans taught their skills to students who worked as apprentice under them.

HOLISTIC EDUCATION OF ANCIENT INDIA

The holistic education of ancient India involves a harmonious blending of the knowledge of the outer world (*avidya*) and that of the inner-world (*vidya*). The former, as it were, enables a man to keep his body and soul together and the later, *i.e . , vidya*, the wisdom, leads him to immortality, freedom from all sufferings of the world of change.

It may be noted here that the Lord Buddha preached middle path which lies between the two extremes, viz, gross sensualism or vile pleasure-seeking on the one hand and the extreme asceticism or the severest self-mortification on the other hand. Buddha laid stress on purity of conduct, truthfulness, love and benevolence, obedience to parents and respect for the elders, non-drinking, charity and kindness and mercy to all living beings. Ahimsa non-violence towards life is recognized as an integral principle of his practical morality. The spirit of Buddhism was very liberal and accommodating. These values have become very essential for survival of human race in the present day situation. The ancient Indian thinkers felt that a healthy society was not possible without educated individuals. They framed educational set up carefully and wisely aiming at the harmonious development of the multiple dimensions of the human personality.

This is an essentially a universally applicable educational framework highlighting the purpose of human life and inter connectedness at all levels of existence as a basis of human values. In this system understanding oneself (self-knowledge) is as important as understanding the world. According to them without a deep understanding of one's relationship with nature, with ideas, with fellow human beings, with society, and a deep respect for all life, one is not really educated. Another unique feature of this educational system is that it aims at creating a mind that is both scientific and spiritual at the same time-one that is enquiring, precise, rational and sceptical but at the same time has sense of beauty, wonder, aesthetics, sensitivity, humility, and an awareness of the limitations of the intellect.

It also aims at developing a mind, which is rational, flexible and not dogmatic, open to change and not irrationally attached to an opinion or belief should. In this system of education both scientific and spiritual quests are the complementary quests (J Krishnamurti, 1981), one for the discovery of the order that manifests itself in the outer world of matter, energy, space and time and the other for discovering order (peace, harmony, virtue) in the inner world of human consciousness. Actually they are both quests for truth into two complementary aspects of a single reality which is composed of both matter and consciousness.

For an ordered, gradual and holistic development of human personality and to secure a progressive balance and harmony of growth, the ancient educational

thinkers developed another unique concept *viz.* the "*Purushartahs*". *Purushartha* is translated to mean a human goal, an object of desire, consciously pursued. This significant concept of development upholds the legitimacy of man's desire for economic security (*artha*) and sensuous aesthetic satisfaction (*kama*) and spiritual welfare (*moksha*).

But it does not support the insatiable greed which could destroy the possibility of realizing them. Both wealth and pleasure are goals only pursuable in society, but they can be successfully pursued only if society has at least some amount of stability and harmony.

Dharma is claimed to be an important factor in the maintenance of social stability and harmony. Therefore, the observance of dharma, in virtue of its being a necessary condition of social stability and harmony, is insisted upon as an indispensable ethic for the pursuit of wealth and pleasure.

Dharma is an ethical law which prevents human beings from falling into crooked ways of the ordinary and unbridled demands of impulses, desires, ambitious and egoism. Dharma denotes that morality and those values which are founded upon higher, *i.e.,* metaphysical and cosmic principles and they appeal to the highest goals and yet they are related to the common life and social processes.

Dharma is learning (*vidya*), in a broader sense, which can enlighten the human beings to understand the subtle niceties of living a dignified life. The values inculcated through education included a rule of prohibition regarding acquisition of wealth or securing or fulfilling of pleasures and desires of an individual. The rule is: Reject the wealth, pleasure and desires which are inconsistent with moral law (dharma).

Ancient Indians also developed the concept of Yoga for disciplining the mind and the body. Without the practice of the principles of *yama* and *niyama*, which lay the firm foundation for building character, there cannot be an integrated personality (BK Iyengar, 2005). In Yoga Sastra the" Right Living" is based on *yama* and *niyama*. Very simple ethical disciplines of "dos and don'ts".

Sage Patanjali in his authoritative Treatise *Yoga Sutras* builds his entire Eight-fold path of Yoga on the foundation of *yama* and *niyama*. Practice of *asanas* without *yama* and *niyama* is mere acrobatics. Discipline does not arise from one's own mind. It has to be learned from outside. The word *Yama* can be broadly translated as "Self Restraints".

The following table provides more details on this topic:

- *Ahimsa:* Non-violence. Restraint from harming other living beings. Extending love and affection to all other creations of nature. Compassion, mercy and gentleness towards every other living being.

- *Sathya:* Truthfulness, Restraining from falsehood, in thought, word and deed.
- *Asteya:* Non-stealing. Restraining from desire to take what is not belonging to oneself.
- *Brahmacharya:* Litrally means "moving towards realisation of Brahman". Restraint from waste of energy in body, mind and speech.
- *Aparigraha:* Non grasping (coveting). Restraint from hoarding and greed. Holding things which are not needed. In the modern parlance "consumerism".

The following table provides further details on this topic:

- *Saucha:* Cleanliness and Purity of body, mind and thoughts. This will bring orderliness, punctuality and clarity in one's living.
- *Santosa:* Meaning Contentment within. True happiness in life lies in accepting the way of things that the life offers. Then Peace and tranquility will follow with patience.
- *Tapas:* Burning desire for spiritual path.
- *Swadhyaya:* Self study. Broadening of intellect through serious study of known (physical world) and unknown (spiritual world).
- *Iswara Pranidana:* Surrender to the Lord. Accepting the fact that nothing is in our hands. All that happens are for the good. Its Lord's Will.

ANCIENT EDUCATION SYSTEM IN INDIA

"He who is possessed of supreme knowledge by concentration of mind, must have his senses under control, like spirited steeds controlled by a charioteer" says the Katha Upanishad. From the Vedic age downwards the central conception of education of the Indians has been that it is a source of illumination giving us a correct lead in the various spheres of life. Knowledge says one thinker, is the third eye of man, which gives him insight into all affairs and teaches him how to act.

India has a rich tradition of learning and education right from the beginning of time. There are Shastra's and Sutra's which detail the duty of a teacher and student. Ancient Education System in India is based on making of Man and not for just survival. The making of man was regarded as an artistic and true purpose of education. It was sought as the means of self-realization, as the means to the highest end of life. *viz.* Mukti or Emancipation. Ancient Education System in India is also to be understood as being ultimately the outcome of the Indian theory of knowledge as part of the corresponding scheme of life and values. The scheme takes full account of the fact that Life includes Death and this form the eternal

truth. This gives a particular angle of vision, a sense of perspective and proportion in which the material and the moral, the physical and spiritual, the perishable and permanent interests and values of life are clearly defined and strictly differentiated. Education must aid in this self-fulfilment, and not in the acquisition of mere objective knowledge. According to the ancient Indian theory of education, the training of the mind and the process of thinking, are essential for the acquisition of knowledge. The pupil had mainly to educate himself and achieve his own mental growth.

Ancient Education System in India had three simple process – Shravana, Manana and Niddhyaasana.

- *Shravana:* Listening to the truths as they fell from the lips of the teacher. This knowledge was technically called as Sruti (what was heard by the ear and not what was seen in writing). This is because the pronunciation is of utmost importance. If the pronunciations of the words differ, then the true meaning of the phrase or word will also differ.
- Manana implies that the student needs to interpret himself the meaning of the lessons imparted by the teacher so that they may be assimilate fully. Reflecting upon what has been heard (shravana). This is to remove any doubts about the knowledge that has been received via shravana.
- Nidhyasana means complete comprehension of the truth that is taught so that the student may live the truth and not merely explain it by word. Knowledge must result in realization; meditating upon the essence of what has now been intellectually understood until there is total conviction.

Ancient Indian schools known for their excellence:

- Nalanda
- Thakshasila
- Vikramshila
- Vallabhi
- Nalanda

In the words of the poet and Nobel prize laureate Rabindranath Tagore (1861-1941) - "A most wonderful thing was notice in India is that here the forest, not the town, is the fountain head of all its civilization. Wherever in India its earliest and most wonderful manifestations are noticed, we find that men have not come into such close contact as to be rolled or fused into a compact mass. There, trees and plants, rivers and lakes, had ample opportunity to live in close relationship with men. In these forests, though there was human society, there was enough of open space, of aloofness; there was no jostling. Still it rendered it all the brighter. It is the forest that nurtured the two great ancient ages of India, the Vaidic and the Buddhist. As did the Vaidic Rishis, Buddha also showered his teaching in the many

woods of India. The current of civilization that flowed from its forests inundated the whole of India."

IMPORTANT ASPECTS OF ANCIENT INDIAN EDUCATION

PHILOSOPHY

The education of a people is determined by its philosophy or scheme of life. This is specially true of Indian people. Many noted thinkers and philosophers have emphasised the importance of philosophy in human life. The Aryan Rishis also emphasised this. Man wants to know himself and the world. He also tries to lead his life in the light of his knowledge of himself (Atmanang Biddhi) and of the world. In the Western world, both Socrates and John Comenius laid stress on the knowledge of himself and the world.

Desire for knowledge springs from the rational nature of man. Philosophy is an attempt to satisfy this rational nature and eternal desire of man. It is not, therefore, a luxury but a necessity. Aldous Huxley, an eminent English writer, observes in his book "Ends and Means" that "men live in accordance with their philosophy of life, their conception of the world. This is true even of the most thoughtless.

It is impossible to live without a metaphysic". According to Schopenhauer "Every man is a born metaphysician". R. R. Rusk is of the opinion that "There is no escape from a philosophy of life and a philosophy of education. Those who pride themselves on their neglect of philosophy have their own philosophy".

With this background let us now know the meaning and scope of philosophy. Philosophy in its widest sense means love of knowledge. "Philos" means love and "Sophia" means knowledge. It tries to know things immediately and remotely concerning man. Hence its problems include the real nature of man, the end of his life the nature of this world in which he lives, the existence of the creator of this world. Philosophy aims at knowledge of truth. Every school of Indian philosophy holds in its own way, that there can be a direct realisation of truth. There are mainly six schools of Indian philosophy—Nyaya, Baisesika, Sankhya, Yoga, Mimansa and Vendanta. Three more systems of Indian Philosophy developed later on: Charbak, Jainism and Buddhism.

BASIC CHARACTERISTICS OF THE PROBLEMS AND METHODS OF INDIAN PHILOSOPHY

The aforesaid problems of philosophy have been discussed by Indian philosophers, not separately but all together from all possible approaches—

metaphysical, ethical, logical, psychological, epistemological and axiomological. This tendency has been called by some thinkers like Brajendranath Seal the synthetic outlook of all times and existence.

Indian philosophy is not exactly identical or synonymous with Hindu philosophy. Indian philosophy denotes the philosophical speculations of all Indian thinkers—ancient or modern, Hindus or Non-Hindus, theists or atheists. Even in the ancient writings of the orthodox Hindu philosophers, like "Sarva Darsana Sangraha" of Madhabacharya, which tries to present in one place the views of all schools of philosophy, we find in the list of philosophies the views of atheist and materialist like the Charvakas and unorthodox thinkers like the Bauddhas and the Jainas, along with those of the orthodox Hindu thinkers. Indian philosophy is thus marked by its broad and liberal outlook. Each school of Indian philosophy takes into account the views of other schools of thought with searching criticism. It first states the opponent's view which is called "Purba Paksha", *i.e* . , the prior view. Then follows the refutation or "Khandana" of the earlier view. Last of all, comes the philosopher's own view as opposed to the prior view with proof and reason. This is known as "Uttarpaksha" or "Siddhanta".

Inspite of this general methodology of Indian philosophy it has some special features. The philosophy of a country is the cream of its culture and civilization.

It springs from ideas that prevail in its atmosphere and bears its unconscious stand. Indian philosophy of the ancient period represents the highest cultural attainment of the Indian people. The different schools of Indian philosophy bear the common stamp of Indian culture. This unity is due to the unity of moral and spiritual outlook which is evident from the points of agreement among the different schools of Indian thought. Indian philosophy is a complex of different currents of thought:

Practical Outlook of Indian Philosophy

The most striking fundamental point of agreement is that all the systems regard philosophy as a practical necessity and not a mere luxury. The aim of philosophical wisdom is not merely the satisfaction of the intellectual curiosity of idle brains but mainly an enlightened life, led with far-sight, foresight and insight, ultimately leading to 'self-realization'. But it should also be remembered that this practical motive or bent did not narrow the scope of Indian philosophy or affect its theoretical development.

Spiritual Disquietness of Indian Philosophy

Every system of Indian philosophy is marked by a sense of spiritual disquietness, *i.e* . , a sense of dissatisfaction at the sight of the evils or miseries that cast a gloom

over life in this world. All the systems, however, want to understand the source of these evils and incidentally the nature of the universe and the meaning of human life in order to find out some means for completely overcoming life's miseries.

The attitude of mind which looks at the dark side of things is pessimism. Indian philosophy is often been criticised as pessimistic and, therefore, pernicious in its influence on practical life. But one general point should be noted here. Indian philosophy is pessimistic in the sense that it works under a sense of discomfort and disquiet at the existing order of things.

But it is to be remembered that no Indian philosopher stops with this picture of life as a tragedy. If Indian philosophy points relentlessly to the miseries that we suffer from, through short-sightedness on our part, it also discovers a message of hope. In all the systems the problem of evil and misery has been tackled satisfactorily. The ultimate end is that the pain and sorrows are to be overcome.

The essence of Buddha's enlightenment, for example, the four notable truths of Buddhism, sums up and voices the real view of every Indian school in this respect, *viz.*, there is suffering (Duksha), there is a cause of suffering, there is cessation of suffering, there is a way of escape from this suffering. Thus pessimism in the Indian system is only initial and not final. (Radhakrishnan's History of Indian philosophy—Vol. 3)

Belief in An Eternal Moral Order of the Universe

The outlook which prevents the Indian mind from ending in despair and guarantees its final optimism is what may be described as spiritualism. "Spiritualism", says W. James "means the affirmation of an eternal moral order" (as opposed to Western materialism). This faith in an eternal moral order dominates the entire history of Indian philosophy.

The Universe is a Moral Stage with Unifying Force

Intimately connected with this outlook is the general tendency to regard the universe as where the men and women are players.

Self-knowledge is the Ultimate End of Life

Ignorance (Avidya) is the cause of bondage and knowledge is necessary for liberation (Sa Vidya ja Bimuktaye). All the schools hold that self-knowledge (Atmanam Biddhi) is the ultimate end of our existence. (In Western philosophy both Socrates and Comenius emphasised this aspect of education). This end is otherwise described as release from bondage. Ignorance of reality is the cause of our bondage and suffering, and liberation (Moksha) from this cannot be achieved without knowledge of reality, *i.e .*, the real nature of the world and of the self. In

summing up, it can be said that pessimism is the outcome of the consciousness of bondage and optimism is the outcome of belief in ultimate salvation. The ultimate object of life is, therefore, to overcome sorrow which is caused by bondage. And bondage is the result of ignorance; liberation is the result of knowledge.

This distinction between 'Avidya' and "Moksha' explains the highest value that the Indian Rishis gave to education because education led from bondage to liberation. Liberation can be attained through a constant search for truth and truth can be attained through a rational approach.

Concentrated Meditation is Necessary to Remove False Beliefs

Concentrated meditation or continued contemplative meditation on truths learnt is needed to remove the deep-rooted false beliefs. The necessity of concentration and meditation let to the development of an elaborate technique fully explained in the "Yoga" system. "Yoga"—in the sense of concentration through self-control—is not confined to that system only. It is found in some form or other in all other systems.

Self-control (Samyama) is the Basis of Meditation

Self-control is needed to remove passions that obstruct concentration or good conduct. Truth can be attained only through rational approach. It requires to be realised and realisation can be made through meditation which again requires complete self-control. This explains the Indian concept of Samyama and Yoga.

Truth is again not abstract. For its ultimate realisation it has to be practised in life's situation. Self-control is necessary for concentrating the mind on truths and for making them effective in life. In other words, self- control is the necessary pre-condition of contemplative meditation.

Socrates said, "Knowledge is virtue". His followers pointed out that mere knowledge of what is right is not actually competent to lead right actions because our actions are guided as much by reason as by blind impulses. Unless these impulses are controlled, action cannot fully follow the dictates of reason. This truth is recognised by all" the Indian systems except perhaps by the Charvaka.

It is neatly expressed by an oft-quoted Sanskrit sloka:

- Janami Dharman Na cha me Prabritti
- Janami Adharman Na cha me Nibritti

"I know what is right but feel no inclination to follow it. I know what is wrong but cannot desist from it". So mere knowledge in the theoretical sense of what is right does not lead to our goal. To carry into practice what we consider to be right constitutes virtue. Such practice is only possible when we can control our desires

and impulses and can rationalise them. Lastly, belief in the possibility of liberation is common to all the systems. Liberation is regarded as the highest and ultimate goal. All the Indian systems except the 'Charvaka' accept the idea of liberation as the highest aim of life. They all believe in the possibility of release from bondage. They agreed definitely that sorrows and sufferings in life can only be put to an end for once and all by liberation.

The importance of our national cultural heritage is amply expressed in the following three remarks of eminent scholars:

- F. W. Thomas, "Education is not exotic (introduced from abroad) in India. There is no country where the love of learning has so early an origin or has exercised so lasting and powerful an influence".
- Lord Meston, "At no period of its history has India been an unenlightened country. Inscriptions on stone and copper, the palm leaf records of the temples, and in latter days the widespread manufacture of paper all alike indicate not only the general knowledge but also the common use of the art of writing.From the earliest times the caste of Brahmanas has preserved by oral tradition as well as in manuscript a literature—unrivalled alike in its antiquity and in the intellectual subtlety of its contents".
- Max Mueller, "India, what can it teach us? Whatever sphere of the human mind you may select for your special study, whether it be language or religion or mythology or philosophy, whether it be laws or customs, primitive art or primitive science, everywhere you have to go to India, whether you like it or not, because some of the most valuable and instructive materials in the history of man are treasured in India and in India only."

THE CONCEPT OF EDUCATION IN ANCIENT INDIA

The concept of education of the people of ancient India developed from their philosophy of life. The educational institutions usually mirror the ideals of a nation and they enable us to understand the spirit of its civilization. This is particularly true in ancient India where the educational institutions like the preceptor's houses, the then schools and colleges, were the principal centres in which the rising generation could be imbued with racial culture, learning and traditions and adopted and practised them in their lives.

We should remember in this connection that in those days of antiquity j paper and printing press were unknown, and hence the masses could be approached not with the help of printed or written literature and books but only through the influences which individuals infiltrated into them from a limited number of students who received education in the seats of learning.

One important thing is to be noted here. The fact that educational ideas and ideals change with the changing conception of the national ideals and circumstances, is more particularly evident here in the system of ancient Indian education. We can visualize here more clearly than anywhere else the effects of changing ideals and circumstances on the features and fortunes of the educational system.

We very often hear this or that was the characteristic of ancient Indian system of education. But that would be a hasty generalisation, because it might be true of one period of ancient Indian history but untrue of another period. As for example, the statement that the caste system determined the career and profession of the individuals belonging to different castes was true of the Smriti period but untrue of the Vedic age.

Similarly, at one time of its history "reason" was regarded superior to authority (authoritative knowledge), but at another age that attitude or that state of society was completely changed. Again, at one period of its history the Hindu society favoured female education and female emancipation, but probably at a later stage it had to discourage the system for certain reasons.

Similarly, at one time the Hindu society attached great importance to manual skill, arts and crafts but perhaps at a later date proper value was not attached to their utility, and so on.

How and why such changes took place in the educational systems and ideals of ancient India will become quite clear to the students of the history of ancient Indian education, when they think that its history spread over a considerably vast length of time (some thousands of years).

The concept of education is directly related to the concept of life itself. Life in this material world was considered not the real life of man, but a temporary "sojourn". The ultimate object was, therefore, to go back to the real habitat and attain unity with the supreme self. Education, therefore, was conceived of as illumination giving us a correct lead in the various spheres of life.

It has been said that knowledge is the third eye of man which gives insight into all affairs and it enables us to have an insight into all kinds of reality. This is evident from the sloka—Jnanam Tritiam Manushya Netram. The knowledge is the third eye of man. The objective of life was to secure freedom from the bondage of the material world.

This was possible through enlightenment. That is why it was said that "which frees is knowledge"— "Sa Vidya Ja Bimuktaye". The Mahabharata says, "Nasti Vidya Saman Chakshu, Nasti Satya Saman Tapa". So education or knowledge would lead from darkness to light (Kalpalateba Vidya).

It is evident that the concept was very wide. Education meant self-culture and self-realisation for the realisation of the ultimate truth. If that was so, education was a life-long process. It is said well in Sanskrit "Jabat Jiban Adhite Bipra". Thus we find that just like the modem educationists the ancient Indians used the term education in a wider sense.

The modem wider meaning of education runs as follows: "Education means that process of development in which consists the passage of a human being from infancy to maturity, the process whereby he gradually adopts himself in various ways to his physical, social and spiritual environment".

This is nothing but self-culture. In ancient India, education in a wider sense thus stands for self-culture or self-improvement and they took it to be a process which goes on till the end of one's life. Education is a life-long or universal process, a process from the cradle to the grave, from the birth to maturity. It is said that a teacher is a student all through his life.

But the ancient Indians were not impractical as well. Hence there was some narrow concept of education. Education in this respect meant deliberately ' designed instruction, influence and training with the object of attaining proper adjustment between the individual and the society in both economic and social aspects.

Hence ancient Indian education also took into consideration the needs of material existence. The concept, therefore, was both spiritual and practical. The former is called "Para Vidya" or supreme knowledge and the latter "Apara Vidya", *i.e.*, practical or inferior knowledge. For the sake of comparison the modem narrow meaning of education can be cited here.

"Education in the narrower or more definite sense does not include self- culture or the general influence of one's surroundings, but only those 'special influences' which are consciously and designedly or deliberately brought to bear upon the younger by the adult portion of the community, whether through the family, the church or the state."

THE AIM OF EDUCATION IN ANCIENT INDIA

The aim of education in ancient India was the ultimate outcome of the Indian theory of knowledge and the corresponding scheme of life and values. That scheme takes full account of the fact that Life includes Death and the two form the whole truth as it is a whole cycle and a whole truth leads to ultimate merger with the supreme.

R. K. Mukherjee says, "this gives a particular angle of vision, a sense of perspective and proportion in which the material and the moral, physical and the spiritual, the perishable and the permanent interests and values of life are clearly

defined and strictly differentiated". The starting point and the goal were the same. The whole truth had to be realised and this was possible only through contemplation. This was known as "Swarupanubhuti". The ideal student had to discover the ideal self through the process of "Manana". But at the same time the society was not to be neglected. The student had also to discover his social self. This was possible through the shouldering of social responsibilities and by submission to "Bidhi", that means traditional laws.

"The ancient Hindus were greatly impressed and affected by the fact of death as the central fact of life. Their one aim of life was to solve the problem of death by achieving a knowledge of the whole truth of which Life and Death are parts and phases. They perceived that it is the individual that dies, and not the whole or the Absolute. Thus the individual must merge himself in the Universal, to escape from the sense of change, decay and dissolution. The Absolute is not subject to change. "

Hence the chief aim of education was the realisation of the fundamental truths of life, to solve the problems of death by merging the self in the Universal to avoid change, decay and dissolution. Individuation meant death, a lapse from the Absolute, and merger with the Universal meant life. Individuation results from the pursuit of objective knowledge and this have to be stopped. Realisation of the Absolute was not possible without self-control. Hence the aim of education was "Chittavrittinirodha", the inhibition of those activities of the mind by which it gets connected with the objective or material world.

The individual's supreme duty was to achieve his expansion into the Absolute, his self- fulfilment. Education must aid in this self-fulfilment. But self-fulfilment was not possible with the acquisition of mere objective knowledge. It is more concerned with the subject than the object.

It is a matter of the inner world and not the outer one. It is not possible through the senses and not even through the intellect. It was the mind which was the supreme concern. Thus the pursuit of objective knowledge was not the chief concern of ancient education in India. The knowledge of the whole or the Absolute was the chief aim of ancient Indian education.

Individuation is Bondage. It limits vision and knowledge. Perception of Life in the perspective of the whole is Mukti, Emancipation. The individual must achieve his emancipation, his escape from bondage (Samsara), from disease, decline and death. It was, therefore, the main business of education to train and educate the inner mind and not the mere brain or the outer physical senses.

The mind was the supreme concern and objective, the chief subject of treatment. Hence the main purpose of education was to train the mind as the medium and instrument of knowledge, transform the entire psychic organism overhaul the mental

apparatus itself. Its method, therefore, was the method of yoga, the science of sciences and the art of arts, the science and art of the reconstruction of the self by discipline and meditation. Yoga is defined as Chittavrittinirodha. It is to stop the functioning of the Mind as the avenue or vehicle of objective knowledge, the inhibition of individuation. Thus, education in ancient India was a process of control of mind, to drive it down to its deeper layers, to make it free from the infinite distractions of the material world. The aim was not simply abstract and theoretical. There were practical and concrete aims too. The first was the acquisition of knowledge. This was evident in the Vedic period. In the period of the Vedangas it became still more evident. Knowledge sought in ancient India was of two kinds:

Apara Vidya

Apara vidya, *i.e . ,* lower knowledge or knowledge related to the material world. The content of the lower knowledge constituted mainly of the four Vedas, six Vedangas, Smriti, Epics, Grammar, Mythology, Politics, Theology *, etc.* Apara Vidya contributed towards the fulfilment of worldly responsibilities.

Para Vidya

Para Vidya, *i.e .*, the highest or supreme knowledge for self-realisation. It is spiritual knowledge or knowledge of the Supreme Being. It contributed towards spiritual salvation. The four Vedas, the six Vedangas and the Vedanta (Upanishads) constituted the content of the Para-Vidya. Para Vidya is that knowledge by which the ultimate reality is known or the Absolute is reached. This Para Vidya forms the real subject matter of the Vedanta.

Inculcation of social and civic duties in the minds of the students was also regarded as art important aim of education in those days. Social life through Hospitability and charitability was prominently displayed in the scheme of ancient Indian education.

Education for calling (occupation) was another important aim. The pupils were educated for different occupations. In the early phases, occupations depended upon individual capacities. There was no family profession so to say. But with the stereotyped development of caste system, occupation became hereditary and pre-determined. Necessarily there was a separate education for each caste for fitting the pupil in particular occupation.

Character training and moral education was regarded as very important aim of ancient Indian education. It is said in the Manu Samhita that good character with less Vedic knowledge is better than bad character with more Vedic knowledge. Character training was imparted through instruction, glorification of the heroic men of character and through a scheme of discipline.

The disciplinary moral concept of life found expression in Brahmacharya. The Epics emphasised sound mind in sound body, moral steadfastness, dutifulness and detachment. Women's education and honour received great impetus in the hands of the Vedic Rishis.

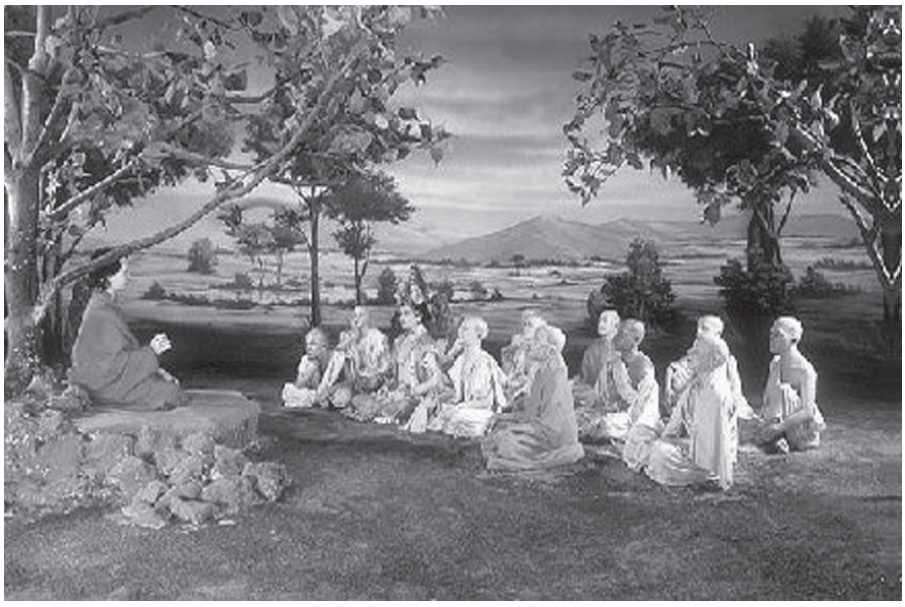
From the above discussion it is clear that ancient India cherished high ideals of education. "She must not drift away from her national heritage and basic ideals in the sphere of culture and learning, where her achievements constitute to this day her only title in the comity of nations. The present policy of Indian secularism, we apprehend, may bring disaster for the future of India.

India looks to the West for scientific guidance and the West is looking forward to India for spiritual guidance". 'The East is East and the West is West, and the twain shall never meet'—said Rudyard Kipling. But we call cherish a pious wish "Let the East and West meet together for evolving out an educational policy which will be the panacea of all evils, whether social, economic and political".

5

Vedic Education: Gurukula System of Education

The education system which was evolved first in ancient India is known as the Vedic system of education. In other words, the ancient systems of education were based on the Vedas and therefore it was given the name of Vedic Educational System. Ancient education emerged from the Vedas. They are supposed to be the source of Indian philosophy of life. Vedas means 'to know'.



Vedas occupy a very important place in the Indian life. The basis of Indian culture lies in the Vedas which are four in number – Rigveda, Samveda, Yajurveda, and Atharavaveda.

Some scholars have sub divided Vedic Educational period into Rig Veda period, Brahmani period, Upanishada period, Sutra (Hymn) period, Smriti period etc but all these period, due to predominance of the Vedas, there was no change in the aims and ideals of educations. That is why, the education of these periods, is studied under Vedic period. The education system that prevailed during the Vedic times had some unique characteristics. Education was confined to the upper castes, and to those who were Brahmacharis. In Indian tradition, a person's life cycle is divided into four stages of which 'Brahmacharis' is the second phase. This is the time set aside for learning and acquiring skills. During Vedic period, most of the upper castes, which were either Brahmins or Kshatriyas, had their education in a unique system called 'Gurukulas'.

The most important contribution of ancient India not only for India but also for the world is in the field of education. It may also be remembered that education is not an abstract term. It is manifested in the cultural economic, individual, philosophical, scientific, social and spiritual advancement. In other words, education is the means for developing the mind for the betterment of the individual and society. In the words of Albert Einstein, "We owe a lot to the Indians who taught us how to count without which no worthwhile scientific discovery could have made." This word shows the importance of Vedic period and ancient Indian education.

MAIN FEATURES OF THE VEDIC EDUCATION

In ancient India teaching was considered to be holy duty which a Brahman was bound to discharge irrespective of consideration of the fee teacher were expected to devote their lives to the cause of teaching in the missionary spirit of self-sacrifice, and the society laid down the principal that both the public and state should help the learned teachers and educational institutions very liberally.

Society realized that "Vidyadana" or the gift in the cause of education was to be the best of gifts, possessing a higher religious merit than even the gift of land. On the occasion of religious feats, students and teachers were invited and donations were given liberally.

IMMEDIATE AIM

The important aims of education in Vedic period are:

- Education for other world lines.
- Character formation.

- All round development for Personality.
- Intellectual Development
- Spiritual Development
- Preparation for living
- Preserving and Transmitting Culture
- Education only a means and not an end in itself.

CURRICULUM

- Vedic Literature:
  (a) The Rig-Veda.
  (b) The Yajurveda.
  (c) The Sam Veda
  (d) The Atharavaveda
- Vedangas.
- Hetuvidya.
- Silpa- vidya.
- Physical Education.
- Stress on other worldliness.

METHODS OF INSTRUCTION

The important methods of learning are:

- Listening (Sravana is listening to words texts as they uttered by the teacher.
- Deliberation (Manana or Chintan is the process of deliberation or reflection of the topic taught.)
- Meditation (Nidhidhyarama represents the highest stage.).
- Illustration
- Project Method

DURATION OF EDUCATION

In the house of the teacher, the student was required to obtain education upto the age of 24, after which he was expected to enter domestic life.

Students were divided into three categories:

- Those obtaining education upto the age of 24-Vasu.
- Those obtaining education upto the age of 36-Rudra.

- Those obtaining education upto the age of 48-Aaditya.

ROLE OF TEACHER

The teacher or acarya in the Vedic age was responsible not only in imparting knowledge – religious as well as secular, but also in molding the character and personality of the pupils of his asrama.

The acarya of the gurukula system was an affectionate father, an effective teacher, and a person of high moral and spiritual qualities. He maintained discipline by the influence of his personality. He was sincere and honest to his work.

He taught with his heart and soul. He also performed the functions of a householder performing the five daily yajnas and observing vows. He led a disciplined life.

ROLE OF MOTHER IN EDUCATION

A mother should impart education to her children so as to broaden their horizon. At this stage good manners are to be taught so that the children behave properly with the elders and in assemblies.

THE STUDENT

The student in the Vedic school was called brahmacarin. He had to dedicate his life for the sake of gaining knowledge, leading an enlightened life. In his formative life he must lead an austere and disciplined life. The Upanishads clearly describe the qualities required for a brahmacarin. A student had to be calm, patient, self-restrained and self-denying.

The student's prayer included his longing for the realization of a full life. Thus the main aim of the Vedic educational system was to produce a rational individual, free from passions, full of universal affection, continuously selfeducating and striving to reach the highest goal.

FEMALE EDUCATION

During the Vedic age women were given full status with men. For girls also the Upanayan (initiation ceremony) was performed and after that their education began.

They were also required to lead a life of celibacy during education. They used to study the Vedas and other religious and philosophy books; they were free to participate in religious and philosophical discourses. Many 'Sanhitas' of Rigveda were composed by women. In Gurukulas the gurus treated male and female pupils alike and made no distinction what-so-ever.

CHARACTERISTICS OF VEDIC EDUCATION

The important characteristics of Vedic education are:

- Vedas are the eldest World Literature.
- Suitable age of education.
- Rig-Veda is the mirror of Ancient Indian culture and civilization.
- Perfection in Education.
- The main aim of Vedic education was to liberate the soul from worldly bondages.
- Equal rights to education for all.
- Ideal of teacher.
- Education standard in the family.
- Equal opportunity to gain education.
- Sanskrit as the Medium of Instruction.
- Education is through travel.

AGENCIES OF VEDIC EDUCATION

There are three agencies of education:-

Gurukulas

Gurukulas were the dwelling houses of gurus situated in natural surroundings away from noise and bustle of cities. Parents sent their wards at the age of five years to nine years according to their castes after celebrating their Upanayan Sanskar. Pupils lived under the roof of their guru called 'antevasin' under the direct supervision of their Guru.

Gurukula as the name indicates was the family of the teacher and his residence where the students used to stay during the period of study.

Gradually, the Gurukula were extended to include a number of buildings. However the institution was built up around the family of teacher. The primary duty of the student was to serve the teacher and his family. The students were like sons of the teacher and the whole institution lived like family.

Parishads

Parishads were bigger educational institutions where several teachers used to teach different subjects. This may be compared to a college Parishad in Upanishads, has been used for a conference of learned men, assembled for deliberations upon

philosophical problems. Later on the 'Parishads' were set up at the places where learned men lived in good number and gradually these institutions became permanent centres of imparting knowledge. In the words of Dr. R. K. Mukherjee Parishad correspondences to University of students belonging to different colleges.

Sammelan

Sammelan literally means getting together for a particular purpose. In this type of educational institutions scholars gathered at one place for learned discussions and competitions generally on the invitation of the king. Scholars were appropriately rewarded.

CONCLUSION

In Vedic era education had the prominent place in society. It was considered as pious and important for society. Vedic age had, thus, a system of education in which "hearing, chanting and memorizing, played a great part, assimilation of idea took place through a well- planned life of service to teacher, contemplation, all under his guidance. Education was must for everybody for becoming cultured.

Education was the fully capable of development of physical and intellectual and character development, development of civis, social, moral, and spiritual values, social efficiency and happiness, preservation and spread of culture, infusion of piety, and religiousness and development of best type of personality. Relationship between Guru and pupils were very cordial during Vedic and Post-Vedic period.

By means of education efforts were being made to infuse ¯Satyam Shivam and Sundaram inside the students. A great importance was attached to Veda in education system, self study Swadhyaya was considered more important during that period. The Vedic period favoured women education.

DEVELOPMENT OF EDUCATION DURING VEDIC PERIOD IN INDIA

The educational history of India can be divided into several epochs each having a characteristic educational pattern of its own. The chronological limits of these epochs may be considered to coincide with ancient, medieval and modern India including post-independence era.

Ancient India covers a very long period of nearly twenty-five centuries. Considering the time of Buddha as the beginning of the central era one can trace the educational development before and after this era.

THE VEDIC PERIOD (FROM B.C. 1000 TO B.C. 600)

In ancient Indian literature of the Vedic period the words "Siksha" and "Adhyapana" frequently occur. "Siksha" means to learn to recite. In those days education consisted of learning to recite the Holy text. The word 'Adhyapana' which literally means 'to go near' implies the idea of pupils going to some teacher for education.

The ancient Indian education emerged from the Vedas, because the Vedas are the source of Indian Philosophy of life. Veda means knowledge. During this period education was divided into two kinds of knowledge this worldly and other worldly. This worldly education dealt with the social aspect, whereas, the other worldly education was related to intellectual pursuits for achieving salvation. However, the greater emphasis was laid on the latter. Because, education was considered as a means of emancipation from life bondages.

OBJECTIVE OF VEDIC EDUCATION

The main objective of Vedic education was the development of physical, moral and intellectual powers of man and to achieve salvation through it. In the field of salvation much emphasis was laid on attention, concentration and yoga. Man's effort was to lift himself above everything through these methods. But according to Shri A.S. Altekar, there are six main objectives of ancient Indian education, which can be categorized under following heads.

Inculcation of a Spirit of Piety and Righteousness

In ancient days the life of man was simple and pious and was full of religious feelings, ideas and ideals. As man had a moral standard before him, he performed his duties with great attention and devotion. In the educational institutions also the whole atmosphere was surcharged with such feelings. Education for the future existence was blended in due proportion to achieve spiritual elevation. The main purpose was to enable the individual to awake and arise from the deep slumber of the worldly illusion.

Preservation and Spread of Ancient Culture

Preservation and transmission of ancient Indian culture was one of the aims of ancient educational system. Renowned and devoted teachers were engaged in teaching work. Pupils were prepared not only for this life. Education for the future existence was blended with it in due proportion. In this system students practiced education independently and this helped them in the upliftment of their future life.

Development of Personality

The Vedic education was based on lofty ideals. Ample opportunities were provided to the pupils for the multi-dimensional development of their personality. They had their own methods of work in order to achieve it. They also endeavoured to develop their personality physically, mentally and morally by residing at their preceptor's home through their devotional service. Besides, pupils were acquainted with the principle of know thyself, self-realization, self-confidence and sell respect.

Formation of Character

The educational system of Vedic period achieved a considerable success in connection with character formation. Gurukulas were established with this aim in view. In these institutions students led the life of 'Brahmachari' a celibate. The life in the Gurukulas was rigourous and hard. All the pupils were bound to obey the daily routines. This system lacked pleasures, comforts and luxuries. Simple food, good behaviour and high ideals were constantly stressed.

Inculcation of Civic and Social Duties

Inculcation of social and civic duties was one of the aims in Vedic period. This was necessary for a better future life. After the completion of the study in the Gurukulas, there was provision for family life. Pupils joined the society and enjoyed a happy civic life. So, their main duty was to observe the norms set by the society. They became the part and parcel of the society and were required to perform their duties towards family members. Their daily routine was to perform social, national and parental services.

Promotion of Vocational Efficiency

In this system of education, emphasis was given not only on book learning and providing basic knowledge but on application of knowledge in everyday life. So the scope of education was very comprehensive and wide. For the development of vocational efficiency, healthy, positive attitude and dignity of labour were fostered in pupils since the very beginning of their study. They were trained to earn their living according to their abilities and power.

SYSTEM OF EDUCATION

At the early stages the demand for education among the people was not so prominent. The system of education which was prevalent was altogether different from what is today. Somewhere in the hoary past a band of selfless, devoted persons converted their forest homes into schools, away from the haunts of din and distractions of the material world and engaged with teaching work exclusively

with single minded devotion. These institutions were situated in the calm and serene atmosphere of the hills and forests. At the beginning the priest or the Brahmanic class inherited and transmitted the tradition and the folklore to the succeeding generation. In the early Vedic Schools instruction was confined to young Brahmanic and was regarded mainly as a preparation for their future vocation as priests.

Learning was almost monopolized by the Brahmins. They formed a very small section of the society. As time passed on, the other two castes, Kshatriyas and Vaishyas, were also entitled to knowledge. In the initial stage of the Vedic education caste system had not assumed strict rigidity. Even then the Sudras in general were denied the privileges of studying the Holy Scriptures. With the passage of time, the aptitude or fitness of an individual to receive a particular kind of education was kept above all considerations of caste and status.

But to give instruction was the exclusive privilege of the Brahmins. This marked the throwing influence of the priesthood. During the period most of the vocations that people in general followed did not require any learning, as such, except the informal training that they received at home through observation and imitation. Therefore, the demand for education came from a limited section of the society. So there was no necessity of an elaborate organisation of education

Curriculum

The beginning of education was marked by the 'Upanayana' a ceremony which was generally performed at a prescribed age level. The age limit was varying from caste to caste. It was eight year, eleventh year and twelfth year, respectively for Brahmins, Kshatriyas and Vaishyas. The studentship lasted usually for twelve years.

The then prevalent system of education was not merely theoretical. It was related to the realities of life. Various branches of learning were incorporated in the curriculum. The subjects of teachings were Philosophy, Grammar, Astrology and Logic. In the teaching of languages, emphasis was laid on proper pronunciation and grammar. Along with theoretical aspect of the curriculum, the practical aspects of education was given due importance.

There was proper co-ordination between the t mid practical aspects of the curriculum. Through different subjects an attempt was made to make the student capable of experiencing the supreme truth himself and to mould the society accordingly.

The pupils' residence in teachers' house helped them to develop social contacts. It was considered a sacred duty on the part of the pupils to collect fuel-wood, supply water and do other household odd jobs for the teacher. In this way the pupils were receiving instructions related to domestic life and also learning the concrete lesson of the dignity of labour and social service. Besides, the pupils of

ancient India were receiving valuable training in the occupations of animal husbandry, agriculture, dairy farming, *etc.* by grazing the cows of the Guru and serving him in various ways.

The modem concept of 'Learning by Doing' as understood in the West today was the very core and essence of education in Ancient India. The student's life was considered as the laboratory for the educational experimentation. As the pupils were residing in the house of the Gurus, they were begging alms for their own subsistence and also for the preceptor. This practice of begging alms by the pupils was to inculcate in them noble sentiment of humanitarian virtues. The motive behind this system was to sublimate the unruly passions and ego in the pupils, which enabled them to face the realities of life and helped in social integration.

It was considered a concrete lesson in the cultivation of virtue of self-help and the sense of gratitude and duty towards the society. In the curriculum religious instruction was given much importance and religion permeated the whole scene of education. Though the curriculum in vogue was essentially spiritual and religious in character, yet it did not ignore the material aspect.

Methods of Teaching

Amidst beautiful natural surroundings sitting at the feet of the preceptor the pupils were trying to comprehend the various problems of life through listening, intellection, reflection and meditation. As written language was not developed, the teacher made his pupils learn the text by rote. Every pupil acquired knowledge according to his individual capacity. The basis of the method of teaching was psychological. The students were classified into very intelligent normally and sub normally intelligent, respectively. This classification naturally points to the different in the mental powers of various students.

Every day before the birds announce the day break the students used to recite the Vedic hymns. At the time of recitation careful attention was paid to the correct pronunciation of words. By listening to the Gurus attentively the pupils were trying to commit into their memory the Vedic hymns along with the prescribed pronunciation. Thus, the teaching, in a way was oral. But unintelligent memorization of the Vedic hymns was regarded as utterly futile. It was considered that he who studied Vedas without understanding the proper meaning could be compared to an ass carrying the load of sandal wood, feels only its weight, without being benefitted by its perfume.

Seminars and symposia were also held from time to time and students were getting the opportunity to show their worth through reasoning and argumentation. In the teaching learning process individual was treated as the teaching unit and individual attention was paid. Students were encouraged to ask questions to the

teachers for removing their doubts and difficulties. Through different subjects, teachers were not only trying to stimulate the intellectual curiosity of the students but also transferring something and that something was the high character and sinlessness.

Teacher-Pupil Relationship

There existed small domestic schools run by the teacher himself.The pupils were residing in the house of the Gurus. The moral fitness and unimpeachable conduct of the pupils were main criteria for admission in the domestic schools of the Gurus. Their mode of living was strictly guided by the prescribed disciplinary rules. The teachers were accepting very limited number of students. The students were very polite and submissive in their behaviour and held in high esteem. To obey the teacher was their duty. The teacher had also tremendous sympathy and love for the students. The chief aim of the teacher was the all round development of the personality of the students.

The teacher was also commanding great respect in the society. He was honoured and respected at all places. Starting from the kings and emperors to the most primitive tribes in the hills, all were paying great tribute to the teachers. Therefore, in the past the teacher-taught relationship was very cordial and intimate. The teacher was regarded as the main source of inspiration for the student.

He was a model before the students. He was the symbol of purity. The teacher was also under obligation to fulfil his duty towards the pupil. Not only he was loving the pupils as his own children but also he was giving full attention on the teaching. The teachers were discharging their duties and responsibilities exclusively with selfless and single-minded devotion.

EDUCATION IN THE VEDIC AGE

The origin of the history of education in India can be traced to the Vedic Age, the age in which the sacred scriptures such as *Rgveda, Yajurveda, Samaveda, Atharvaveda, Brahmanas*, *Aranyakas* and *Upanisads* revealed the highest knowledge to mankind through our ancient rsis. Our rsis who imparted the knowledge to seekers, evolved methods by which this knowledge could be acquired, conserved and transmitted to the posterity. And from these methods was evolved a system of education. As S. C. Ghosh observes: "The highly developed state of civilization among the people of the Indus Valley presupposes existence among them a system of education"(Suresh Chandra Ghosh, *The History of Education in Ancient India 3000 BC to AD 1192*, New Delhi: Munshiram Manoharlal Publishers, 2001, p.1)

This ancient system of education was aimed at moulding the young pupils into individuals capable of living a perfect and full life – based on the principles of Dharma. As Chidambara Kulkarni has briefly put it, "The ancient Indian system of education was … a comprehensive scheme of perfecting the individual personality in all its facets – physical, moral, intellectual, religious and spiritual"(*Vedic Foundations of Indian Culture*, Bombay: Shri Dvaipayana Trust, 1973, p.107).

Knowledge in this system is not confined to the intellect, it is actual realisation and it must reveal itself through thought, word and deed. *Brhadaranyaka Upanisad* prescribes three steps of learning 'sravana', 'manana', and 'nididhyasana':

Atma va are drastavyah srotavyo mantavyo nididhyasitavyo maitreyi atmano va are darsanena sravanena matya vijnanenedam sarvam viditam. (II 4.5)

O Mythreyi, it is the Self that should be seen, heard of, reflected on, and meditated upon. Verily by the seeing of, by the hearing of, by the thinking of, by the understanding of the Self, all this is known.

The following verse too pertains the means for acquiring knowledge:

Tameva dhiro vijnaya prajnam kurvita brahmanah.

Nanudhyayadbhahunchabdan, vaco viglapanam hi tat iti.

(*Brhadaranyaka Upanisad*, IV. 4. 21.)

Let a wise Brahmana after knowing him alone practise (the means to) wisdom. Let him not reflect on many words, for that is mere weariness of speech.

Thus the Vedic education aims at perfection and freedom. And this is the import of the well-known sruti "*Sa vidya ya vimuktaye*" (That is real education which liberates).

Our ancient sages also envisaged the need for ecological balance for the welfare of human beings as well as the inanimate things. A life based on Dharma is aimed at by Vedic education. Dharma is described as "a set of values that sustains the creation without which very existence of it would be threatened".

SUBJECT OF STUDY

Brahmanas and Upanisads mention a wide range of subjects that were taught in the Vedic period. Hymns of the four Vedas were given the prime importance. Other important subjects were Brahmanas, Aranyakas, Upanisads, Vedangas, the six systems of philosophy – Nyaya, Vaisesika, Samkhya, Yoga, Mimamsa and Vedanta. V. M. Apte in his brief account of education in the Vedic age, observes:

With the development and elaboration of the institution of the sacrifice and the growth of a vast literature connected with it, the problem of the preservation of this literature became very acute, particularly because during the age under discussion the whole of it (the Samhitas and Brahmanas, including the Aranyakas and Upanisads appended to them) was looked upon as Sruti or revealed literature. The Vedic literature must therefore have formed the chief subject of instruction and the vital part of education. ("Social and Economic Conditions" 'The Age of the Later Samhitas', *The History and Culture of the Indian People: Vol. I The Vedic Age,* ed. R. C. Majumdar et.al., Bombay: Bharatiya Vidya Bhavan, 1971, pp. 458-459)

But the main emphasis was on Atmavidya because once it is mastered, all other subjects can be mastered easily. The Vedic system of education imparted knowledge at two levels or stages – one about the world of senses – science, humanities, arts and crafts of the times; and two, about Brahman – the eternal pure consciousness which is the higher stage of education called para-vidya. Education was considered complete only when both the stages were completed. The higher knowledge teaches that one universal soul permeates all beings and that the individual soul is a part of this universal soul, and hence the individual and the society are not separate entities but one whole. Subsidiary subjects such as Siksa, Kalpa, Vyakarana, Nirukta, Chanda, and Jyotisa were also taught as they are aids to the study of the Vedas – Vedangas. Other subjects developed in the Vedic age were Philosophy, Yoga, Physiology, Arithmetic, Geometry, Algebra, Astrology, Astronomy and Music, because these had significance in the life of the age.

THE STUDENT

The student in the Vedic school was called brahmacarin. He had to dedicate his life for the sake of gaining knowledge, leading an enlightened life. In his formative life he must lead an austere and disciplined life. He had to strictly abide by the rules of conduct and behaviour stipulated by the rsis. The Upanisads clearly describe the qualities required for a brahmacarin. A student had to be calm, patient, self-restrained and self-denying. The student's prayer included his longing for the realization of a full life. Sayana prescribes four processes – sauca (purity), santosa (contentment), tapas (penance) and swadhyaya (self-study) for the realization of a student's aims. In the gurukula system the teacher always instructed the pupils to speak the truth, and practice virtue. As for the methods of teaching, recitation, dialogue and self-study were the three stages. The pupils were taught to consider pursuit of knowledge as the highest yajna in their life.

Thus the main aim of the Vedic educational system was to produce a rational individual, free from passions, full of universal affection, continuously self-educating and striving to reach the highest goal. His rationalism, his attitude of

universal love, his entire personality had their roots in experience. His learning must reveal itself through his thought, word and deed. He must cheerfully fulfil his obligations to his family, caste, village and country. He must be emotionally alert to sacrifice his good for the good of all.

(Chitambara Kulkarni, Vedic Foundations of Indian Culture, p.119)

Conclusion

Vedic age had, thus, a system of education in which "hearing, chanting and memorizing, played a great part, assimilation of idea took place through a well-planned life of service to teacher, contemplation, all under his guidance. Thus the educated ones in that system were men who had not only knowledge but also character".

(Swami Gauthamananda, "Values in Our Education", *Values: The Key to a Meaningful Life*, Madras: Sri Ramakrishna Math, 1996, p.84). Education was not mere scholarship but a tapas pursued through Yoga.

As Kulkarni points out: "…the ancient Indian system aimed at providing the student, in addition to a high degree of intellectual training, with the spiritual and ethical strength so that he would grow to be a full man" (*Vedic Foundations of Indian Culture*, p.114). And the system succeeded in producing men whose sole concern in life was to spread universal happiness and harmony.

MAJOR FEATURES OF THE VEDIC SYSTEM OF EDUCATION IN ANCIENT INDIA

In other words, the ancient system of education were based on the Vedas and therefore it was given the name of Vedic Educational System. Vedas occupy a very important place in the Indian life. The basis of Indian culture lies in the Vedas which are four in number – Rigveda, Samveda, Yajurveda, and Atharavaveda. Some scholars have sub divided Vedic Educational period into Rig

Veda period, Brahmani period, Upanishada period, Sutra (Hymn) period, Smriti period etc but all these period, due to predominance of the Vedas, there was no change in the aims and ideals of educations. That is why, the education of these periods, is studied under Vedic period.

"Swadesh Pujyate Raja, Vidwan Sarvatra Pujyate"

This verse widely quoted in India illustrates the significance of education in India. The education system of Vedic period has unique characteristics and qualities which were not found in the ancient education system of any other country of the world.

According to Dr. F. E. Key, "To achieve their aim not only did Brahmans develop a system of education which, survived even in the events of the crumbling of empires and the changes of society, but they, also through all those thousands of years, kept a glow of torch of higher learning."

In the words of Dr. P. N. Prabhu, "Education in ancient India was free from any external control like that of the state and government or any party politics. It was the kings duties to see that learned Pundits, pursued their studies and performed their duty of imparting knowledge without interference from any source what so ever."

The education system that prevailed during the Vedic times had some unique characteristics. Education was confined to the upper castes, and to those who were BRAHMACHARIS. In Indian tradition, a person's life cycle is divided into four stages of which BRAHMACHARI is the second phase. This is the time set aside for learning and acquiring skills. During Vedic period, most of the upper castes, which were either Brahmins or Kshatriyas had their education in a unique system called GURUKULAM. Students had their education by living with their preceptors in forests far removed from cities, towns or villages. The life of students who were called SHISYAS was very rigourous and demanding. Those who failed to live up to these high standards would simply fall by the wayside. There were legendary acharyas like Sanandeepani and Dronacharya who taught epic heroes like Krishna and Arjuna martial skills, but what makes the Vedic period unique is the existence of sages like Gautama and Jaimini who were founder of different schools of Indian philosophy like*Nyaya* and *Purva Mimamsa.* This was a period of intense intellectual activity and speculation, which we hardly find even now. While *Nyaya* and *Vaisheshika* were theistic philosophies, *Sankhya* was atheistic.

There were of two types of BRAHMACHARIS who attended such GURUKULAMS, they were: UPAKURVANA BRAHMACHARI who remains a student for a limited time period after which he marries and becomes a householder and NAISHTHIKA BRAHMACHARI who remains a student and celibate throughout life dedicated to the pursuit of learning.

SALIENT FEATURES OF VEDIC EDUCATION IN ANCIENT INDIA

Infusion of Spiritual and Religious Values

The primary aim of ancient education was instilling into the minds, of pupils a spirit of being pious and religious for glory of God and good of man. The pursuit of knowledge was a pursuit of religious values. Education without religions instructions was not education at all. It was believed that a keener appreciation of spiritual values could be fostered only through a strict observance if religious rites.

Character Formation and Personality Development

In no period of the History of India, was so much stress laid on character building as in the Vedic period. Wisdom consisted in the practice of moral values. Control of senses and practice of virtues made one a man of character. Moral excellence could come only through practising moral values. The teacher and the taught were ideals of morality, for both practiced it all through their lives. The Guru in the ancient times realized that the development of personality is the sole aim of education. The qualities of self-esteem, self confidence, self restraint and self respect were the personality traits that the educator tried to inoculate in his pupils through example.

Development of Civic Responsibilities and Social Values

The inculcation of civic virtues and social values was an equally important objective of education in India. The Brahmachari after his education in the Gurukulas went back to the society to serve the rich and the poor, to relieve the diseased and the distressed. He was required to be hospitable to the guests and charitable to the needy. After a certain period of studies he was required to become a householder and to perpetuate his race and transmit his culture to his own off springs.

Knowledge

Education is knowledge. It is mans third eye. This aphorism means that knowledge opens mans inner eye, flooding him with spiritual and divine light, which forms the provision for man‘s journey through life.

Aims of Education

The ultimate aim of education in ancient Indian was not knowledge as preparation for life in this world or for life beyond, but for complete realization of self for liberation of the soul from the chains of life both present and future.

Methods of Instruction

It was a pupil centered education. No single method of instruction was adopted, though recitation by the pupil followed by explanation by the teacher, was generally followed. Besides question – Answer, Debate and Discussion, Story telling was also adopted according to need. There was no classroom teaching. However monitorial system was prevalent and senior pupils were appointed to teach Juniors. Travel was regarded as necessary to give finishing touch to education so the methods of teaching generally practiced during vedic period were mainly Maukhik (oral and other method was based on Chintan (thinking or reflection) In the oral method the students were to memorize the mantras (Vedic Hyms) and Richayas (Verses of

Rigveda) in order that there might not be changed wrongly and they might remain preserved in their original forms.

Medium of Instruction

As these educational institutions were managed and organized by Brahmans and all the books written in Sanskrit, therefore the medium of instruction was Sanskrit.

The 'Upnayana' Ritual

The word upnayana means to take close to, or to being in touch with. A ceremony called the upnayana ceremony was performed before the child was taken to his teacher. This ceremony was performed at the ages of 8,11 and 12 for the Brahmins, Kshatriyas and Vaishyas, respectively. The ceremony signaled the childs transition from infancy to childhood and his initiation into educational life. In this context, the term upanayana' means putting the students in touch with his teacher.

Celibacy or Brahamacharya

Every student was required to observe celibacy in his specific path of life. Purity of conduct was regarded as of supreme importance. Only the unmarried could become students in a Gurukul. On entering student life, the student was made to wear a special girdle called a makhla'. Its quality depended on the caste of the student. The students were not allowed to make use of fragrant, cosmetic or intoxicating things.

Alms System

The student had to bear the responsibility of feeding both himself and his teacher, this was done through begging for alms, which was not considered bad. Since every domestic knew that his own son must be begging for alms in the same way at some other place. The reason behind the introduction of such a practice was that accepting alms induces humility. The student realized that both education and subsequent earning of livelihood were made possible for him only through society's service and its sympathy. For the poor students, Begging for alms was compulsory and unavoidable, but even among the prosperous, it was generally accepted practice.

Practicability

Apart from intellectual aspect of education its practical side was not lost sight of and along with art, literature and philosophy, students got a working knowledge of animal husbandry, agriculture and other professions of life. In addition education in medicine was also imported.

Duration of Education

In the house of the teacher, the student was required to obtain education up to the age of 24, after which he was expected to enter domestic life students were divided into three categories:

- These obtaining education up to the age of 24 – Vasu
- These obtaining education up to the age of 36 – Rudra
- These obtaining education up to the age of 48.- Auditya.

Curriculum

Although the education of this period was dominated by the study of Vedic Literature, historical study, stories of heroic lives and discourses on the puranas also formed a part of the syllabus. Students had necessarily to obtain knowledge of metrics. Arithmetic was supplemented by the knowledge of geometry. Students were given knowledge of four Vedas – Rigveda, Yajurveda, Samaveda and Atharvaveda. The syllabus took with in its compass such subjects as spiritual as well as materialistic knowledge, Vedas, Vedic grammar, arithmetic knowledge of gods, knowledge of the absolute, knowledge of ghosts, astronomy, logic philosophy ethics, conduct *, etc.* The richness of the syllabus was responsible of the creation of Brahman literature in this period.

Plain Living and High Thinking

The education institutions were residential in the form of Gurukulas situated in forest, where teachers and pupils lived together. Education imparted was in the pure, colm and charming atmosphere of the Gurukulas and Ashramas and emphasis was laid on the development of character through Plain Living and High Thinking'.

Academic Freedom

Due to academic freedom students remained busy in thinking and meditation. It enhanced originality among them

High Place to Indian Culture

Indian culture was full of religious feelings and it was assigned a very high place in the field of education. Vedic culture was kept intact and transmitted through word of mouth to succeeding generations. The ancient Indian education system was also successful in Preserving and spreading its culture and literature even without the help of art of writing, it was only because of the destruction of temples and monasteries by invaders that literature was lost. The cultural unity that exists

even today in the vast- sub continent in due to the successful preservation and spread of culture and the credit goes to Ancient Education System.

Commercial Education and Mathematics Education

Commercial education and Mathematics education is also one of the chief features of vedic period. The ideas of the scope and nature of commercial education can be held from manu. Knowledge of Commercial geography, needs of the people of various localities, exchange value and quality of articles and language spoken at different trade centre were considered necessary. Theory of banking was also included in the course. Though there were no organized educational institutional training was usually imparted in the family. As far as Mathematics education is concerned, ancient Indian quite early evolved simple system of geometry. Shulva sutra are the oldest mathematical works probably compased between 400 BC and 200 A. D. Aryabhata (476.52 BC) is the first great name in Indian Mathematics. The concept of Zero also belonged to this period.

Female Education

During the Vedic age women were given full status with men. For girls also the Upanayan (initiation ceremony) was performed and after that their education began. They were also required to lead a life of celibacy during education. They used to study the Vedas and other religious and philosophy books, they were free to participate in religious and philosophical discourses. Many 'Sanhitas' of Rigveda were composed by women. In Gurukulas the gurus treated male and female pupils alike and made no distinction what-so-ever.

THE HINDU SYNTHESIS OF THE TRANSCENDENTAL AND EDUCATION

Author Benoy Kumar Sarkar writes: "The ideal of realizing the infinite in the finite, the transcendental in the positive, manifested itself also in the educational system of Hindu India. The graduates trained under the 'domestic system' of the Gurukulas or preceptors' homes were competent enough to found and administer states, undertake industrial and commercial enterprises; they were builders of empires and organizers of business concerns.

It was because of this all-round and manly culture that the people of India could organize vast schemes of colonization and conquest, and not content with being simply confined within the limits of mother India, could build up a Greater India beyond the seas, and spread culture, religion and humanity among the subject and hospitable races. It it is not for education, how else can we account for the remarkable

progress of the nation in architecture, sculpture, medicine, dyeing, weaving, mathematics, ship building, chess, navigation, military tactics, and implements and all such aspects of socio-economic and economico-political life as have to depend on the help of physical and natural sciences?"

The percentage of literary people in India was more than that at present. At least up to the 7th century A.D. this system worked most satisfactorily. People showed brilliancy in all departments. eg. Mathematics, Astronomy, Medicine, Chemistry, Poetry, Drama, Grammar and Philosophy. No nation could excel these people at that time. From the 4th century B.C. to the 11th century A.D. all foreigners who came in contact with India and studied her civilization critically were very much impressed by it. They spoke highly of Indian character specially their truthfulness, honesty, and sense of justice.

The influence of the system of education was very great among the people in general. Megasthenes, the Greek ambassador who came to India in the 4th century B.C. remarked "for whereas among other nations it is usual in the contests of war, to ravage the soil, among the Indians it is on the contrary. They never use the conquered as slaves."

Idrisi, the Arabian traveler and scholar in his Geography written in the 11th century A.D. says, "The Indians are naturally inclined to justice and never depart from it in action. Their good faith, honesty and fidelity to their engagement were well known and they were so famous for their qualities that people came to their country from every side." Abul Fazl, the author of Aini Akbar, in the 16th century notes, "The Hindus are admirers of truth and showed unbounded fidelity in all dealings."

The Hindus were conscious about their ideal. Though spirituality is their goal they never neglected the material affairs. They were in the words of Wordsworth, "true to the kindred points of heaven and home' and knew fully that matter and spirit are interrelated, one cannot be conceived without the other. This ideal is maintained by the system of education which is based on a sound method.'

Dwelling on this wonderful effect of this system of education unparalleled in history Sir Monier Williams says, "And here I may observe circumstances in the history of India is more worthy of investigation than the antiquity and perseverance of her institutions. It has existed almost unaltered since the description of its organization in Manu's code two or three centuries before Christian era. It has survived all religious, political and physical convulsions from which India suffered from time immemorial. Invader after invader has ravaged the country with fire and sword but the simple self-contained township has preserved its constitution intact, its customs, precedents, and peculiar institutions unchanged and unchangeable amid all other changes." (source: Brahmanism and Hinduism p. 455).

The realization of the ultimate Reality was the ideal of India. Material progress was never the end in itself but was considered as a means to the realization of the end. Apara Vidya dealing with material progress could never bring peace. From all these it appears that the aim of education was not only material progress but also spiritual growth. Regarding the system of education in ancient India it is known from the account of Ewan Chowang, the Chinese traveler, that boys at the age of seven began studying grammar, arts, painting, logic and scriptures and Brahmin and Buddhist teachers were highly efficient and persevering. The doors of education was open to all whether they belonged to the order of monks or of householders.

Ramesh Chandra Dutt, in his Civilization in Ancient India, p. 127, writes: "Buddhism had never assumed a hostile attitude towards the parent religion of India; and the fact that the two religions existed side by side for long centuries increased their toleration of each other. In every country Buddhists and orthodox Hindus lived side by side. Hindus went to Buddhist monasteries and Universities, and Buddhists learned from Brahmins sages. The same Kings favoured the followers of both religions. The Gupta Emperors were often worshippers of Shiva and Vishnu, but loaded Buddhists and Buddhist monasteries with gifts, presents and favours. One king was often a Buddhist and his son an orthodox Hindu; and often two brothers followed or favoured the two religions without fighting. Every Court had learned men belonging to both the religions, and Vikramaditya's Court was no exception to the rule."

Mr. Ernest Binfield Havell says that the system of education during the seventh century was very much improved and better than was under the British. Even up to the fifteenth century, the educational institutions in every Hindu village were maintained either from the income of some temple or from the produce of land set aside for the purpose in villages.

From this, a picture of the educational system of ancient India can be derived and also come idea of the high standard of civilization then prevailing in the society.

DID YOU KNOW?

England's debt to India in Pedagogics-The So-called Bell-Lancasterian Pedagogics. During the formative period of the modern educational systems in Europe and America, the pedagogy of the Hindus, especially on its elementary side, has played an important part.

It is well-known that primary education was grossly neglected in America during the first half-century of her independence. In England even so late as 1845, 3.2 percent of men and 49 per cent of women had to sign their names on the marriage register with a cross. In the age of paucity of "public schools" private educational efforts naturally elicited the people's admiration. And none drew more sympathy

and support than Andrew Bell's (1775-1823) "mutual-tuition" or "pupil teacher" or "monitorial" system of school management.

What, now, is the origin of this much-applauded mutual instruction or monitorial system, the so-called Bell-Lancasterain "discovery" in pedagogy. Historians of education are familiar with the fact that the plan of making one boy teach others has been indigenous to India for centuries. Bell, himself, in his Mutual Tuition (pt. I. ch. I, V). describes how in Madras he came into contact with a school conducted by a single master or superintendent through the medium of the scholars themselves. And, in fact, in England the monitorial system or the method of making every boy at once a master and a scholar is known as the

Madras System: Bell, a Christian missionary in Madras took the Indian system of education back to England, and introduced it there. Until then, only the children of the nobles were given education there and he started education for the masses in England. So, we gather that it is from India that the British adopted the system for educating the masses. England's debt to India in pedagogies has been fitly acknowledged in the tablet in Warminister Abbey, which describes Andrew Bell as "the eminent founder of the Madras System of Education, which has been adopted within the British empire, as the national system of education for the children of the poor."

IS GURUKULA EDUCATION SUITABLE FOR INDIA?

A few days ago, there was an article in the Hitavada, by Mr. Chaitanya Hazarey, praising highly the 'gurukul system' of education, condemning the British system of education now prevalent in India, and attributing to the present system of education all the discredit, holding it responsible for all the ills of India. Mr. Hazarey is of no consequence, but many prominent highly educated ignorants, like one of Vice-Chancellors of an Indian University, also seem to hold similar views, so this article. It can not be gainsaid that the present educational system needs some changes, but certainly, it can not be accepted that 'gurukul system' is an answer.

IS EDUCATION RESPONSIBLE FOR UNEMPLOYMENT?

The author thinks that the present system is responsible for unemployment, presumably because 'educated youths' become useless for manual labour and white collar jobs are not available in plenty. The argument is not new. At the time of Mahatma Jotirao Phule, his father was advised by his brahmin 'divanji' to withdraw the child from school as the child will be useless for agriculture. Thanks to Ligit sahib and Gaffar Beg Munshi, who persuaded Govindrao, Jotiba's father, against the advice and restarted the education of the child after waste of three years, and thus a "Father of Social Revolution in India" was born.

There is a whispering method of propagation of ideas in India. In this method, you do not have to give a sermon or a lecture or write an article or make T.V. serial. All you do is to casually whisper among your co-participants in any social, religious or political function. It may be casual meeting when you are on trip to market to get vegetables or attending somebody's marriage or a lecture in the hall or seeing a cinema in ganesh festival.

You casually mention your idea. Only thing it must be done purposefully, and in strong terms. The fellow opposite usually agrees with you on these occasions. If he does not seem to agree, you change the subject. By this method, the ideas can be planted in the minds of the gullible.

One such idea is, education better be in mother tongue, that way it is easier to understand and retain, *etc.* But their own children are sent to English Convent schools. In their houses, not only servants but also the cat and dogs and other pets are conversed with in English.

Other idea is 'best is agriculture, medium is business and worst is the service'. The concerned advisers are of course sending their children to lucrative services.

The said article seems to be a part of such a campaign. It may be due to ignorance or may be by design. Similar is this advice to masses by these classes. I have heard many people saying, what is the use of taking education when services are so scarce. This is wrong idea in the minds of 'masses' rooted by 'classes'. The scarcity of jobs should not deter the masses from obtaining the degrees.

The mind gets developed and one can get the wisdom to differentiate between good and bad. One can make best use of Information Technology which can be put to best advantage of the public. For example, the situation is turning in such a way that, in near future, one can not be, called a literate, if one does not know about computers. Let us forget about computing in regional languages, with due apology to C-Dac, you can not catch up with the world that way. As it is, it appears that, the revolution of Internet has already bypassed India's bahujans for want of knowledge of English language.

WAS THE BRITISH EDUCATION ONLY FOR MAKING BABUS?

Many people think so. May be it is true only in superficial sense. One can not ignore the awakening and aspirations created by Missionaries in the minds of masses. But what were choices available to the British that time? Lord McCauley who was responsible for making the choice of Modern English Education for Indians, had only one alternative, *i.e.,* to give traditional education of sanskrit and vernacular languages and brahmanic sastras. Who would have benefited there by. When we know that early brahmins opposed the education of masses about secular education. Would they have allowed the non-brahmins to learn sastras?

In the reign of last Peshava, daxina was given to all and sundry brahmins. Brahmins used to come from Kanchi, Srirampattam, Kumbhkonam, Tanjawar, Kashi, Kanoj and Mathura and flock together to create a crowd in Poona, once numbering sixty thousand at a time. We also know that even after the end of Peshawai, a very welcome event by the masses, and specially the women of Poona, Britishers continued to please brahmins, though with reduced amount, for sanskrit books. When there was demand for daxina by other brahmins for marathi books, there was hue and cry from orthodox brahmins. However, later half the amount was given to Marathi books also after a big struggle. Thus brahmins resisted against Marathi to prevent lower classes from learning. [Dhanjay Keer, "Mahatma Phule", (MF) marathi, p. 38 ff.] Would they have allowed the non-brahmins to get benefit of Britishers.

In any case, it was the good fortune of Indian masses, that modern education was decided to be imparted to them by Lord McCauley. Otherwise, there would have been no spread of modern ideas and whatever little enlightenment we now see in masses would not have been there. They would have been slaves of the brahmins, who in the name religion controlled their minds. Now at least the SCs and STs are out of their grip, and some OBCs also are out of their fetters, though the majority of OBCs are still slaves of brahmins, in spite of all efforts by the Bahujan leaders like Phule, Shahu, Ambedkar, Periyar, Narayan Guru and many others like them.

The elite wants to hide from the masses that, India had a double slavery. Slavery of masses by brahmins was the real slavery in micro level, experienced in every nook and corner of the country. Slavery of British was over the macro level and was not important to masses.

They never came in contact with those rulers. They only came in contact with local rulers, who were brahmins, no matter who ruled above. That is the reason south Indian leaders like Dr. P. Varadrajulu Naydu said that British Imperialism has enslaved our bodies only, but brahmanism has enslaved our souls. The British have taken away our wealth but as it has dominance over social and religious fields, brahmanism has killed the feeling of self respect and freedom in the minds of non-brahmins.[MF-p.314] This feeling was universal among the masses.

WHAT WAS THE ESSENCE OF GURUKUL EDUCATION?

Mr. Hazare seems to be very fond of Gurukul education. First thing gurukul was never open to the majority of masses. About 85 to 90 percent of population was outside the pale of Gurukuls. Only the 15 percent population was being catered by Gurukuls. That too, only the boys were admitted and not the girls, thus bringing the total possible population to be only about seven percent.

There were no criteria for admission apart from the caste and whims and fancies of the teacher. Examples of denial of admission to very meritorious candidates on the basis of caste are seen.

Glaring example is of Eklavya. Not only the guru Dronacharya denied admission to Eklavya, but demanded Eklavya's thumb as gurudakshina for education NOT imparted by him. Many people feel it is irony of fate and mockery of awards, that such a name is associated with highest sports awards in this country, without any protest from the sufferers of the system.

Second example is of Karna, who got admission to Parashurama's class, which was exclusively reserved for the brahmins, on false statement of caste. Benefit of his knowledge, labeled as unlawfully obtained, was withdrawal when his caste became known, which ultimately lead to his death.

Example of Satyakama Jabala is mentioned by many orthodox people to erroneously show that education in Upanishadic times was open to low caste people. This is a wrong inference drawn from his story. Satyakama was asked by his guru his caste. His mother sent a word to the guru that she did not know the exact father of the child as she had relations with many people.

WHAT WERE THE CRITERIA OF SELECTION OF TEACHERS IN GURUKUL?

Mr. Hazare seems to be very sure that teachers selected were of high caliber in knowledge and character. How this idea comes to his mind, is difficult to understand. As a matter of fact there was no central authority controlling the appointment of teachers.

There was no fixed syllabus. The main purpose of this learning was to preserve the vedas and gaurd them from non-brahmins. Each and every person by virtue of being a brahmin had an inherent right to be a teacher. He could open an ashram and take pupils as and when he likes, and he could give certificate of completion of studies as and when he chooses. He was not bound by any law of land nor any convention of teachers' body.

There used to be guilds and bodies of merchants and craftsmen, but I am unaware if some institution was established to supervise the teaching and conduct of the teacher in such gurukuls.

Most of the gurukuls were single teacher residential ones free from any royal or academic control. What was the guarantee of quality under these circumstances? It is a matter of egotism, vanity and conceit to think of quality in such teaching institutions. These had no respect in foreign lands and never attracted any foreign students.

WHAT WAS THE COURSE CONTENT?

There seems to be misconceived idea that a student coming out from such a school had all the requisite qualities of a good citizen.

This is far from the truth. He used to have learned by heart the brahmanic sastras, which hardly make him versatile. He could never think of outside matters. What is not in his books, does not exist for him. Alberuni, for example, mentioned that Indian scholars have no knowledge of civilization abroad, and they disbelieve if somebody tells them about it.

Their thought process centered around the rituals, vratas and ceremonies. After education, their main task involved in seeing that nobody transgress the caste rules, no widow gets remarried, see that all girls married before puberty, and generally nobody transgresses the caste. If anybody did transgress these rules, then this product of gurukul was to sit as the judge to punish the guilty by excommunication and things like that, so that supremacy of brahmin is maintained and the divinely ordained system of chaturvarna works smoothly to the advantage of some and peril to the rest.

KNOWLEDGE OF BRAHMINS AT THE TIME OF ARRIVAL OF THE BRITISH

If anybody has any doubt about the standard of education of gurukuls and has any wrong ideas, he better see what is recorded about the knowledge of Brahmins at time of Britishers' arrival. The brahmins of Poona thought, their town was the whole world. They never tried to find out who were the British and from where they have here.

The believed that Calcutta was in England and England was in Calcutta. Any knowledge except sanskrit was considered as a gate way to Hell. They honestly believed that Indra tells the cloud to pour down the rain. The clouds are the elephants of Indra and on his order they make rain. Poona was such a dark valley of ignorance.[MF-p.8] Such was the knowledge of scholars. The modern stories of intelligence of Birbal, Tenali Ram, and Nana Fadnavis are all fables, fabricated to stress upon the masses the false merit of brahmin scholars over the royal princes.

6

Education in Buddhist Period

In India during the time of Buddha, there was a racial discrimination in the society. This discrimination was according to profession of man, and according to birth. In the society there were four division of man of whom Brahman was superior. Brahmanism dominated the society and established their supremacy in the country. They enjoyed rights for religious training and education. But other category of people deprived of their religious and educational rights. At that time there were 62 heretical doctrines in existence and priesthood got upper hand. In this background a religious revolution started in ancient India in 600 B.C. and a new doctrine or system developed which is called Buddhist doctrine or Buddhist philosophy. It is to be said that on the foundation of Buddhism a new and special Education System originated in ancient India. Buddhism made a tremendous movement which played a valuable role in the development of Education System in ancient India or ancient Buddhist world. It is well-known that with the rise of Buddhism in India there dawned the golden age of Indias culture and civilization. There was progress in all aspects of Indian civilization under the impact of Buddhism There arose many centres of learning which did not exist before

AIMS OF EDUCATION

The goal of Buddha's teaching-the goal of Buddhist education is to attain wisdom. In Sanskrit, the language of ancient India, the Buddhist wisdom was called ¯Anuttara-Samyak-Sambhodi meaning the perfect ultimate wisdom. The Buddha taught us that the main objective of our practice or cultivation was to achieve this

ultimate wisdom. The Buddha further taught us that everyone has the potential to realize this state of ultimate wisdom, as it is an intrinsic part of our nature, not something one obtains externally.

The chief aim of Buddhist education was all round development of child's personality. This included his physical, mental, moral and intellectual development.The aim of Buddhist Education is to make a free man, a wise, intelligent, moral, non-violent and secular man. Students became judicious, humanist, logical and free from superstitious. Students became free from greed, lust and ignorance. Buddhist Education was wide open and available to the people of all walks of life. The principal goal of the Buddhist Education is to change an unwise to wise, beast to priest.

The Buddhist education system aimed at regaining our intrinsic nature. it also teaches absolute equality which stemmed from Buddha's recognition that all sentient beings possess this innate wisdom and nature. Buddha's teaching helps us to realize that innate, perfect,ultimate wisdom.With wisdom, we can then solve all our problems and turn suffering into happiness.

In the Buddhist era, religion was given top priority and education was imparted through it. The chief aim of education was propagation of religion and inculcation of religious feelings and education served as a mean to achieve salvation or nirvana.

Preparation for life, there was a provision for imparting wordily and practical knowledge along with religious education so that when the students entered normal life they may be able to earn their livelihood.

THE GOAL OF BUDDHIST EDUCATION

What is the ultimate goal of the Buddha's teachings? It is to attain the Perfect, Complete Enlightenment. Transliterated from Sanskrit, it is called Anuttara-samyak-sambodhi. Out of respect, this phrase was maintained in its original form rather than translated. There are three stages within this enlightenment: "Proper Enlightenment", "Equal and Proper Enlightenment", and "Perfect, Complete Enlightenment".

The Buddha told us, that although scientists, philosophers and religious scholars may have reached a good understanding about life and the universe, this realization is neither complete nor proper. Why? Although they have obtained some understanding, they are far from having freedom from worries, from ending their afflictions. They still indulge themselves in the Five Poisons of greed, anger, ignorance, arrogance and doubt. They remain mired in all the troubles of human relationships and are swayed by personal feelings. In other words, they are human.

If a person has severed greed, anger, ignorance, arrogance, doubt and afflictions, it will be acknowledged that this person has attained the first level, that of Proper Enlightenment. He or she will be called an Arhat, similar to the initial academic degree in Buddhism. Arhats differ from Buddhas in the way that they use their mind. They use it in the same manner we do. The difference is that we still have afflictions while Arhats do not.

The next higher level of enlightenment is that of Equal and Proper Enlightenment, represented by Bodhisattvas. They resemble Buddhas in motivation but have not yet reached the same level of enlightenment. The minds of Bodhisattvas are genuine; they remain forever unchanged and are similar to those of Buddhas. Buddhas use the full and perfect true heart. Buddhas represent the highest level of enlightenment, which is the Perfect Complete Enlightenment.

In Buddhist classic literature, the perfect, true mind of a Buddha was symbolized by a full moon. The mind of a Bodhisattva was symbolized by a crescent moon, which was neither full nor perfect. And the mind of an arhat was symbolized by moonlight reflected from the surface of water, it is not real.

These three levels of enlightenment can be compared to our college educational system. The level or degree of Arhat is similar to earning an undergraduate degree. The level of Bodhisattva is similar to earning a Master's degree and the level of Buddha is similar to earning a Doctorate's degree. The word Buddha is not exclusive to Buddha Shakyamuni, but is a common title for any being who has attained the perfect complete enlightenment. Thus, Buddha, Bodhisattva and Arhat are only names or titles to represent the levels of enlightenment or a degree we receive in Buddhism. And they are most certainly not deities to be worshiped.

So, a Buddha is one who has fully comprehended the truth of life and the universe and acquired the ultimate and perfect wisdom. This is also the goal of Buddhist education; to enable beings to attain this same level of wisdom. Therefore, Buddhism is an education of wisdom.

THE OBJECTIVES OF THE BUDDHA'S TEACHINGS

The principle of Buddhism is to break through all superstitions and delusions. It is to resolve delusion to attain happiness and enlightenment, to eliminate suffering to gain serenity and purity of mind. What is delusion? When we do not thoroughly and properly understand the phenomenon around us, we tend to be deluded, to have wrong ideas, which lead us to make mistakes. Then we suffer ill consequences as a result. However, if we have correct understanding about life and the universe, we will be free from mistakes in thought, judgement and behaviour. Then our result, or effect, will be favourable. Thus, resolving delusion to attain enlightenment is the cause and eliminating suffering to attain happiness and purity is the effect.

Only through resolving superstition and delusion, can enlightenment be attained. This is the objective of the Buddha's teaching. This wisdom will enable all beings to differentiate true from false, proper from improper, right from wrong and good from bad. It can help us to establish a dynamic and caring attitude towards life and our surroundings. So, we can clearly see that Buddhism is neither passive nor obsolete, nor is it retreating from society. As said in the Buddha Speaks of the Infinite Life Sutra of Adornment, Purity, Equality and Enlightenment of the Mahayana School or the Infinite Life Sutra, Buddhism can perfectly solve all afflictions and problems. It enables us to obtain true and ultimate benefits by creating fulfilling lives, happy families, harmonious societies, prosperous nations and a peaceful world. These are the objectives of the Buddha's teachings for our world now. The ultimate objectives of abandoning all worries thus transcending the six realms are even more incredibly wonderful. Therefore, we can see that it is an education that will enable us to attain truth, virtue, beauty, wisdom and genuine eternal happiness

A BUDDHIST PHILOSOPHY OF EDUCATION

A Buddhist philosophy of education is based on a Buddhist social philosophy. No society will manage education without associating it with beliefs in regard to justice, freedom and equality. The system of education will be one of the systems relying on the social systems.

Buddhism and Education: Buddhist education should teach people to be good people and abandon any animal instincts and bad behaviours. Moreover, it teaches people the path to attain mental freedom. One of the way to carry out Buddhist education is to establish the Buddha as the primary philosophy and to derive an educational philosophy from that. The other way is to teach Buddhism in schools and institutions so as to enrich the youth with Buddhist teachings. This is a good way to train the youth to be good person and purify their mind with moral merits. But it doesn't mean that we will make Buddhism as the basis of the system of education, but to reinforce the existing education system.

The Goal of Buddhist Education: The critical goal of Buddhist education is to attain wisdom. Buddhism believes that the ultimate of wisdom is inherent in each person's nature, stating that everyone has the potential to achieve wisdom. However, the majorities are distracted by misunderstanding and misconceptions, therefore, are incapable of being aware of this kind of potential. In this sense, Buddhism aims to teach us recognize the intrinsic part of human nature.

Buddhist wisdom varies from individual to individual. It is related to the degree to which one's delusion is and there is no inherent difference among all human beings. Buddhism helps us remove delusion and regain the wisdom to remove

confusions of individual potential and achieve happiness. Buddhism considers deep meditation and concentration as the crucial factors in order to attain wisdom. Buddhism teaches the way of meditation and the mindfulness of concentration.

BEGINNING AND DEVELOPMENT OF BUDDHIST EDUCATION IN VIETNAM

No systematic examination of how Buddhist education began and developed in Vietnam has been hitherto attempted, to the best of my knowledge. The importance of tracing the history of Buddhism in general and Buddhist education in particular is enhanced by the fact that Vietnam is geographically the meeting point of the eastern expansion of Indian culture and the southern expansion of Chinese culture. These two significant cultures met and flourished in Vietnam. Its study is an extremely urgent academic task because the few currently available sources could disappear due to the prevailing political and cultural developments, on the one hand, and the dispersal of scholars due to the Vietnamese Diaspora, on the other. In the ensuing chapters, the history of Buddhism and Buddhist education in Vietnam is reconstructed to the extent possible under the present conditions. Some of the conclusions are, therefore, tentative.

The basic hypothesis on which the research has been established: (1) Adequate data are gleanable from available resources, textual and oral, to reconstruct this history; (2) Such data and the recording of the experience of educated monastics could serve to understand the main features and challenges of Vietnamese Buddhist education; and (3) A history of Buddhist education thus reconstructed could be the basis for further examination of issues on which disagreements exist among scholars. The research adopted a combination of four approaches: (a) A desk research on primary sources in Chinese and Vietnamese; (b) A critical examination of secondary sources in Chinese, Vietnamese, English and French; (c) A phenomenological analysis of my personal experience as a Buddhist and student of Buddhism and the experiences of my immediate colleagues, friends and teachers; and (d) Validation of data through a field survey conducted with a questionnaire. The result of this research is presented in eight substantive chapters. Following the opening Chapter outlining the methodology and the plan of the study, Chapter Two on the contextual background to Buddhist education examines (A) the culture and education of Vietnam before the advent of Buddhism, and (B) how Buddhism came to be introduced to Vietnam. An investigation into the earliest form of Buddhist education in Vietnam is taken up in Chapter Three and continued into Chapter Four with a detailed analysis of the development of Buddhist education up to 1975. Chapter Five surveys the information available on educational institutions and records the contribution made by pagodas in various parts of the country. Special attention is

given in Chapter Six to the content of Buddhist education, which is presented historically under the three domains of educational objectives, namely cognitive, affective and skill-based. This analysis brings out most eloquently the richness of the substantive content which Vietnamese Buddhist education has inherited from its primary sources of inspiration and further developed through its own ingenuity. An equally significant observation results from Chapter Seven in which traditional methods of instruction are examined with reference to the experience of Vietnamese educators. Chapter Eight takes note of the large number of nationally famous educators and teachers, of both Thiê n (Zen) and Pure Land traditions, whose literary and instructional contributions could be outlined. In doing so, special notice has been taken of the role which poetry played as a vehicle of spiritual and philosophical communication among them. Chapter Nine summarizes the substantial findings of the research and ends with a brief note on the present and future of Buddhist education in Vietnam.

THE NEED FOR MODERN BUDDHIST EDUCCATION

In Asian Buddhist communities, both in Asia and abroad, an increasing number of people who have been raised in nominally Buddhist homes have come to regard Buddhism as mere superstition and turn to other religions. Upon talking with these people, their misconceptions about Buddhism are evident. Again, this is due to a lack of modern Buddhist education.

Buddhism has never been an evangelical religion, nor should it become one. However, clear explanation of the Buddha's teachings should be made available to people who are interested. The Buddha showed the path to happiness, and it is desirable for this to be made accessible to others, so that they can benefit from it. This is the duty and responsibility of Buddhists who have compassion for others.

In what ways can Buddhist education be made relevant to people today? First, if oral teachings were given in the language with which people are most familiar, the language in which they are educated, then they could understand the meaning better. Colloquial language communicates much better to lay people than does classical language. For scholars and serious practitioners, knowledge of Pali, Sanskrit, and ancient Chinese is necessary, but for the general public and young people who are used to television colloquial language and everyday examples are more suitable. One university student told me that he was reluctant to come to talk with me because he feared that I would use many Pali words and he would not understand! I wonder how many others there are who avoid going to teachings or reading books because they cannot understand the language well.

Secondly, it is essential that Buddhist principles be clearly and logically explained. Today's youth is well-educated. They have knowledge of science,

philosophy, psychology, and so forth. Not satisfied with hearing only the story of Buddha's life and the Jataka tales and thereby generating faith, they now want to know how the doctrine of selflessness relates to quantum physics and how Buddha's teachings on patience can be integrated into modern psychology. Young people who have a modern secular education will not believe in rebirth just because Buddha said so. They want to understand the logical proof for it and to know current examples of people who have memories of their previous lives.

BUDDHIST EDUCATION AND PEDAGOGY: CHALLENGES AND OPPORTUNITIES

The emerging profit-driven global economy is guided by unbridled development and gigantism. Such an economy is also coming under ever increasing domination of science and technology. Such a development is not only cutting us off from nature and one another but also undermining natural and cultural diversity. One major consequence of this is that our very survival is threatened. Moreover, the global economy is overwhelmingly controlled and run by consumerism and salespersons in which things are bought not because people need them but because they want them. The modern economic notion that more production of goods would make people happy is misplaced.

As pointed out by Schumacher, "An attitude to life which seeks fulfillment in the single-minded pursuit of wealth- in short, materialism- does not fit into this world, because it contains within itself no limiting principle, while the environment in which it is placed is strictly limited… The modern economy is propelled by a frenzy of greed and indulges in an orgy of envy, and these are not accidental features but the very causes of its expansionist success… such causes… carry within themselves the seeds of destruction" (1973: 17-18). Thus, we need to seriously examine not only our attitudes and lifestyles but also our policies that govern the use of renewable and non-renewable resources, science and technology, and the scale and direction of industrialization. As compared to this, Buddhist economy is based on the motto of happiness and welfare of maximum number of people (bahujanahitāya bahujanasukhya: Vinaya Pitaka.I.21). Buddhist Economics does not necessarily see unbridled modernism and westernization as a positive phenomenon as it is responsible for many of the major problems that we face today. A modern Buddhist scholar, for instance, has pointed out that "Modernity is rejected because it is seen as a form of life that has in a short period of time despoiled the landscape and done irreparable damage to the environment (Lancaster 2002: 1-2).

Not only the inherent value of life itself but also the interdependence and reciprocity of human and other forms of life are a fundamental Buddhist belief. Thus, nature and humanity on the one hand and humans amongst themselves on

the other are seen as mutually obligated to each other. A living entity can neither isolate itself from this causal nexus nor have an essence of its own. In other words, as part of the Dependent Arising (paticcasamuppda), humans are seen as affecting their environment not only through the purely physical aspects of their actions, but also through the moral and immoral qualities of such actions.

That is, karmic effects sometimes catch up with people via their environment. It is thus said that, if a king and his people act unrighteously, this has a bad effect on the environment and its gods, leading to little rain, poor crops and weak, short-lived people (Anguttara Nikya.II.74-76). This message is also strongly implied by the Aggañña Suttanta of the Dîgha Nikya (III.80-98), which shows how in the beginning nature was bountiful, but it became less so when humans began to take greedily from it. When they began to harvest more rice than they needed, it was not naturally able to grow quickly enough.

This necessitated cultivation which in turn caused division of land into private fields, so that property was invented. Origin of private property became the root cause of different social and economic ills. Here, then, is a vision of how sentient beings are affected by what they take from their environment.

Our current socioeconomic system promotes competition rather than cooperation. This is bound to generate conflict and resentment-.

A society founded upon the Buddhist Dharma recognizes that one should aim at promoting the good of the greater unit to which one belongs, and as a minimum one must not look for one's own satisfaction in ways that may cause harm to others. Thus, in Buddhist approach to social and economic develop-ment, the primary criterion governing policy formu-lation must be the well-being of members of the society as a whole. Production must serve the real needs of the people, not the demands of the economic system. In such a system, economic de-velopment would be guided not by maximum consumption but sane and rational consumption furthering human well-being.

Buddhism promotes a wide distribution of basic necessities so that no one has to suffer deprivation as deprivation is the root cause of social conflict. Thus, talking about the cause of social conflict, the Buddha pointed out that, "goods not being bestowed on the destitute poverty grew rife; from poverty growing rife stealing increased, from the spread of stealing violence grew apace, from the growth of violence, the destruction of life became common" (Dgha Nikya.III.67).

Hoarding wealth in any form is looked down upon in Buddhism (A.III.222) and if a wealthy person were to enjoy his wealth all by himself only, it would be a source of failure for him (Sn.v.102). In fact, pride of wealth or economic snobbery is given in Buddhism as a cause of one's downfall (Sn.v.104). As pointed out by From, the present system generates greed and selfishness in which personal success

is valued more highly than social responsibility. "It is no longer shocking when political leaders and business executives make decisions that seem to be to their personal advantage, but at the same time are harmful and dangerous to the community… At the same time, the general public is also so selfishly concerned with their private affairs that they pay little attention to all that transcends the personal realm" (Fromm 1976: 10-11). Our modern dinosaur society has become a greedy society and we do not know when enough is enough. A society driven by greed loses the power of seeing things in their wholesomeness.

"The hope… that by the single-minded pursuit of wealth, without bothering our heads about spiritual and moral questions, we could establish peace on earth, is an unrealistic, unscientific, and irrational hope… the foundations of peace cannot be laid by universal prosperity, in the modern sense, because such prosperity, if attainable at all, is attainable only by cultivating such drives of human nature as greed and envy… making inordinately large demands on limited world resources and… (putting rich people) on an unavoidable collision course- not primarily with the poor (who are weak and defenceless) but with other rich people" (Schumacher 1973: 18-19). Thus, "given unlimited desires, even the greatest production cannot keep pace with everybody's fantasy of having more than their neighbours. Necessarily, those who are stronger, more clever, or more favoured by other circumstances will try to establish a favoured position for themselves and try to take advantage of those who are less powerful, either by force and violence or by suggestion… (Conflict in the society) cannot disappear as long as greed dominates the human heart" (Fromm 1976: 114).

Buddhism, even though speaking in atheistic and secular terms, aims at the liberation of human beings from egoism and greed as they are the main cause of misery and harm. There is no doubt that environmental disaster is to a great extent due to the insatiable greed of humans.

Buddhism on the whole, though does not mind wealth and prosperity, but they have to be acquired and used in full accord with the ethical norms. Human tendency to have- to possess- which the Buddha called craving (tanh), is the basis of present profit-driven global economy fostering greed. As compared to this, Buddhist economy would base itself on what Fromm called 'to be'- to share, to give, to sacrifice (Fromm 1976: 105-106).

In the present profit-driven global economic system anything that is 'uneconomic' is sought to be obliterated out of existence. "Call a thing immoral or ugly, soul-destroying or a degradation of man, a peril to the peace of the world or to the well-being of future generations; as long as you have not shown it to be "uneconomic" you have not really questioned its right to exist, grow, and prosper" (Schumacher 1973: 27).

However, in Buddhist view of things, profitability alone cannot be an adequate measure of whether something is "economic" or not. Buddhist economics would take into account not only the profitability of a given activity, but also its effect upon people and environment, including the resource base. The higher animals have an economic value because of their utility, but they are not a meta-economic value in themselves. "If I have a car, a man-made thing, I might quite legitimately argue that the best way to use it is never to bother about maintenance and simply run it to ruin. I may indeed have calculated that this is the most economical method of use. If the calculation is correct, nobody can criticise me for acting accordingly, for there is nothing sacred about a man-made thing like a car. But if I have an animal-be it only a calf-or a hen-a living, sensitive creature, am I allowed to treat it as nothing but a utility? Am I allowed to run it to ruin? It is no use trying to answer such questions scientifically. They are metaphysical, not scientific, questions. It is metaphysical error, likely to produce the gravest practical consequences, to equate "car" and "animal" on account of their utility, while failing to recognize the most fundamental difference between them, that of "level of being"(Schumacher 1973: 84-85).

By pointing out that the vulgar chase of luxury and abundance is the root-cause of suf-fering, Buddhism encourages restraint, voluntary simplicity, and con-tentment. "The cultivation and expansion of needs is the antithesis of wisdom. It is also the antithesis of freedom and peace. Every increase of needs tends to increase one's dependence on outside forces over which one cannot have control, and therefore increases existential fear. Only by a reduction of needs can one promote a genuine reduction in those tensions which are the ultimate causes of strife and war" (Schumacher 1973: 20). Thus, Buddhist economics based on ideals such as being content with little, avoiding wastefulness, voluntary simplicity *i.e.*, fewness of desires (appicchat), and contentment (santutthi) aspires to pave the road to peace and happiness. Contentment is the mental condition of a person who is satisfied with what he has or the position in which he finds himself (santussam no itarîtarena: Sutta-Nip ta.v.42).

The question arises as to how a person can remain content in the midst of so many economic difficulties. From the Buddhist point of view, economic and moral issues cannot be separated from each other. From the Buddhist point of view mere satisfaction of economic needs without spiritual development can never lead to contentedness among people. Just as poverty is the cause of much crime, wealth too is responsible for various human ills. In the consumer society wealth is merely seen from a materialistic point of view. The result of such an attitude is that its possessor is never satisfied and does not have the correct attitude towards it. However correct attitude towards wealth from the Buddhist point of view is very important because it views material wealth as only required to meet bare necessities.

Moreover, wealth must be earned only through righteous and moral mean. Generosity (d na) and liberality (c ga) are always linked in Buddhism with virtue. Moreover, by doing so one gets rid of selfishness and becomes more unacceptable to others because "one who gives makes many friends" (Sutta-Nip ta.187). It is not necessary to have much to practice generosity because giving from one's meager resources is also considered very valuable (Samyutta Nik ya.I.18; Dhammapada.224). Generosity is one of the important qualities that make one a gentleman (Anguttara Nik ya.IV.218). The Buddha compares the man who righteously earns his wealth and shares it with the needy to a man who has both eyes, whereas the one who only earns wealth but does no merit is like a one-eyed man (Anguttara Nik ya .I.129-130). To build up a healthy society, therefore, liberality and generosity have greatly to be encouraged.

As pointed out by Schumacher, "(f)rom the point of view of Buddhist economics… production from local resources for local needs is the most rational way of economic life… the modern economist… tends to take statistics showing an increase in the number of ton/miles per head of the population carried by a country's transport system as proof of economic progress, while to the latter- the Buddhist economist- the same statistics would indicate a highly undesirable deterioration in the pattern of consumption" (1973: 42).

The fig-tree glutton (udumbarakh dika) method blamed by the Buddha (Samyutta Nik ya.IV.283), the method of shaking down an indiscriminate amount of fruit from a fig-tree in order to eat a few, is precisely the same as the one employed in drift-net fishing, where many more animals are killed than utilized. Today we understand natural capital as the sum total of renewable and non-renewable resources, including the ecological systems and services that support life. It is different from conventionally defined capital in that natural capital cannot be produced by human activity. What was unimaginable 50 years ago was the speed with which the loss of natural capital would affect humankind. Humanity cannot continue to consume the planet's limited resources at the rate to which it has become accustomed. Such an attitude is bound to have catastrophic consequences. The human economy does not operate in an infinite expanse capable of providing an inexhaustible supply of re-sources. When the economy expands, it does so by absorbing into itself more and more of the re-source base of the extremely fragile and finite ecosystem and by burdening the ecosystem in turn with its waste. But long before the human economy reaches that limit, it will cross a threshold point beyond which the delicate fabric of the ecosystem will be damaged so badly that it shall no longer be capable of sustaining higher forms of life.

We may already be very close to that threshold and as human population grows further, the stress on the environment is bound to rise to even more perilous level-s.

Since human beings are social creatures who naturally come together for common ends, this means that a social order guided by Buddhist principles would consist primarily of small-scale communities in which each member can make an effective contribution. Only small-scale social arrangements can rescue people from the portending future disaster. Considered from a Buddhist point of view, the huge polluted mega-cities and uncaring bureaucrats and politicians typical of our age are unsuitable for a proper welfare of sentient beings.

The most suitable and compatible economy would be small-scale and localized. Such an economy would use simple technology which would not drain natural resources and in it production would be aimed principally at local consumption, so that there would be direct face-to-face con-tact between producers and consumers. Large-scale technologies are dehumanizing and morally wrong. Schumacher called for human-scale, decentralized, and appropriate technologies. People can only feel at home in human-scale environments. If economic structures become too large they become impersonal and unresponsive to human needs and aspirations. Under these conditions individuals feel functionally futile, dispossessed, voiceless, powerless, excluded, and alienated. "Wisdom demands a new orientation of science and technology towards the organic, the gentle, the nonviolent, the elegant and beautiful" (Schumacher 1973: 20).

Thus, in the Buddhist concept of economic development, we should avoid gigantism, especially of machines, which tend to control rather than serve human beings. If bigness and greed can be avoided, the Middle Path of Buddhist development can be achieved, *i.e.*, both the world of industry and agriculture can be converted into a meaningful habitat. "Some in the industrial countries have learned at first that material prosperity without spiritual development is ultimately unsatisfying" (Anonymous 1983: 18). "Strange to say, technology, although of course the product of man, tends to develop by its own laws and principles, and these are very different from those of human nature or of living nature in general. Nature always, so to speak, knows where and when to stop. Greater even than the mystery of natural growth is the mystery of the natural cessation of growth. There is measure in all natural things- in their size, speed, or violence. As a result, the system of nature, of which man is a part, tends to be self-balancing, self-adjusting, self-cleansing. Not so with technology… (which) recognises no self-limiting principle- in terms, for instance, of size, speed, or violence. It therefore does not possess the virtues of being self-balancing, self-adjusting, and self-cleansing" (Schumacher 1973: 120).

Our economy is already big enough and our technologies too smart and too powerful. What we need most of all is streamlining and downsizing: cutting down on weapons production, on industries dedicated to wasteful luxuries, on conspicuous con-sumption as the engine that drives the economy. Instead we need qualitative

improvements to make our technologies more humble and humane, more benign towards the total bio-sphere.

Economic justice and social equity are essential so that no one is deprived of a fair standard of living. As Schumacher said the problem children of the world are the rich societies and not the poor (1973: 126). "To live peacefully, we must live with a reasonable degree of equity, or fairness, for it is unrealistic to think that, in a communications-rich world, a billion or more persons will accept living in absolute poverty while another billion live in conspicuous excess. Only with greater fairness in the consumption of the world's resources can we live peacefully, and thereby live sustainably, as a human family" (Elgin 1993: 42).

Well-documented scientific studies have now clearly established that each living creature has its place in the biosphere, whereby it plays its unique role is part of the collective balance. The egalitarianism of rights to life is therefore based on scientific realities such as the unity of the living world, its vast diversity (a key factor in evolution) and the complementary nature of its different components. The right to have humanizing work that is dignified and meaningful- right livelihood (Samm-jîva) as it is known in Buddhism. "The study of Buddhist economics could be recommended even for those who believe that economic growth is more important than any spiritual or religious values… It is a question of finding the right path of development, the Middle Way between materialist heedlessness and traditionalist immobility, in short, of finding "Right Livelihood" (Schumacher 1973: 45). The righteous householder aims at harmonious living (dhammacariya, samacariya) (Majjhima Nik ya.I.289; Samyutta Nik ya.I.101) and compassion (karun) which is "the desire to remove what is detrimental to others and their unhappiness" (Sutta-Nip ta.v.73). This is the concept of the well-adjusted and balanced person, who while he seeks pleasure, exercises a degree of restraint and limits his needs and avoids greed (visamalobha) (Dîgha Nik ya.III.70).

The Buddhist values mean that environment should not be over exploited. As the Tibetans say very wisely that not too much of anything that is precious should be taken from the earth, as then its quality fades and the earth is destroyed (Morgan and Lawton 1996: 93). The Buddhist ideal, in fact, is co-operation with nature, not domination. As pointed out by E.F. Schumacher, the world is ruled from towns where the feeling of belonging to an ecosystem is not realised. This results in a harsh and improvident treatment of things upon which we ultimately depend, such as water and trees. Moreover, modern economics does not distinguish between renewable and non-renewable materials, as its very method is to equalise and quantify everything by means of a money price. The cheapest is automatically the one to be preferred, as to do otherwise would be irrational and 'uneconomic.' From a Buddhist point of view "non-renewable goods must be used only if they are indispensable, and then only with the greatest care and the most meticulous concern

for conservation. To use them heedlessly or extravagantly is an act of violence… The Buddhist economist would insist that a population basing its economic life on non-renewable fuels is living parasitically" (Schumacher 1973: 43-44).

Thus, a new relation must be established between people and nature, one of cooperation not of exploitation. Buddhism enjoins a respectful and non-violent attitude towards ecology. "Every follower of the Buddha ought to plant a tree every few years and look after it until it is safely established, and the Buddhist economist can demonstrate without difficulty that the universal observation of this rule would result in a high rate of genuine economic development independent of any foreign aid" (Schumacher 1973: 43).

Pollution and accumulation of large amounts of highly toxic substances is an important feature of the emerging global economy. However, as pointed out by Schumacher, this is an ethical, spiritual, and metaphysical monstrosity which "means conducting the economic affairs of man as if people really did not matter at all" (1973: 119). "An entirely new system of thought is needed, a system based on attention to people, and not primarily attention to goods- (the goods will look after themselves!). It could be summed up in the phrase, "production by the masses, rather than mass production." What was impossible, however, in the nineteenth century, is possible now. And what was in fact- if not necessarily at least understandably- neglected in the nineteenth century is unbelievably urgent now. That is, the conscious utilisation of enormous technological and scientific potential for the fight against misery and human degradation- a fight in intimate contact with actual people, with individuals, families, small groups, rather than states and other anonymous abstractions" (Schumacher 1973: 56).

The driving force of such an economy would be the pro-motion of well-being both material and social, not commercial profit and unrestrained expansion. As pointed out by Fromm, the development of profit-oriented "economic system was no longer determined by the question: What is good for Man? But by the question: What is good for the growth of the system? One tried to hide the sharpness of this conflict by making the assumption that what was good for the growth of the system (or even for a single big corporation) was also good for the people. This construction was bolstered by an auxiliary construction: that the very qualities that the system required of human beings- egotism, selfishness, and greed- were innate in human nature; hence, not only the system but human nature itself fostered them. Societies in which egotism, selfishness, and greed did not exist were supposed to be "primitive," their inhabitants "childlike." People refused to recognize that these traits were not natural drives that caused industrial society to exist, but that they were the products of social circumstances" (Fromm 1976: 7-8). "The technology of mass production is inherently violent, ecologically damaging, self-defeating in terms of non-renewable resources, and stultifying for the human person. The

technology of production by the masses, making use of the best of modern knowledge and experience, is conducive to decentralisation, compatible with the laws of ecology, gentle in its use of scarce resources, and designed to serve the human person instead of making him the servant of machines" (Schumacher 1973: 126).

We are trying to satisfy nonmaterial needs with material goods. For Buddhism material satisfaction merely pro-vides a starting point for the pursuit of higher goals. The Buddha called upon people to wake up and liberate themselves from the illusion that craving for things leads to happiness. It is not cleverness but wisdom which can "enable us to see the hollowness and fundamental unsatisfactoriness of a life devoted primarily to the pursuit of material ends, to the neglect of the spiritual. Such a life necessarily sets man against man and nation against nation, because man's needs are infinite and infinitude can be achieved only in the spiritual realm, never in the material. Man assuredly needs to rise above this humdrum "world"; wisdom shows him the way to do it; without wisdom, he is driven to build up a monster economy, which destroys the world, and to seek fantastic satisfactions, like landing a man on the moon. Instead of overcoming the "world" by moving towards saintliness, he tries to overcome it by gaining preeminence in wealth, power, science, or indeed any imaginable "sport"" (Schumacher 1973: 24). Spiritual health and material well-being are not enemies: they are natural allies. A Buddhist approach to economics would distinguish between misery, sufficiency, and glut. Economic growth would be good only to the point of sufficiency. Limitless growth and consumption would be disastrous.

Further, whereas Buddhist economics would be based squarely on renewable resources, modern economics is based on the ruthless exploitation of nonrenewable resources and recognizes no limits to production and consumption- a non-sustainable system. "Economics without Buddhism, *i.e.*, without spiritual, human, and ecological values, is like sex without love… While the materialist is mainly interested in goods, the Buddhist is mainly interested in liberation. But Buddhism is "the Middle Way" and therefore in no way antagonistic to physical well-being. It is not wealth that stands in the way of liberation but the attachment to wealth; not the enjoyment of pleasurable things but the craving for them… From an economist's point of view, the marvel of the Buddhist way of life is the utter rationality of its pattern- amazingly small means leading to extraordinarily satisfactory results… For the modern economist this is very difficult to understand. He is used to measuring the "standard of living" by the amount of annual consumption, assuming all the time that a man who consumes more is "better off" than a man who consumes less. A Buddhist economist would consider this approach excessively irrational: since consumption is merely a means to human well-being, the aim should be to obtain the maximum of well-being with the minimum of

consumption… The ownership and the consumption of goods is a means to an end, and a Buddhist economics is the systematic study of how to attain given ends with the minimum means" (Schumacher 1973: 38-41).

Buddhist economics is very different from the economics of modern materialism, "since the Buddhist sees the essence of civilization not in a multiplication of wants but in the purification of human character. Character, at the same time, is formed primarily by a man's work… properly conducted in conditions of human dignity and freedom" (Schumacher 1973: 39). It is unBuddhistic to consider goods as more important than people and consumption as more important than creative activity. Such an aim was made explicit in the Green Buddhist Declaration, prepared by members of the international Buddhist community for discussion at the World Fellowship of Buddhism in Colombo (1980): "We believe that since world resources and the ecosystem cannot support all peoples at the level of the consumption of the advantaged nations, efforts towards global equity must be coupled with efforts towards voluntary simplicity, in one's individual life-style and through democratically-determined policies. The economic structures which encourage consumeristic greed and alienation must be transformed." Unfortunately, in present-day globalizing world, moral sentiments are viewed as irrelevant to business and economics. Business principles are taken to be essentially restricted to profit maximization. Moreover, as pointed out by Amartya Sen, "a departure from profit maximization need not necessarily be benign, nor need moral sentiments be invariably noble. Some of the worst barbarities in the contemporary world have been committed by self-sacrificing racists- ready to do harm to some people even at great cost or risk to themselves. Indeed, this process continues today with relentless persistence… The rejection of a self-centered life can go with the attempted advancement- sometimes violent promotion- of the perceived interests only of a particular group or community (excluding others), and even with wilfully inflicting damages on another group or community" (Sen 1997: 6). This is where Buddhism and the value-system proposed by it become important.

Briefly, Buddhist Education is a practical, clear-cut, tried and tested holistic training programme to be followed in one's daily life. It encompasses a method and technique of living to help one to meet the problems and challenges in life as well as to make the best of the limitless opportunities that life has to offer. In this sense, Buddhist Education is a holistic education programme, based on the practice and practical application of the Dhamma. It is far from being an academic study to satisfy one's intellectual gratification. On the contrary, Buddhist Education calls for resolute self-effort and a firm self-commitment to not only learn but to also skilfully train oneself in the Teachings of the Buddha. As such, Buddhist Education engages all of one's faculties – the emotions as much as one's intellect and will.

The Buddha did not want anyone to blindly follow the Noble Path He unravelled for the benefit of all humankind without regard to a person's own life-experience. He wanted disciple monks and lay-adherents whose own experimentation provided them shraddha or confidence obtained through a right understanding of the Dhamma. It was for this reason that the Buddha consistently underlined this cardinal requirement of self-inquiry and self-development in one embracing the Dhamma. We must therefore not overlook this basic requirement of Buddhism which we are to first fulfil. So before everything else, one has to undergo oneself, the spiritual experimentation or orientation.

THE CULTURAL DIMENSIONS OF BUDDHIST EDUCATION

Here I am discussing Buddhism and Education with Thai Experience (with students). Since the advent of Buddhism in Thailand nearly 1,000 years ago, monks have had crucial roles especially in the moral education of the public. The Thai mind, in general, is thus inculcated with compassion, friendliness, and love of peace.Nevertheless, having lacked knowledge of the Buddhist scriptures and modern academic knowledge, the Thais were superstitious and unable to improve their way of life. King Rama V (1868-1910) was aware of his people's inadequate knowledge susceptible to Western imperialism. He began the process of educational reform in the country. The two Buddhist colleges, Mahamakuta and Mahachula, were built in order to properly train monks to be efficient Buddhist teachers and good followers of the *dhamma*. After their graduation, monks went to work in temple schools in villages throughout the country. They taught Buddhist ethics, Thai language, mathematics, history, and so on, and tried to improve folk ways of life. In the reign of King Rama V, Thai people were more educated and contented with their prosperity.

PROBLEMS OF EDUCATION IN THAILAND TODAY

Though Thai education has been improved since the reign of King Rama V, the government is still unable to push all children through the process of compulsory formal education. The failure of educational management and administration as well as a rapid increase of population call for non-formal education, *e.g.*, a Temple Pre-school Centre, a Buddhist Sunday School, *etc.*

It is obvious that only a well-to-do family is able to send children to a good school. Many poor children in Bangkok and those in villages far away are condemned to stay with their parents to work for the rest of their lives. The sight of youngsters selling newspapers and garlands in the street is just an ordinary experience for everyone in Bangkok. Similarly, outside Bangkok, far

away in the countryside, small boys and girls watch cattle in the fields without any chance to enter school.

THE ROLES OF THE GOVERNMENT AND MONKS

In order to prepare children for school and provide the socially disadvantaged with the chance to be literate, the Ministry of Education initiated Temple Pre-school Centres in 1963. The project gained good support from the Buddhist Sangha, which allowed any temple to establish a temple school. Monks became teachers of pre-school children. The outcome of the project was successfully accepted by the public.

The Temple Pre-school Centre is a kind of social welfare promoted by the government. It invites people of all ages to come to the temple, be morally cultivated, and fulfil their human qualities. It widely interests the public with its following features:

1. It works on a basis of charity and gives free service.
2. It can be established in any temple.
3. Children eligible are five to eight years old.
4. Any illiterate adult is welcome to enrol.
5. Monks and novices are teachers. Lay people can be teaching assistants.
6. Children are prepared to enter compulsory school and their morals and manners are cultivated.

Since 1988, the Temple Pre-school Centre has changed to 'the Centre of Pre-school Children in the Temple'. It is open to children three-to-six years old.

Apart from the project of the Ministry of Education, there are some other projects for poor children launched by developer monks. One worth mentioning is Phra Khamkhian Suvanno of Sukhato Forest hermitage in north-eastern Thailand.

Phra Khamkhian Suvanno founded the Centre for Child Development in 1978 in order to take care of small children whose parents had to work in the fields all day. Most north-eastern villagers were poor farmers. They had to bring their children to the fields because there was nobody at home to look after them. Waiting for their parents to finish work, children played in the rain or were exposed to the sun the whole day. Some were severely ill and died. Phra Khamkhian thus decided to set up the Centre so that children would be taken care of and would learn to read and write elementary Thai language. At first, there were 20 children in the Centre. Phra Khamkhian brought up these children himself. They were fed with the food given to monks everyday. They had soy milk to drink and sweetmeats to eat regularly. The Centre gave a free service to the community for 8 months of the year from

March to November. It was closed on the Buddhist Sabbath days. Some years later, a few volunteer assistants came to teach the children. Parents could leave their children in the centre and go to work happily in the fields.

Apart from 2,554 pre-school centres around the country, the government and the Buddhist order also carry on the project of the Buddhist Sunday School. The Buddhist Sunday School originated in Sri Lanka in 1886. It teaches various fields of Buddhist knowledge and languages. From 1953 to 1957, Phra Bimaladharma of Mahachulalongkorn Buddhist College, Bangkok, had visited Sri Lanka and witnessed moral and cultural teaching in the Sunday School. He deeply appreciated the success of its work. After his return to Thailand, he established the first Buddhist Sunday School in Mahachulalongkorn Buddhist College in 1958.

The Buddhist Sunday School was founded and has been carried on until today in order to inculcate moral discipline and general knowledge in children. Many social problems, *e.g.*, juvenile delinquency, drug addiction, *etc.*, arise from a lack of moral training and moral cultivation. If children are acquainted with the Buddhist teachings and properly follow the Buddhist precepts, they will be able to attain peaceful happiness and live successful lives.

In order to save young people from ignorance and worthless life, Mahachulalongkorn Buddhist College thus began the Buddhist Sunday School with the following objectives:

1. To make young people and children familiar with Buddhism.
2. To inculcate moral discipline and cultural appreciation in young people and children.
3. To teach young people and children to lead their lives according to Buddhist principles.
4. To train young people and children to work for public welfare.

Now-a-days there are 995 branches of the Buddhist Sunday School around the country. Class levels are arranged according to students' grades as follows:

1. There are 4 elementary classes for primary school pupils of grades 1, 2, 3 and 4.
2. There are 3 intermediate classes for secondary school students of grades 1, 2 and 3.
3. There are 3 advanced classes for high school students of grades 4, 5 and 6.
4. There are 2 final classes for college students.

It takes 12 years to complete the entire course. Monks and some lay teachers, due to their compassion and loving kindness towards students, work in the

programme on a voluntary basis. Their work is much appreciated by all Buddhists and considerably helps improve public morality.

Apart from Mahachulalongkorn Buddhist College's public service of education, there are some other Buddhist leaders, both monks and lay people, who actively work for the sake of disadvantaged children. Worth mentioning here are Phra Vidya Cittadhammo of Mount Sarb Temple School and Mr Pai Soisaklang, the head of Sa Koon village.

According to Thai Buddhist tradition, only a male has the privilege of becoming a novice or a monk and is able to stay in a monastery for further education. A female can be merely a lay attendant and cannot closely associate with monks. Thus, male children have a good chance to fulfil their education through ordination. The case of Mount Sarb Temple School may well illustrate the point.

Phra Vidya Cittadhammo, the developer monk who runs the school, explains that all other secondary schools in the country emphasise only academic knowledge. They pay less attention to the moral cultivation of students' minds. Mount Sarb Temple School, on the contrary, accepts all underprivileged boys whose parents are too poor to send them to a formal school. These children are ordained in the temple and have studied in its secondary school, free of charge, for 3 years. The subjects are Thai, English, mathematics, and social studies. Children and young people who are novices hold to the ten Buddhist precepts during their 3 years of education, which covers both secular knowledge and *dhammic* knowledge.

It is very important nowadays to pay attention to juvenile development. Samanera Vidya, a young novice, points out that due to his poverty, he cannot enter any other school and that most youngsters are wayward and delinquent. He stresses that the Mount Sarb Temple School tremendously helps young people cultivate their minds, fulfil their human qualities, and be able to survive happily in this suffering world.

Another example of service for young students is the Sa Koon Village School, founded by the headman Pai Soisaklang and all villagers. Pai Soisaklang uses Buddhist teachings as a guide for village life. He and the villagers built the school, without any support from the government, in order to prevent youngsters from wrongdoing. By means of education, children learn to differentiate right from wrong and be sufficiently knowledgeable to depend on themselves. He also encourages the villagers to live according to the Buddhist precepts, for their own peaceful happiness, through the following village rules:

1. Do not kill animals, since it is forbidden by the first Buddhist precept.
2. Do not fire a gun within the village since it will frighten others.
3. Do not drink alcoholic beverages in the village since the drunkenness may cause trouble to others.

During the Buddhist Lent, young people are persuaded to listen to a sermon and join a religious ceremony in the temple. They learn to stay close to their parents and follow the traditional way of life. During weekends, children stay home to help their parents work in the fields and dig fish-ponds. They are happy to make themselves useful to their community.

A LOOK TO THE FUTURE

The changing role of Thai monks from ascetics to social developers is indispensable for Thai society nowadays. This phenomenon does not diminish monks' sacred status at all since they still preserve their monastic discipline.

Once when I spent a week at the Sukhato Forest Hermitage in north-eastern Thailand, I had the opportunity to examine Phra Khamkhian Suvanno's community development. I found that his work was much beneficial to the villagers and indispensable for community life. The three villages around the hermitage are located quite far away from the helping hand of the government and cannot survive without monks' assistance.

Phra Khamkhian's method of work is a combination of *dhammic* practice and social development. He follows the Buddhist teaching that a good mind yields a good practice. If one has learned to purify oneself and is able to lessen one's own defilements, one can live for the sake of others and thus can yield benefits to one's community and to the rest of the world. Phra Khamkhian teaches the villagers to abstain from all evil deeds and to practise meditation in order to learn more about themselves and to understand the nature of the world. Under the sponsorship of the Thai Khadi Research Institute, Thammasat University, Bangkok, I spent nearly 2 months interviewing many villagers, monks, and government officials who were responsible for the well-being of these villages. The outcome of Phra Khamkhian's work, however, is unsatisfactory. Most projects are initiated and run only by Phra Khamkhian. Villagers are merely participants and thus have no motivation to carry on and fulfil their work. For example, even though the Centre for Child Development still operates today, Phra Khamkhian is the only one who manages it and takes responsibility for all the work. Due to poverty and the lack of self-dependent orientation, the villagers would rather leave all problems to Phra Khamkhian than participate in the Centre or donate some money to support it.

Phra Khamkhian is well conscious of his role as a Thai monk venerated by lay people. His community development has been done within the context of Buddhist discipline. Thus, his monastic status is always held as sacred by the villagers.

Furthermore, it can be noted that most private agencies working for community development do not like to communicate or seek assistance from governmental officials. They prefer working by themselves. The case of Phra Khamkhian is an

example of a leading developer monk who devotedly works for the sake of the poor community but lacks internal cooperation and external support.

In Thailand the traditional system of primary education is as important as the modern system since ethical training is no less crucial than academic proficiency. The Thai traditional system of primary education began in a temple or a monastery where monks were teachers and preachers. Its aim was to moralise the public as well as to improve the folk ways of life. According to Buddhist beliefs, the cultivation and purification of the mind is the source of all good deeds. Thus, if we properly bring up children at the earliest, they will become good citizens and good human beings in the future.

Their knowledge will be applied to save the world. Right now, the Ministry of Education in Thailand is well conscious of this fact and mandates that all primary school pupils should study Buddhist ethics and should be trained to be morally good in their own traditions. It seems that the traditional system of education emphasises the role of religion for the good of students while the modern system honours academic knowledge and Westernization as signs of educational achievement.

I believe that both moral cultivation and academic training are equally important for students. We would rather have a morally knowledgeable person than an evil brilliant guy or a virtuous idiot. In order to train children both morally and academically, the government and all private agencies need to cooperate in supporting educational projects in all schools and in providing all illiterates throughout the country with compulsory education and elementary knowledge suitable for their folk lives and local environment.

An ideal primary school or centre of education should be well equipped with pictorial lessons and audio-visual materials in order to draw pupils' attention and make the entire process of teaching attractive. The size of the centre depends on the number of pupils in a community. Nevertheless, it is better to have 15-20 pupils in each class so that the teacher is able to train and look after everyone. Children who are ready to enter a primary school and be able to fulfil their course are ideally 5 years old. The curriculum should emphasise knowledge useful for children, encouraging optimistic viewpoints and leading to the fulfilment of their potential. The characteristics of a teacher and parents' education are no less important. Teachers should love children and be cheerful enough to make the lessons interesting. They should be trained particularly for their profession. Needless to say, if the government really wants to support public education and fight against illiteracy, it needs to provide the public with free and compulsory primary education. Since the children of today are the adults of tomorrow, as a Thai proverb says, the attempt by all means to make the best of children is thus worth the investment.

THE BUDDHIST WAY OF EDUCATION

The Lord Buddha is the Greatest Teacher of Gods and Men alike. During the Buddha's journeys into India and many other parts of the world, he has systematically designed his teachings to the intellectual aspirations and spirtual understandings of individuals whom he had come into contack with and to adapt it to their varied cultural backgrounds. This article, which is originally written by a Japanese scholar of Buddhism, Prof Sui Ye Hong Yuan, examines how the Buddha was able to educate and lead thousands of his students from varied family backgrounds with vast intellectual differences to achieve from mundane happiness to successive spiritual progress culminating towards the ultimate goal of supramundane experience, and his emphasis on cultivating mindfulness meditation.

The Blessed One's approach to education can be broadly classified into 2 ways, the ekayano magga and the anupubbi katha. From the scriptures, the suttas and the vinaya pitakas, the Buddha often talks about the beginner and the advanced level of spiritual attainment. He introduced different levels of teachings and approaches to suit individuals of different intellect and wisdom and to lead them towards the ultimate summit of knowledge and liberation.

The ekayano magga path refers to the direct meditative practice, which consists of the meditational teachings of the Buddha and of taking practical steps to practice and adopt them through experiences to achieve spiritual levels of attainments. The anupubbi magga refers to the gradual path approach, as the individual progress gradually from his perspective of religious understanding, background and belief. Depending on the individual intellectual level and at different level of spiritual attainment, different concepts are introduced to meet that level of understandings and spiritual developments.

The education system of present society is similar to that of the anupubbi katha path. For example, the teaching of mathematical concepts. At the primary school level, students are taught simple arithmetic. Students at the upper and post-secondary school level are introduced to more advanced concepts sucg as modern mathematics or further mathematics concept depending on their intellectual level and aspirations and their ability to grasp these concepts. As one advances the academic ladder right up to university, mire sophisticated and abstract ideologies are being introduced. Again, depending on their inclination, students are channelled to different streams or to one that they are best suited to excel.

The ekayano magga path, however, is little known or emphasized in today's educational context. In the olden days, much of the learning was based on memory, little children of three to four years old were able to memorise and regurgitate volumes after volumes of great philosophical ideas which they knew very little of

but yet had to subscribe to. With experiences and the passing of time did they come to realise the significance of what they had learned in those younger days.

Let us now examine from the sutta's perspective, how the Buddha teaches the ekayano magga path. Ekayano magga means the one sole way, which refers to contemplation on the four foundations of mindfulness. In the long discourses, the Mahasatipatthana Sutta states: " There is the one sole way, monks, for the purification of beings, for overcoming sorrow, lamentation, grief and despair, for reaching the right path, for attaining enlightenment, namely the four foundations of mindfulness."

These are common verses found in various Buddhist scriptures. Besides emphasizing on the four foundations of mindfulness as the one sole way to enlightenment, the Buddha also gave teachings on developing the four right efforts, the six recollections and the noble eightfold path, as objects of practice and contemplation. He taught his students to practice morality, develop their minds by concentration and insight meditation, right up to the summit of the spiritual path.

In the scriptures, however, the ekayano magga way of expressing the truth is not used. One can only assume that the goal and method of practice are similar to that of the anupubbi katha.

One begins on the path of an ordinary undeveloped spiritual practitioner to that of an advanced meditator. He progresses to become one with the lineage of enlightened beings, the stream winner, the once-returner, the non returner and the perfected one.

These realisations are the fruits of their practice and are also similar, and so is their experience of insight. The silent Buddhas and the Fully Enlightened Buddhas also seek enlightenment through similar method.

Then, how do the enlightened ones realise the truth from the same practice? One can assume that they had all realised the truth by comtemplating on subjectssuch as the four noble truths, the nature of the five aggregates and so sorth and the development of the five faculties (confidence, energy, mindfulness, concentration, wisdom) *, etc.* He contemplates on subjects like the establishment of the four foundations of mindfulness up to the development of the seven factors of enlightenment (mindfulness, investigation of states, energyjoy, bliss, concentration, equanimity), the noble eightfold path, mindfulness of breathing *, etc.* The scriptures mentioned other subjects of contemplation too but primarily practise is to realise the four noble truths and the nature of the five aggregates, that every nature is subjected to the same phenomena - rise and fall. The scriptures mentions a way in which the Buddha teach Yasa, a lay follower the gradual path (anupubbi katha),by first explaining to him the benefits of performing acts of charity, of keeping morality and the fruits of being born in heaven.

Subsequently, the Buddha expounds to him the faults underlying in being attached to sensual pleasure and the benefits of early detachments. When the layman Yasawas ready for higher spiritual understandings, the Buddha would then teach him the fundamentals of Buddhism.In essence then, we see that there are no differences in practice. Whether one chooses to contemplate on the four noble truths, the four foundations of mindfulness, the five aggregates, the philosophy and experience are similar and thus constitute the right path of Buddhism. The difference, however, lies in the practitioner's own character and intellectual capacity. From this point onwards, the Buddha would introduce the teachings to the layman Yasa in successive stages.

The teaching was initially meant for people who did not have knowledge of the laws of cause and effect. The Buddha would emphasize to them the need to be generous towards the poor and the religious monks. He also taught people to be discipline and to observe the five precepts: namely to avoid acts of killing living beings, stealing and lying and adultery. With the accumilation of past merits and the observance of the moral precepts, one would be reborn in the heavens after death.

When the Buddha knows that Yasa had a purified mind, freed from mental hindrances, joyful, happy and full of faith, he imparts to him the knowledge of all Buddhas most sublime teachings, the four noble truths. Like a piece of white cloth being thoroughly cleased of impurities and dirts, it is able to absorb varied colours. Similarly, when asa's mind is pure, he is able to receive the various teachings from the Buddha. When he realises that whatever all phenomena has a nature of rise and fall, his mind is freed from defilements, attaing the purified eys of wisdom.

On the other hand, if one does not practise generousity and break the moral precepts, he will be reborn in the lower realms of existence. Thus the laws of cause and effect dictates that doing good deeds result in good returns and evil actions read evil rewards. The first stage is to eliminate wrong views of not believing in the laws of cause and effect, and the second stage is when the mind becomes receptive to the essence of the teachings, the higher philosophy will be taught.

Besides, human lifestyle evolves around many enjoyments which results in the danger of being attached to such sensual pleasures. The essense of freedom is to be devoid of such attachment. Thus, if one still clings to and is unable to detach one's mind of sensual pleasures, one is not ready or receptive to the advanced level of Buddhism. Rather than teaching that person detachment, it is better for him to realise that for himself and come to term with it.

For those who are able to accept the teachings and understand the philosophy of dependent origination, they will certainly realise the wisdom of Buddhas and their eyes of wisdom will be eliminated. Regarding Buddha's global philosophy and

life's philosophy, this is the initial stage of realisation. At the later and more advanced stages, it means seeing the deeper aspects of the path.

People who has just realised the eyes of wisdom and attained to realisation would naturally teach the truth from his own experience, transforming theory into direct experience. Initially, when the Buddha attained enlightenment, he taught the four noble truths to his first disciples, the five monks, thus enlightening them on the right path and practice. Subsequently, he taught them to realise the true nature of the five aggregates, the impermanent, unsatisfactory and empty nature of the bodily and mental phenomenon.

The supramundance path requires the meditator to contemplate with a clear comprehening mind and to reflect on the nature of the aggregates. From this point onwards, he realises insight. Emptiness is realised through comtemplation and listening to the discourse on the four noble truths. This way of developing faith and wisdom can be found in the scriptures. From contemplating on the four foundations of mindfulness, reflecting on the repulsiveness of the body, recollection on death, the four immerasurable thoughts, the four formless absorptions and mindfulness of breathing, one progressively develops the seven factors of enlightenment. From contemplating on the breath, one enters into developing the four foundations of mindfuless, then to developing the factors of enlightenment. In that order, he successively realises the highest knowledge and liberation. From this process he purifies himself through virtue.

Pali Buddhism, the Theravada Buddhist tradition has seven stages of emancipathion of practise. THe Mahayana tradition advocates the three causes of noblehood, cultivating the three good roots, seeing, practising and leading to stages of noblehood. Such complicated spiritual practises emphasizes on the fifty-two stages of cultivating the bodhisatta path. This can be a said to be a more complicated and comprehension approach of the anupubbi katha or gradual path.

Why is it so important to bring forth all three aspects: intellectual, moral, and social?

Today, academic educational institutions focus on intellectual instruction, on bringing forth what lies within the mind. Looking around it's not hard to see where this has all too often gotten us: some very smart people making very poor moral choices, which have egregiously harmed society. What has gone wrong?

These institutions focus on economic progress instead of ethical progress, on commercializing the mind not illuminating it. Self-interest has been placed as number one, with the benefit for the many being relegated far down the list. Short-term profits, regardless of the long-term costs reign. The balance of the three aspects has shifted to a concentration on just one—intellectual. The moral and social aspects have been seriously neglected.

Is the Intellectual Aspect Unimportant?

Not at all. The intellectual is important. After all we need to learn the appropriate information and skills in all areas of our lives. We need to learn how to support ourselves, meet our own various societal responsibilities, and be able to function in the world in a manner that helps, not harms, others. We need to learn about others, how they live, their values, the many things we have in common, and the wonderful differences that make humanity so fascinating.

Apart from academic learning, Buddhism looks more at helping us to grow spiritually. For this, we need to learn from wise teachers and teachings in areas like morality, virtues, and causality. These will help enable us to live in the world, but not become ensnared by it. Becoming ensnared will lead to wanting more and more, and, invariably, harming more and more.

With good instruction, we will bring forth the good values that already lie within our very essence, what we call our prajna, our innate, wisdom. Every being has this innate wisdom deep within them. Every being has the ability to function with spontaneous, unconditional care and compassion. Our learning and practice have the goal of illuminating this innate wisdom and goodness so it will arise and shine forth in everything we do. Practice is why we learn. Practice is fulfilling the teachings.

What of Moral Instruction?

Good moral values instruction will enable us to get along better with others and will thus bring in social instruction as well. To accomplish this, we need teachers who understand the teachings as the original teachers intended. One way to see if the teacher understands the moral teaching is to observe whether he or she puts them into practice in daily life, in everything they do.

This role modeling is a teaching in itself because it shows that the principles are indeed applicable and appropriate for us. They're not out-dated or out-of-touch. The role modeling also gives real-life examples of how to apply the principles in daily situations like those we ourselves encounter.

And vitally important, seeing the teacher putting the teachings into action, deepens our confidence in the teachings, and the teacher. This is not just some noble principle I learned last week, this is a genuine teaching that works and can help me. Not only that, it can be seen to help others as well. Someone not taking something without permission or saying what is untrue gives those who observe this a feeling of safety, of not needing to worry in this person's presence.

What of the person who chose not to commit a wrongdoing? They too are less anxious! There is no need to try to remember what they told one person as opposed

to what they told another. No need to worry about being found with something they have no right to possess. No need to fear that something they said or did is wrong and will come back to haunt them. No need to feel ashamed of having hurt a person they hold dear. By worrying, fearing, and stressing less, both mind and heart will gradually become more calm. The calmer they are the better they learn and function. And the better that innate, true nature and wisdom will shine forth.

Education—giving the three aspects of intellectual, moral, and social instruction—ennobles us all. It ennobles the one who teaches, for this person has given completely of their knowledge, without holding back, without putting self-interest above the interests of others. Education ennobles the one who is taught, for this person has learned better how to not merely survive but to grow in the world, how to be a caring, moral person who seeks to help not harm others.

Education ennobles all those who are touched by the teachings for they too are touched by the spirit of the teachings through simply being in the presence of good people and learning how to emulate them.

Education benefits us all for it allows us to become wiser, to be more caring of those who need our help, more respectful of others' viewpoints, more patient with those we interact with, and happier with ourselves.

THE NATURE OF MASS EDUCATION

In the early period Buddhist Education was limited within the monasteries and only for the members of the monastery. But later on it was open to all, even lay people got scope to have education in those institutions. In modern days Buddhist Education became wide open and embraced people of all walks of life. The aim of Buddhist Education is to change an unwise to wise, beast hood to Buddha hood. Buddhist Education made revolutionary change in the society. The Buddhists in the world first made Education open to all. Students irrespective of caste, creed, religion got opportunity to have education which was denied by the superior class in the society. In India also, in Vedic Educational schools students from lower classes were refused to get admission.

The monasteries or Buddha Vihars were the chief centres of learning and only the Budhist monks could be admitted to them for education.

Thus there was no planned arrangement for mass education as such during the period. It form this position it would be wrong to construce that the Buddhist monks were unmindful of the education of the people in general. So at the time of begging alms the monks used to remove the religious doubts of the people through their interesting conversation or short and alp lectures. Thus the people in general received moral and religious education from the monks.

WOMEN EDUCATION

Women education during Buddhist period was at its lowest ebb, as the women folk were despised in the sense that Lord Buddha had regarded them as the source of all evils. So he had advised during his life time not to admit women inmonasteries.but after some time due to the insistence of his dear pupil Anand, Buddha had permitted about 500 women along with his step mother for admission in the Vihars with many restriction and reservations. when Buddhist monasteries had developed into colleges of international reputation, women did not receive any education because of their early marriages. In the early history of Buddhism, however the permission was given to women to enter the order and gave a fairly good impetus to female education, especially in aristocratic and commercial sections of society. Large number of ladies from these circles joined the order and became life-long students of religion and philosophy. Their example must have given an indirect encouragement to the spread of education among lay women as well.

Besides this, the rules of admission of women in Sangh were hard enough. Two years of probation was fixed for women-monks for their permanent membership.Strict rules were enforced for women monks.. The women monks were not allowed to meet any male monk in loneliness and their residence was arranged separately at a distant place.

They were not given any permanent post in the sangh. Some monk could give her religious instruction twice a month in the presence of another monk. The assent of the whole Sangh was also considered essential. Moreover, they had to live separately, and they were instructed by a special monk twice in a month. They could not live lonely with the teacher too. Buddhist Sangh had given attention to the cultural development and social uplift of the women. Mostly women entered the Sangh out of keen interest and deep religious feelings. Some had also joined it to get rid of the troubles of the wordly affairs. As the Bhikshunis did not like to maintain inferior position, so they naturally were more interested in the studies leading pious life. Though, Buddhist literature does not speak much of the system of the education of Bhikshunis, yet there are some references of new comer Bhikshunis and taking charge of their education. It makes clear that there must have been some arrangement for their education.

There were Bhikshunis whose spiritual knowledge was very high and they could influence a good number of people..Many Bhikshunis took the duties of social services also. They serve the sick, orphans, *etc.*, and considered it to be their prime duty. Some of them had studied the philosophy deeply and had become poetess and writers.. Some of them had studied even politics and took active part in politics of the day. Some of them had even gone to foreign countries to preach Buddhism. Sheelbhattarika, Prabhudevi and Viyanka were famous in those days as poets and

writers. The sister of the Emperor Asoka Sanghamitra was very famous Bhikshunis, who had done remarkable services of Buddhism

QUALITIES AND RESPONSIBILITIES OF THE TEACHER

The teacher himself must spend at least ten years as a monk and necessarily must have the purity of character, purity of thoughts and generosity. Both the teacher and student were responsible to the monastery. But regarding education, clothes, food and residence of the student monk, the teacher was fully responsible. The teacher was also responsible for any treatment of the student whenever he fell ill.

The duties of the teachers were imparting education to the students, writing Book, propagation of religion, discussion, and arrangement of debate for the clarification of serious subjects. The teachers were responsible for physical, mental, spiritual and moral development of the students. Teachers loved the students and helped them in every affair. They also took care of them during their diseases and agony. The teachers were responsible for their food, accommodation and other necessaries of livelihood. They kept eyes on the all round development of the students. Specially they were serious about the obeyance of the Sangha rules, meditation and concentration to their learning.

Both the teacher and the student were responsible to the monastery or the Buddhist order. But regarding education, clothes, food and residence of the student monk, the teacher was wholly responsible. The teacher was also responsible for any treatment of the student whenever he fell ill. The teacher used to bestow all the affection to his student and used to educate his through lecture and question answer method.

Buddhist philosophy admit the possible of attaining peace here and now, though, it start with a pessimistic note. Teacher, therefore, need not have any cry of despair. Bhikshus were the teacher. Buddhist vihar as or monasteries have their methods of Imitation and training for the apprentices. The preceptor must give his disciple, all possible intellectual and spiritual help and guidance. There was mutual esteem between the teacher and the pupil. There relations were like father and son. The teacher was regarded as spiritual father or intellectual father of the student.

During Budhist period the place of teacher in the scheme of education was very important. There were the categories of teachers – Acharyas and Upadhayas. According to Sutras Literature Acharya may admit according to his unfettered discretion, a number of pupils, who would have to live with him at this house, for a minimum period of twelve years. He would not accept any fees from the pupils under this instruction. The progress shown by pupil was the only factor that determined the continence of his apprenticeship.

CONCEPT OF STUDENT

The teachers were highly qualified. The aim of Buddhist Education is to make a free man, a wise, intelligent, moral, non-violent and secular man. Students became judicious, humanist, logical and free from superstitious. Students became free from greed, lust and ignorance. Buddhist Education was wide open and available to the people of all walks of life. The principal goal of the Buddhist Education is to change an unwise to wise, beast to priest.

The teachers were the guardian of the students. They were responsible for physical, mental, spiritual and moral development of the students. Since Educational Institution (Monasteries) was residential therefore the relationship between the teachers and the students were very very cordial.

The student was expected to serve his teacher with all devotion. On rising in the morning the student will arrange everything for the daily routine of the teacher. He will cook his food and clean his clothes and utensils. Whatever he acquired through begging alms, he would place before teacher. The student had to prepare himself to receive education at any time whenever the teacher required him. The Budhist system, enjoins upon the pupil the duty of serving this preceptor as a part of education. The pupils is to rise early in morning from the bed and give his teacher teeth-cleanser and water to rinse his mouth with; then, preparing a seat for him, serve him rice- milk in rinse his mouth with; then, preparing as seat for him, serve him rice milk in rinsed jug, and after his drinking it, wash the vessel and sweep the place. Afterwards he is to equip him for his begging round by giving him fresh undergarments, girdle, his two upper garments, and his alms- bowl rinsed and filled with water and then is to dress and equip himself similarly if he wants to accompany his teacher but must not walk too far from or near wants to accompany his teacher but must not walk too far from or near wants to accompany his teacher but must not walk too far from or near him. He is not to interrupt his teacher in speaking, even if he makes a mistake. There were also rules for the expulsion of a pupil by his teacher. In five cases a Saddhiviharika ought to be turned away; when he does not feel great affection for his Upajjhaya, nor great inclination towards him, nor much shame, nor great reverence, nor great devotion.

Sangha (Monastic) life was residential; therefore a cordial relationship between the teachers and the students grew up. Their relationship can be compared with the relationship of a father and a son. The teachers were the guardians and sincere for their mutual relationship, happiness, development and responsibilities.

ADMISSION

Admission in monastery-monasteries was the centre for imparting education during the Buddhist period. For admission the student had to present himself before

the teacher and request him for giving education. The teacher was fully responsible for education of his pupil. In turn, the pupil had also to be responsive to the instructions received from the teacher. The student was not at all accountable to any other Bhikshuk in the monastery.

The novices first entered into the Sangha (Bhikkhu Sangha), then had to follow the monastic rules and Sangha rules. Even today these rules are followed. There are many rules regarding food, dress, bed room, meditation, dedication and other rules as laid down by the Sangha. They had to undergo with physical exercise for maintenance of their health. They had to clean the campus, rooms, halls, serve the teachers (Achariya) and assist them in various field. This was the primary duties of the students After admission the students had to follow monastic rules along with their syllabus and they were classified according to merit. The period of Education was 12 years.

They had to follow the advice of the teachers and obey them. In this way they had to pass twelve years in learning. Students put questions to the teachers; teachers answered the question and discussed matters related to their Education. Students had to perform daily routine works beyond learning.

The teacher of a budhist monastery were empowered to expel any student on charge of misconduct or any type of serious disobedience. However, the student was expelled only when it was definitely ascertained that he lacked faith and respect for the teacher and the other things related to the sanctity of the monastery. After the death of the teacher or when the teacher changed his religion or left the monastery for elsewhere, the students also deserted the monastery. The education of the concerned students ended then and there.

PABBAJA CEREMONY

Pabbaja was an accepted ceremony of the Buddhist monasteries. Pabbaja means going out. According to this ceremony the students after being admitted to a monastery had to renounce all his worldly and family relationship. An individual belonging to any caste could be admitted to a monastery and after being admitted he did not belong to any caste. '.After admission he had to change his old clothes and all old ways and the manners of living. For the Pabbajja ceremony the minimum age was eight years.

For pabbaja ceremony the individual had to get his head fully shaved and put on yellow clothes. In this shape he was presented before the presiding Bhikshu. On presentation this individual would pray for admission to the monastery. On his prayer the head Bikshu would administer three basic advices:

- I take refuse with Budha.

- I take refuge with religion.
- I take refuge with the order.

The aspirant for admission used to pronounce these advices very distinctly. Then his admission was permitted. On being admitted the individual was called a Sharman.

Rules for Shramner

- Not to kill any living being
- Not to accept anything given to him.
- Live free from the impurity of character.
- Not to tell lie
- Not to take food at improper time
- Not to use luxurious things

UPASAMPADA CEREMONY

After pabbaja the Buddhist monk had to undergo the Upasampada ceremony. This ceremony was different from pabbaja ceremony.. After the Pabbajja ceremony education continued for twelve years. When the student received twelve years education he had to undergo the Upasampada ceremony, that it is at the age of twenty years,Upasampada ceremony was performed. This ceremony was democratic in nature. The Sharman has to present himself in front before all other monks of the monastery. One could be admitted for this ceremony only when the majority of the monks voted in favour of the same. After this ceremony the Sharman was regarded as full- fledge member of the monastery. On this occasion all his worldly and family relationships ended.

DISCIPLINE

The Core of Buddha's teaching-the Buddha teaching contains three major points discipline, meditation and wisdom. Wisdom is the goal and deep meditation or concentration in the crucial process towards achieving wisdom. Discipline through observing the precepts, is the method that helps one to achieve deep meditation; wisdom will then be realized naturally. Buddha's entire teaching as conveyed in the sutras never really depart from these three points.

After getting education in the Buddhist schools, colleges and universities one can not do any injustice, tell a lie, commit theft, can not kill, can not be addicted in wine and make himself free from moral turpitude. In this way students become free from greed, lust, enmity and ignorance.

Buddhism encompasses the entire collection of works by Buddha Shakyamuni and is called the Tripitaka.This can be classified into three categories sutra, Vinaya (precepts or rules) Sastra (Commentaries) which emphasize meditation, discipline and wisdom respectively.

The monk and the students in Buddhist period were following the simple living and high thinkingprinciple.their lives were full of purity, nobelness, dutifulness and humanity and are suppose to follow the Astang Marg- the word Samma means 'proper', 'whole', 'thorough', 'integral', 'complete', and 'perfect' -

- Samma-Ditthi — Complete or Perfect Vision
- Samma-Sankappa — Perfected Emotion or Aspiration,
- Samma-Vaca — Perfected or whole Speech
- Samma-Kammanta — Integral Action.
- Samma-Ajiva — Proper Livelihood.
- Samma-Vayama — Complete or Full Effort, Energy or Vitality
- Samma-Sati — Complete or Thorough Awareness.
- Samma-Samadhi — Full, Integral or Holistic Samadhi.

SYLLABUS

Buddhist Education system developed on the basis of some basic principles. This education gave emphasis on the moral, mental and physical development and also to divert the students towards the Sangha rules and guide them to follow it. The main stress was given to have a clear idea of Tripitaka which consists of Sutta Pitaka, Binoy Pitaka and Abhidhamma Pitaka. The entire Tripitaka consists of Buddhas teachings, message, philosophy and rules for the Bhikkhus and Bhikkhunies.

The curriculum was chiefly spiritual in nature. It was because the chief aim of education was to attain salvation. So the study of the religious books was most important. This type of curriculum was meant only for the monks. Besides these spinning, weaving, printing of the clothes, tailoring, sketching, accountancy, medicines, surgery and coinage were the other subjects of Budhist education.

At the initial stage medium of education was mother tongue, later it included Pali and Prakrit and in the following days Sanskrit also included as a medium of instruction. Specially the Mahayana Teachers achieved distinction in practicing Buddhism in Sanskrit.

A special Sanskrit Buddhist literature developed. Mention may be made here that at the hands of Nagarjun, Asanga, Basubandhu, Santideva, Aryadeva and Candrakisti Buddhist philosophy and literature made tremendous progress through

Sanskrit. In later period according to the demand of the society and professional education, art, sculpture, architecture, medicine also included in the syllabus. Buddhist Education came out from the religious arena and went out for the benefit of the mankind.

There were two types of education primary and higher education. In primary education reading, writing and arithmetic were taught and in higher education religion philosophy Ayurveda, military training was included. Everyone was free to choose his subject without any restriction.

Vocation education was not ignored during the budhist system of education. The monks of Vihar were taught spinning, weaving and sewing in order that they meet their clothing requirement. They were taught architecture as well. Education in architecture enabled them to build up new Vihars or repair the old ones. Similarly the householders following Buddhism but living outside Vihar were given training in different type of and also earn their livelihood.

It is to be mentioned that Buddhist Educational Syllabus included Vedic subjects also. In this way difference of Buddhist and Vedic Education wiped out and united. This was a historic development in the history of Education in India.

TEACHING METHOD

At first there was private and group teachings. Later it developed into class room. In due course Sangharamas developed into residential college and universities. In the history of Education those universities played major role in the propagation of Buddhism, Buddhist history, Art and Culture. In those universities world famous scholars like Atisa Dipankar, Silabrada, Santarakshit were the teachers. Many valuable books were written. We still remember the glory of the universities like Nalanda, Vikramsila, Sompuri, Salban, Jagaddal, Pandit Vihar, Taxila. The supremacy of those universities were unparallel. Students from China, Myanmar, Thailand, Gandhara and all parts of ancient India came to have their education in those universities. Buddhist Education is a combination between individual and classroom educatio

The main of the Budhist monks was to propagate Buddhism.Hence some Acharyas like Sariputta, Mahayaggalva, Aniruddha, Rahula, etc gave the importance to tours for educating peopleAfter completion of the education the student were encouraged to undertake long tours to gain the real and practical knowledge.

Conferences were arranged on every full moon and 1st day of month in the Budhist sanghs. The monks of different sanghs assembled and put forward their doubts freely. The attendance of every monk was compulsory in such conference.On the beginning and close of every month learned people used to assemble together.

This type of assembly together was a very important part of Budhist education. The purpose of this assembly was to maintain the moral standards of all the monks, because the total education was based on morality. It was compulsory for all the monks to be present in this assemble so much so that even ill monks used to try to attend it anyhow. If due to illness it was not possible for monk to come, then assembly was held near his residence. This assembly was quite democratic and it has immense moral impact on all concerned. In order to win discussion or Shastrartha and impress the general public, it was necessary to improve the power of discussion. This was also needed to satisfy the critics and opposing groups and establish ones own cult. Thus, rules were framed for discussion.: The importance of discussion encouraged the logic in the Budhist period. The controversial matters could not be decided without logical argument. Logic was also useful in the development of the mental power and knowledge-to established the disputes point the following evidences of eight kinds were required theory, cause, example,parallelism, contradiction, evidence, argument and induction. the important of discussion encouraged the logic in the Buddhist period. The controversial matters could not be decided without logical arguments.

The curriculum was spiritual in nature. The aim of education was to attain salvation. So the study of religious books was most important. Sutta, Vinaya and Dhamma Pitak were the main subjects prescribed for study. Budhist education aimed at purity of character. Like Vedic education it was training for moral character rather than psychological development of the students. One has to attain the stage of Bodhisattva. Mental and moral development was emphasized:

The method of teaching was mostly oral in nature. Though the art of writing had been well developed up to Budhist period yet, due to shortage and no availability of writing materials, verbal education was prevalent as it was in Vedic age. The teacher used to give lessons to the novices who learnt them by heart. The teacher used to put questions on the learning the lesson by heart. Teacher gives lecture on good behaviour and required topics and students were listen with attention In early days teaching was a hearing system. The teachers gave lectures; students heard it and kept it in their memory. In due course it developed into dialogue and comparison method. The teachers used to teach the students on the basis of telling stories, arranging dialogue. Sometimes debate and discussions were arranged to give idea of the subject matter as well as determination of truth, subsequently writing system introduced.Afterwords students were expected to memories the same. The teacher educates the students through lectures and question answer method. Attendance of every monk was compulsory. The medium of Buddhist education was the common language of the people.

Some Buddhist monks are more interested in isolated spiritual meditation in lonely forests and caves. Only those monks were considered fit for lonely meditation

who had fully renowned the worldly attraction and had spent enough time in the Sanghs has gained the efficiency for solitary meditation.

MERITS OF BUDDHIST EDUCATION

- *Well organized centres:* Buddhist education was imparted in well organized centres, monasteries and Vihara which were fit places for the purpose.
- *Cosmopolitan:* Buddhist education was free from communal narrowness.
- *Simple and austere:* Bhikshus led a life of austerity and simplicity.36
- *Total development:* Buddhist education laid much emphasis on the physical mental and spiritual development of the students.
- *Disciplined Life:* Both the teachers and students led disciplined life.
- Ideal student teacher relationship.
- *Interational importance:* Buddhist education helped to gain international importance it also developed cultural exchange between India and other countries of the world.

DEMERITS OF BUDDHIST EDUCATION

- Buddhist education could not give the proper attention to the occupational, industrial and technical education.
- It gave severe blow to the social development because it derided family ties. Leaving their family life Buddha Bhikshus devoted their whole lives to sangh and Buddhism.

In the ancient period Buddhist Monasteries and in the later period Buddhist Universities played major role in developing Buddhist Education. In the institutions teachers were highly qualified and sincere to their duties. The main aim of Buddhist Education is to make a free man, an intelligent man, a wise, moral, talented, non-violent and secular man. Buddhist Education make man judicious, humanist, logical and free from superstitions

It is a matter of great pride that Buddhist Education crossed Indian Sub-continent and expanded upto China, Korea, Japan, Tibet, Mongolia, Srilanka, Myanmar, Thailand, Cambodian, Laos, Vietnam, Malaysia, Singapore, with the rise and development of Buddhism in those countries.

In those countries Buddhist Education has made tremendous progress with the inclusion of modern subjects in the syllabus. Today in order to make more popular more useful and modern subjects have to be included such as English, Science, Medicine, Engineering, Commerce, Computer and Information Technology. We

are happy that the name of the countries which I mentioned have made tremendous development of Buddhist Education with the inclusion of modern subjects. They have made more facilities for the lay students. i Buddhist Education syllabus shall have to be incorporated with modern subject.

7

Uniqueness of Ancient Indian Education

From time immemorial, India has explicitly recognized that the supreme goal of life is self-realization and hence the aim of education has always been the attainment of such a fullness of being. But at the same time it was also recognized that different individuals have naturally different inclinations and capacities. Hence not only the highest philosophy but also ordinary subjects like literature and science as also vocational training find a place in ancient education system. The education system of ancient India may claim to be unique in the world in many respects like-

- The State and the society did not in any way interfered with the curriculum of studies or regulating the payment of fees or hours of instructions.
- Another special characteristic of ancient Indian educational system was it was fully and compulsorily residential. The student had to live in the house of his teacher for the whole duration of his studies and learn from him not only what was taught but also observe how his teacher responded to different situation arising in daily life and learn from it.
- Stress was laid on having a personal relation between the teacher and the taught. Each student used to meet the teacher separately and learn from him through separate instruction and guidance.
- Education was absolute free and the teacher looked after the primary needs of the students including food and clothing.

- The Indian system of education upheld the dignity of labour. Hence even a student aiming at the highest philosophical knowledge was duty bound to do some manual labour daily such as collecting fuel, tending cattle, *etc.*
- Education in ancient India was more of seminar type where students used to learn through discussions and debates.

AIMS OF EDUCATION

The aims of education were to provide good training to young men and women in the performance of their social, economic and religious duties. Also preservation and enrichment of culture, character and personality development and cultivation of noble ideals were the other aims of education in ancient India.

COMMENCEMENT OF EDUCATION

In the Vedic system, education of a child commenced at the age of five with the ceremony called Vidyarambha. It was marked by learning the alphabets for the first time and offering worship to Goddess Saraswathi. But it was only after the ceremony called Upanayana that a child used to leave his parent's home and go to stay in the house of his teacher to commence his study. He was now called Brahmacharin. Upanayana ceremony was held to Brahmin boys at the age of eight, for the Kshatriya boys at the age of ten and for the Vaishya boys at the age of twelve.

In the Buddhist system of education, a child commenced his education at the age of eight after an initiation ceremony called Prabrajya or Pabbajja. This ceremony was open to person of all castes unlike the Upanayana ceremony where only the Brahmin, Kshatriya and Vaishya caste were eligible. After the initiation ceremony the child left his home to live in a monastery under the guidance and supervision of his preceptor (monk). He was now called Sramana and used to wear a yellow robe. In the Vedic system of education a Bramachari after finishing his education was eligible to become a Grihasta or householder, in the Buddhist system of education after finishing his education, a Sramana was given a full status of monkhood or Bhikshu.

EDUCATION OF WOMEN

A high standard of learning and culture was reached by Indian women during the Vedic age. In addition to training in the arts of housekeeping they learnt music and dancing. Like boys, girls had to undergo the upanayana ceremony. There were two classes of educated women, *Sadyodwahas*– who prosecuted studies till their marriages and *Bramhavadinis* who did not marry and pursued their studies though

out their lives. Women were also taught the Vedas and Vedangas, but the extent of their study was restricted only to those hymns which were necessary for the Yajna (sacrifice) or other ritualistic operations. Women sages were called *Rishikas*. The Rigveda mentions the name of some of some of the famous women seers like Ghosha, Apala, Lopamudra, Visvavara, Indrani, *etc.* who composed hymns. During the Upanishad period we find scholarly women like Maitreyi and Gargi taking part in public debates and discussions with philosophers and sages.

SUBJECT OF STUDY

The main subjects of study in the Vedic system of education were the four Vedas, six Vedangas (phonetics, ritualistic knowledge, grammar, exegetics, metrics and astronomy), the Upanishads, the six darshanas (nyaya, vaiseshika, samkya, yoga, mimamsa and vedanta), puranas (history), tarka shastra (logic), *etc.*

The chief subjects of study in the Buddhist system of education were the three Pitakas (sutta, vinaya and abhidhamma), the works of all the eighteen schools of Buddhism, hetu-vidya, sabda-vidya, chikitsa-vidya, *etc.* The Vedas were also studied for acquiring comparative knowledge.

The art of writing was known in India for a long time. Those who wanted to become religious leaders had to learn several scripts. In Jaina works like *Samavaya Sutra* and *Pragnapara Sutra* reference to 18 different scripts are available. Buddhist literary works like *Lalitavistara* and *Mahavastu* mention different types of scripts in vogue.

While the former refer to 64 types of scripts the latter to about a dozen types of scripts. Regarding the curricula of school students, the Chinese traveller Hiuen Tsang says that children began by learning the alphabet and then began the study of five subjects like grammar, arts and crafts, medicine, logic and philosophy. This was the general scheme of studies for laymen of all sects. Other subjects of study were law (dharmashastras), arithmetic, ethics, art and architecture (silpasastra), military science (dhanurvidya), performing arts, *etc.*

VOCATIONAL EDUCATION

A majority of people earned their livelihood by following various professions. Ancient Indian literature refers to sixty-four arts which include weaving, dyeing, spinning, art of tanning leather, manufacture of boats, chariots, the art of training elephants and horses, art of making jewels, implements and equipment, art of dance, music, agriculture, building houses, sculpture, medical science, veterinary science, the profession of a chemist, manufacture of perfumes and a host of other professions. In the vocational system of education young men used to work as apprentices under a master for a number of years and gained expertise in their respective

professions. The apprentices were taught free of cost and provided with boarding and lodging by the master.

METHODS OF LEARNING

In ancient India close relationship existed between the pupil and the teacher. The teacher used to pay individual attention on his students and used to teach them according to their aptitude and capability. Knowledge was imparted orally and the different methods of learning were-

- *Memorization*: The preliminary stage of learning was learning by heart the sacred text through indefinite repletion and rehearsal by both the teacher and the taught.
- *Critical Analysis*: This was another method in which knowledge was comprehended. It was through critical analysis that Sri Ramanuja and Sri Madhvacharya differed from their teachers on the interpretation of the Brahmasutra composed by Sri Shankara and later came out with their own interpretation of the Brahmasutra. Madhvacharya even made his teacher subscribe to his view which shows that gurus were open to new ideas and views articulated by their students.
- *Introspection*: Sravana (listening), Manana (contemplation) and Nididhyasana (concentrated contemplation) of the truth so as to realize it was another method to study Brahma Vidya (Vedanta).
- *Story telling*: The teacher used stories and parables to explain. This was the method Buddha used to explain his doctrines.
- *Question and Answer method*: In this method the pupils used to ask questions and the teacher used to discuss at length on the topics and clear their doubts.
- *Hands-on method*: For professional courses including medical science, students/apprentices used to learn by observation and through practical method.
- *Seminars*: The students also gained knowledge thought debates and discussions which were held at frequent intervals.

PERIOD OF STUDY

It took 12 years to master one Veda. Hence depending upon the wish of the student to learn as many subjects, the period of study varied. It was 12 years, 24 years, 36 years or 48 years. A graduate was called Snataka and the graduation ceremony was called Samavartana.

TYPES OF TEACHERS

- *Acharya* was a type of teacher who taught his pupil Vedas without charging fee from the pupils.
- *Upadhyaya* was the one who adopted teaching as a profession to earn his livelihood and taught only a portion of the Veda or Vedangas.
- *Charakas* or wandering scholars toured the country in quest of higher knowledge. Thought not normally competent as teachers they were regarded as possible source of knowledge by *Satapatha Brahmana*. Hiuen Tsang was struck with the knowledge gained by some of the wandering teachers (called *Bhikkhus* and *Sadhus* during his times) and who had accumulated a treasure of knowledge by constant travel and who used to gladly impart it to others.
- *Guru* was the one who used to lead a gruhasta life and earn his livelihood after imparting education to his disciples and maintain his family.
- *Yaujanasatika* were teachers famous for their profound scholarship that students from distant places, as far as from a distance of hundreds of miles would come to seek their guidance.
- *Sikshaka* was a teacher who gave instruction in arts like dancing.

EDUCATIONAL INSTITUTIONS

- The *Gurukul* was the house of the teacher who was a settled house-holder. After the initiation ceremony a child would leave his natural parents and reside in the house of his preceptor or Guru till the end of his studies.
- Then there were *Parishads* or Academies where the students of advanced learning gathered and enriched themselves through discussions and discourses. Being seat of learning they were originally conducted by three Brahmins. But the number gradually increased till it was settled that a Parishad ought to consist of 21 Brahmins well versed in philosophy, theology and law. During first century A.D. association of literati were convened at regular intervals in Tamilnadu which was known as *Sangam*. The purpose of these gathering of scholars was to adjudge the literary excellence of works submitted for criticism and to set the standard in Tamil style. These gathering were patronized by kings.
- *Goshti* or Conferences was a national gathering or Congress summoned by a great king in which representatives of various schools were invited to meet and exchange their views. In one such conference called by king Janaka of Videha, the great scholar Yajnavalkya won a special prize of 1000 cows with horns hung with gold.

- *Ashramas* or hermitages were another centre where students from distant and different parts of the country flocked together for learning around famous sages and saints. For example the Ashrama of Bharadwaj at Prayag was a very big Ashrama where princes like Bharat used to study. Another Ashrama was that of Naimisha located in the forest of Naimisharanya headed by sage Saunaka. Here ten thousand pupils and numerous learned teachers and scholars held constant discussions and debates on religious, philosophical and scientific topics. Another famous Ashrama was that of sage Kanva on the banks of river Malini, a tributary of the river Saryu.
- *Vidyapeeta* was an institution for spiritual learning founded by the great acharya, Sri Shankara in places like Sringeri, Kanchi, Dwarka, Puri and Badri. The Vidyapeeta had a teacher whose influence extended to thousand villages round about and was presided by a Jagadguru.
- *Ghathikas* was an institution of highest learning where both the teachers and the taught met and discussed and where by the clash and contact of cultured scholars the highest knowledge could be obtained in religious literature.
- *Agraharas* were settlements of Brahmins in villages where they used to teach.
- *Mathas* was a place where pupils used to reside and received instructions both religious and secular. These mathas belonged to both Shaiva and Vaishnava sects and were normally attached to some temples or had some temples attached to them.
- *Brahmapuri* was a settlement of learned Brahmins in parts of towns and cities or in any selected area where education was imparted.
- *Vihara* was a Buddhist monastery where all subjects concerned with Buddhism and its philosophy was taught.

FAMOUS EDUCATIONAL INSTITUTIONS

- *Takshasila:* This was a chief centre of learning in 6th century B.C. Here sixteen branches of learning were taught in different schools; each presided by a special professor. There were schools of painting, sculpture, image making and handicrafts. But this university was reputed for its medical school. One famous student of this medical school was Jivaka who cured king Bimbisara of Magadha and the great Buddha. Jivaka had studied here for seven years under the Rishi Atreya.
- *Nalanda:* Renowned for its cosmopolitan and catholic character, the University of Nalanda was famous for its faculty of Logic.

- *Vallabhi:* While Nalanda was the famous seat of learning in eastern India, Vallabhi was the renowned seat of learning in the western India. If Nalanda was specializing in the higher studies of Mahayana Buddhism, Vallabhi was the centre for the advanced learning in Hinayana Buddhism. Secular subjects like Arthasastra (economics), Niti Shastra (law) and Chikitsa Sastra (medicine) were also taught here and like Nalanda students from all parts of India used to come here to study. Students who graduated from this university used to be employed in the royal courts as administrators with huge responsibilities. Just like Nalanda University was destroyed by Muslim invaders, Vallabhi also met the same fate.
- *Vikramasila:* The University of Vikramasila was renowned for Tantric Buddhism.
- *Ujjain:* It was famous for its secular learning including mathematics and astronomy.
- Benaras was well-known for teaching theology.
- Salotgi in Karnataka was an important Centre of learning. It had 27 hostels for its students who hailed from different provinces. This college was richly endowed in 945 A.D. by Narayana the minister of Krishna III with the revenues of houses, land and levies on marriages and other ceremonies.
- Ennayiram in Tamilnadu provided free boarding and tuition to 340 students. Other important centres of learning in South India were Sringeri and Kanchi.

High Standard of Education

The quality of education imparted in ancient India was unparalleled. Hence in spite of various hardship and hurdles students from different parts of the world flocked to Indian universities. Amir Khusrau (1252-1325 A.D.) mentions that scholars have come from different parts of the world to study in India but no Indian scholar have found it necessary to go abroad to acquire knowledge. Indian scholars were in great demand abroad. Caliphs like Al Mansur and Harun Al Rashid (754-809 A.D.) sent embassies to India to procure Indian scholars. Astronomical treatise like *Brahmasiddhanta* and the *Khanda Khadyaka* of Brahmagupta and the medical books of Charaka, Susruta and Vagbhatta were translated to Arabic. As a home of knowledge and wisdom ancient India produced scores of scholars on various subjects like Buddha and Shankara (philosophy), Kautilya (political science and administration), Sushruta (surgery), Charaka (medicine), Kanada (physicist; propounder of atomic theory), Nagarjuna (Chemistry), Aryabhatta and Varahamihira (Astronomy), Baudhayana and Brahmagupta (mathematics) and Patanjali (yoga)

to name a few. The knowledge of ancient Indians in the field of metallurgy was extraordinary as it is evidenced by the Iron pillar at Delhi which till now has not rusted though exposed to elements since hundreds of years. How such a huge column was casted is still a mystery to scientists. The lofty temples found in Karnataka, Tamilnadu, Odisha and Khajuraho to name a few shows the expertise which ancient Indians had in Structural Engineering. As the whole world knows, the concept of zero was a contribution of ancient Indians.

The Decline

With the invasion of Muslim conquerors nearly all the centres of higher learning of the Hindus and Buddhists were destroyed. Nalanda was burnt to the ground in 1197 A.D. and all its monks were slaughtered. Kanauj and Kashi were looted and plundered. Temples and educational institutions and libraries were put to destruction and they were replaced by mosques. In spite of such merciless and extensive destruction, Hindu educational institutions remained a living reality. They sustained strength from its inherent vitality and vigour and maintained the Hindu education system. Even during the reigns of terror and turmoil, merciless persecution and wanton destruction, the Hindu culture and scholarship continued to survive, though it had to migrate to more congenial regions within the country. (B.N.Luniya – *Life and Culture in Medieval India*, Kamal Prakashan, Indore. 1978, p. 271).

While the Buddhist system of education was extinguished, the Vedic system of education found patronage in the southern peninsula in places like Hampi, Sringeri and Kanchi. It was under the patronage of Vijayanagara rulers that the Vedic savants Sayana and Madhava wrote commentaries on the Vedas. It was in the south that Ramanujacharya, Basaveshwara and Madhvacharya propounded the philosophy of Vishishtadwaita, Shakti Vishishtadwaita and Dwaita. With regards to the vocational system of education many new crafts and skills were introduced in India after the advent of Muslim into India and till the establishment of British rule in India, many industries like textile manufacturing, ship building, jewelry making and other allied industries flourished which shows the skill and expertise Indians had and in turn the knowledge they had received from their teachers. The products of Indian industries not only fulfilled the needs of Asian and African countries, but were also in great demand in the markets of Europe.

INSTITUTIONAL FORM OF EDUCATION IN ANCIENT INDIA

The institutional form of education was first imparted through the Guru-Sishya system of learning. The training of the students took place at the home of a Brahmin teacher. The relationship between the student and the teacher was most

important in shaping up the entire education process. In some texts, the teacher is depicted as the poor ascetic and it is the duty of the student to beg for his teacher. In ancient India, the aim of education was to develop the pupil's personality, his innate and latent capacities as a process of one's inner growth and self-fulfilment. This view of education evolved its own technique, its rules, methods and practices.

Fig. Nyaya schools

The family functioned as a domestic school, an Asrama or a hermitage. Here, the teacher's constant attention and personal instruction developed the mental faculties of the students. The first lesson that was taught to the student was the performance of sandhya and also the reciting of gayatri mantra.

Education was treated as a matter of individual concern and not a method of mass production. The thinking principle or Manana Shakti was reckoned as most important subject of education in ancient India. The training of the mind and the process of thinking were essential for the acquisition of knowledge. Hence the primary focus of education was the mind itself.

The most important topic of Indian thought was Pramana or means of reliable knowledge. The Nyaya schools upheld four Pramanas – perceptions, analogy or comparison, word (Sabda), and pronunciation of Vedas as reliable knowledge. The Vedanta school later added one more to it *i.e.*, intuition.

Ancient Indian education system postulated syllogism and recognized logic such as reduction and absurdum, circular argument, infinite regression, dilemma, and ignorance. There were not only two possibilities of existence and non-existence but seven according to ancient Indian education system and conceded that the world is more complex and subtle than we think.

Fig. Nyaya schools

ADVANCED LEARNING INSTITUTE IN ANCIENT INDIA

There were special institutions for the promotion of advance learning and research in ancient India. These were called as Brahmana-Sangha or Congress of philosophers in the Rig Veda.

In the Brahmana Sangha, academies, called Parisads, held learned discussions in refined Sanskrit to express their highest thoughts. In the Upanishads, there is a reference to the Pancala Parisad in whose proceedings even kings participated. The codification of Brahmanical philosophy was done under the direction of the master philosopher, Yajnavalkya, after elaborate discussion at the Brahmana-Sangha.

There was equality between the sexes at the Brahmana-Sangha. The Rig Veda mentions women Rais called Brahmanavadinis participating in Brahmana Sangha. A lady- philosopher named Gargi was a prominent participant in the deliberations that finds special mention, besides men like Uddalaka Arni is also mentioned of taking part in the discussions.

Theses learning were also prompted by discussions at public meetings which were a regular feature of the rural life in ancient India. It was addressed by wandering scholars known as Carakas. These scholars toured the country to deliver public discourses and invited discussion with the local people.

METHOD OF TEACHING IN ANCIENT INDIA

The teacher would instruct handful of students seated on ground. At the beginning the main subject studied was to be the Vedas. For many hours daily students would repeat verses after verses of the Vedas till they attain mastery of at least one of them. To ensure correctness of memory, the hymns were taught in more than one way.

Soon the curriculum was expanded and six Vedangas were then taught - the performance of sacrifice, correct pronunciation, knowledge of prosody, etymology, grammar, and the science of calendar were the topics of study.

In the post-Vedic era, teachers often instructed their Brahmin students in the six schools of Philosophy. The writers of Smritis maintain that young women of upper class underwent this kind of training. Princes and other leading Kshatriyas were trained in all the manifold sciences to make them fit for government. Education was barred for the lower rung of the society and boys learned the trade through their fathers, while girls remain uneducated.

CENTRES OF LEARNING IN ANCIENT INDIA

There were many places in ancient India that is associated with learning. Some of the centres of learning turned into towns and prominent among them were places like Varanasi, Taxila from the day of Buddha and Kanchi in the beginning of the Christian era.

Varanasi was famous for its religious teachings. At Varanasi there were about 500 students and a number of teachers. There were also universities at Taxila and Ujjain. They were centres for learning medicine, mathematics and astronomy. In the south Kanchi became an important centre of learning. Then there was Vallabhi, Nalanda and Vikramashila.

Taxila was known for its secular studies. Some cities became renowned because of their teachers. Among the famous men connected with Taxila was Panini, the grammarian of the fifth century B.C. It is interesting to note that in Taxila even married people were admitted as students. A Jataka story tells of how a teacher of Taxila treated well the students who paid him money while keeping other waiting.

There were other learned persons like Charaka who was one of the leading authorities of Indian medical sciences. Kautilya, the Brahmin minister of

Chandragupta Maurya was an expert in political science. The ancient text Smritis maintains that a small number of students use to study under a single teacher; however this was not a rule. The whole establishment was maintained by charitable people. Ideally, the teacher took no fee, but the students repaid his debt by their service to the teacher.

NALANDA UNIVERSITY - ANCIENT UNIVERSITIES OF INDIA

Among the seats of learning in ancient India, the University at Nalanda stands tall in every aspect. Nalanda University attracted students not only from different parts of India but also from Tibet, China, Korea and Central Asia.

Nalanda University had imposing structures in its sprawling campus. There were eight colleges in the campus each built in different patterns. One of the colleges was built by Sri Vijaya, the king of Sumatra. According to Hiuen-Tsang, one of the colleges had four storeyed high structure.

Every facility existed for studying various kinds of subjects at the Nalanda University. As per Tibetan records; there were three great libraries in the University at Nalanda.

The standard of examination was very stiff at Nalanda University. For all those who sought admissions, a prescribed entrance test was held at the University gates. Only candidates who could pass the test were admitted to the University. Also, for admissions, candidates were required to be familiar with the title and authors of old and new books.

Nalanda University was one of the earliest examples of residential cum-teaching institutions. It housed thousands of monks devoted to learning, philosophy and meditation. Over 10,000 students including teachers lived and studied at the university. They came from various parts of the world.

Though Nalanda was primarily a Buddhist university its curricula included Hindu scriptures, philosophy and medicine. According to Hiuen-Tsang, since students were expected to enter into dialogue with visiting scholars, logic and exegetics were pre-eminent subjects. This compulsion of public debate made both teachers and students become familiar with all systems of thought in accurate summary.

The Nalanda University had also succession of brilliant teachers. Dharmapala was a Tamil noble from Kanchi. Janamitra come from another country. Silabhadra, the saintly guru of Hiuen-Tsang, came from Assam.

A great achievement of the University was that it was able to continuously rejuvenate Buddhism in far off countries. Tibetan records mention a succession of learned monks

from Nalanda University who visited their country. It is also mentions that Sudhakara Simha went to China and worked there on the translation of Buddhist texts.

The education system in ancient India was very rich in terms of human development and contributed to the growth of Indian civilization. The idea of Indian civilization continued to flourish as India transcended its journey from Ancient to Medieval to Modern times.

ANCIENT HIGHER-LEARNING INSTITUTIONS

A variety of ancient higher-learning institutions were developed in many cultures to provide institutional frameworks for scholarly activities. These ancient centres were sponsored and overseen by courts; by religious institutions, which sponsored cathedral schools, monastic schools, and madrasas; by scientific institutions, such as museums, hospitals, and observatories; and by individual scholars. They are to be distinguished from the Western-style university, an autonomous organization of scholars that originated in medieval Europe and has been adopted in other regions in modern times.

INDIAN SUBCONTINENT

Major Buddhist monasteries (*mahaviharas*), notably those at Pushpagiri, Nalanda, and Taxila, lncluded schools that were some of the primary institutions of higher learning in ancient India.

Pushpagiri

Fig. Udayagiri, Odisha Part of Pushpagiri

The school in Pushpagiri was established in the 3rd century AD as present Odisha, India. As of 2007, the ruins of this Mahavihara had not yet been fully excavated. Consequently, much of the Mahavihara's history remains unknown. Of the three Mahavihara campuses, Lalitgiri in the district of Cuttack is the oldest.

Iconographic analysis indicates that Lalitgiri had already been established during the Shunga period of the 2nd century BC, making it one of the oldest Buddhist establishments in the world. The Chinese traveller Xuanzang (Hiuen Tsang), who visited it in AD 639, as *Puphagiri Mahavihara*, as well as in medieval Tibetan texts. However, unlike Takshila and Nalanda, the ruins of Pushpagiri were not discovered until 1995, when a lecturer from a local college first stumbled upon the site. The task of excavating Pushpagiri's ruins, stretching over 58 hectares (143 acres) of land, was undertaken by the Odisha Institute of Maritime and South East Asian Studies between 1996 and 2006. It is now being carried out by the Archaeological Survey of India (ASI). The Nagarjunakonda inscriptions also mention about this learning centre.

Nalanda

Nalanda was established in the fifth century AD in Bihar, India and survived until circa 1200 AD. It was devoted to Buddhist studies, but it also trained students in fine arts, medicine, mathematics, astronomy, politics and the art of war.

The centre had eight separate compounds, ten temples, meditation halls, classrooms, lakes and parks. It had a nine-story library where monks meticulously copied books and documents so that individual scholars could have their own collections. It had dormitories for students, perhaps a first for an educational institution, housing 10,000 students in the school's heyday and providing accommodation for 2,000 professors. Nalanda attracted pupils and scholars from Sri Lanka, Korea, Japan, China, Tibet, Indonesia, Persia and Turkey.

In 2014 a modern Nalanda University was launched in nearby Rajgir.

Taxila

Taxila or Takshashila, in ancient India (modern-day Pakistan), was an early Hindu and Buddhist centre of learning. According to scattered references that were only fixed a millennium later, it may have dated back to at least the fifth century BC. Some scholars date Takshashila's existence back to the sixth century BC. The school consisted of several monasteries without large dormitories or lecture halls where the religious instruction was most likely still provided on an individualistic basis.

Takshashila is described in some detail in later Jataka tales, written in Sri Lanka around the fifth century AD.

It became a noted centre of learning at least several centuries BC, and continued to attract students until the destruction of the city in the fifth century AD. Takshashila is perhaps best known because of its association with Chanakya. The famous treatise Arthashastra (Sanskrit for The knowledge of Economics) by Chanakya, is said to have been composed in Takshashila itself. Chanakya (or Kautilya), the Maurya Emperor Chandragupta and the Ayurvedic healer Charaka studied at Taxila.

Generally, a student entered Takshashila at the age of sixteen. The Vedas and the Eighteen Arts, which included skills such as archery, hunting, and elephant lore, were taught, in addition to its law school, medical school, and school of military science.

Other

Further centres include Telhara in Bihar (probably older than Nalanda), Odantapuri, in Bihar (circa 550 - 1040), Somapura, in Bangladesh (from the Gupta period to the Turkic Muslim conquest), Sharada Peeth, Pakistan, Jagaddala Mahavihara, in Bengal (from the Pala period to the Turkic Muslim conquest), Nagarjunakonda, in Andhra Pradesh, Vikramashila, in Bihar (*circa* 800-1040), Valabhi, in Gujarat (from the Maitrak period to the Arab raids), Varanasi in Uttar Pradesh (eighth century to modern times), Kanchipuram, in Tamil Nadu, Manyakheta, in Karnataka, Mahavihara, Abhayagiri Vihara, and Jetavanaramaya, in Sri Lanka.

ANCIENT UNIVERSITIES OF INDIA APART FROM TAKSHASHILA AND NALANDA

Most Indians today are well aware of the two famous ancient universities of India which also are one of the oldest universities in the world – Takshashila University (Taxila) and Nalanda. But are these the only knowledge centres that existed in ancient India? Education has always been given great prominence in Indian society since the times of the vedic civilization, with gurukul and ashrams being the centres of learning. And with evolving times, a large number of centres of learning were established across ancient India of which Takshashila and Nalanda are the most famous ones known today. Below is a list of major ancient universities that flourished across ancient India.

TAKSHASHILA UNIVERSITY

Taxila as it is called today, Takshashila University established around 2700 years ago was home to over 10500 students where the students from all across the world used to come to attain specialization in over 64 different fields of study like

vedas, grammar, philosophy, ayurveda, agriculture, surgery, politics, archery, warfare, astronomy, commerce, futurology, music, dance, *etc.* Famous graduates of this University include the ones like Chanakya, Panini, Charaka, Vishnu Sharma, Jivaka , *etc.* This is the world's oldest university. Read more about Takshashila University of Ancient India.

NALANDA UNIVERSITY

Nalanda University was established by Shakraditya of Gupta dynasty in modern Bihar during early 5th century and flourished for 600 years till 12th century. Nalanda was the world's first university to have residential quarters for both students and teachers. It also had large public lecture halls. Students from countries like Korea, Japan, China, Tibet, Indonesia, Persia and Turkey came to study in this university.

The library of this university was the largest library of the ancient world and had thousands of volumes of manuscripts on various subjects like grammar, logic, literature, astrology, astronomy, and medicine. The library complex was called Dharmaganja, and had three large buildings: the Ratnasagara, the Ratnadadhi, and the Ratnaranjaka. Ratnadadhi was nine stories tall and stored the most sacred manuscripts including the Prajnaparamita Sutra and the Samajguhya.

Fig. Ruins of Nalanda University

In 2010, the parliament of India passed a bill approving the plans to restore the ancient Nalanda University as a modern Nalanda International University dedicated for post-graduate research. Many east asian countries including China, Singapore and Japan have come forward to fund the construction of this revived Nalanda University.

VIKRAMASHILA UNIVERSITY

Vikramashila University was established by Dharmapala of Pala dynasty during late 8th century and flourished for 400 years till 12th century. It was located in the Bhagalpur district of modern day Bihar. It gave direct competition to Nalanda University with over 100 teachers and over 1000 students listed in this University. This university was well known for its specialized training on the subject of Tantra (Tantrism). One of the most popular graduates from this University was Atiœa Dipankara, a founder of the Sharma traditions of Tibetan Buddhism who also revived the Buddhism in Tibet.

Fig. Ruins of Vikramashila University

VALABHI UNIVERSITY

Valabhi University was established in Saurashtra of modern Gujarat at around 6th century and it flourished for 600 years till 12th century. Chinese traveler Itsing who visited this university during the 7th century describes it as a great centre of learning. Gunamati and Sthiramati, the two famous Buddhist scholars are said to have graduated from this University. This University was popular for its training in secular subjects and students from all over the country came to study in this University. Because of its high quality of education, graduates of this University were given higher executive posts.

PUSHPAGIRI UNIVERSITY

Pushpagiri University was established in ancient Kalinga kingdom (modern day Odisha) and was spread across Cuttack and Jajpur districts. It was established in 3rd century and flourished for the next 800 years till 11th century. The university campus was spread across three adjoining hills – Lalitgiri, Ratnagiri and Udayagiri. This was one of the most prominent centres of higher education in ancient India along with the universities of Takshashila, Nalanda and Vikramashila. The Chinese

traveler Xuanzang (Huien Tsang) visited this university in 639 CE. Lalitgiri is said to have been commissioned by early 2nd century BCE itself and is the oldest Buddhist establishments in the world. Recently a few images of Emperor Ashoka have been discovered here, and it has been suggested that the Pushpagiri University was established by Emperor Ashoka himself.

ODANTAPURI UNIVERSITY

Odantapuri University was established by Dharmapala of Pala dynasty during late 8th century in Magadha (which is in modern day Bihar) and flourished for 400 years till 12th century. The famous Acharya Sri Ganga who was a professor at the Vikramashila University was a graduate of this Odantapuri University. According to the ancient Tibetan records there were about 12,000 students studying at this University. Ancient Tibetan texts mention this as one among the five great Universities of its time, the other four being Vikramashila, Nalanda, Somapura and Jagaddala Universities – all located in ancient India.

SOMAPURA UNIVERSITY

Somapura Mahavihara was established by Dharmapala of Pala dynasty during late 8th century in Bengal and flourished for 400 years till 12th century. The University spread over 27 acres of land of which the main complex was 21 acres was one of the largest of its kind. It was a major centre of learning for Bauddha Dharma (Buddhism), Jina Dharma (Jainism) and Sanatana Dharma (Hinduism). Even today one can find ornamental terracotta on its outer walls depicting the influence of these three traditions.

Fig. Ruins of Somapura University

OTHER ANCIENT UNIVERSITIES

The above mentioned list is not a complete list of ancient Indian universities either. Dharmapala of Pala dynasty alone is said to have established 50 mega learning centres across his kingdom, and they have been as huge and as popular as the ones mentioned above. For instance, the Munshiganj Vihara discovered as recently as Marh 23, 2013 in Bengal is said to have been established in 9th century and was home to 8000 students who came from faraway places like China, Tibet, Nepal and Thailand.

DESTRUCTION OF ANCIENT INDIAN UNIVERSITIES

As you can see, many of the universities mentioned above came to an end around 12th century. The universities like Nalanda, Vikramashila etc were destroyed around this period during the Muslim invasion of India by the fanatic Bakhtiyar Khilji from Turkey in 1193 CE. The great library of Nalanda University was destroyed, ransacked and burnt by the soldiers of Khilji's army and it is said that it was so vast that the manuscripts kept burning for three months. In-numerous number of ancient Indian manuscripts carefully preserved for thousands of years were destroyed in this fire. Thousands of monks in the University were burnt alive and beheaded by Khilji's army. According to DC Ahir, the destruction of these centres of learning at Nalanda and other places across northern India was responsible for the demise of ancient Indian scientific thought in mathematics, astronomy, alchemy, and anatomy.

SYSTEM AND ORGANISATION OF ANCIENT INDIAN EDUCATION

Let us make in-depth study of the system and organisation of ancient Indian education.

SYSTEM OF SCHOOLING

The earliest type of school in India as in other countries was the family or the paternal school where the father was the teacher and the son was the pupil. The Rig Veda was a family collection which continued from father to son. The content was the mantra. Specialisation was the objective. This was the beginning of Brahmanical education in ancient India. The ancient Indians believed in pre-natal as well as post-natal education.

With the advent of specialisation and multiple necessities of the society, the teachers accepted other pupils apart from their sons. Other students were thus allowed to join the paternal school. The students assembled and resided in the

teacher's house in constant company of the Guru. Thus the earliest school in India was residential in character.

This was the beginning of "Guru Kula". The Guru might accept one student or many students. It depends upon the fame and nature of specialisation of the Guru. During the Buddhistic period this "Guru Kula" system became ineffective. The Guru enjoyed a position of high honour and reverence.

The disciple was taught to worship his Guru as God. The pupil was under a somewhat vigourous moral discipline, but there was nothing harsh or brutal about it, and a high ideal of moral life and character was held before both pupil and teacher. There was no pecuniary relationship between them.

Rigid rules were laid down for the conduct of both the teacher and the pupil. Chastity or celibacy was strictly enjoined, and the student was not even to gaze at not touch women. Harsh corporal punishment was not in vogue in old times. There were regulations for the clothing of those who had become students.

Education in those days was absolutely a private affair. It was totally free and universal. The teacher was forbidden to accept a fee. But at the end of the course the student could offer a present to his preceptor according to his ability.

According to the Upanishads there were four stages of life or Ashramas. The first stage was the period of studentship or Brahmacharya. After the period of studentship for twelve years a young man might enter upon the second stage, that of a Grihastha, or householder. The third stage was the life of a Vanaprastha, or forest hermit.

The last stage was the life of a Sannyasi, or wandering ascetic. Even during the second stage a pupil could meet his preceptor for advice and further education. Thus, in ancient India, education was a life-long process.

The period of studentship or Brahmacharya was intimately connected with a number of religious ceremonies. Up to the age of 5 there was no formal schooling or learning. At that age a ceremony was held known as Vidyarambha. Thus, schooling used to start when the students attained maturity.

At the age of 8, formal schooling began. At this age the Upanayanan or initiation ceremony was held. The Upanayana ceremony by which the twice-born castes entered upon studentship was a must. There were prescribed rules and ages for the ceremony for the three twice-born castes. The initiation of a Brahmana should ordinarily take place in his eighth year (8-16).

The initiation of a Kshatriya should ordinarily take place in the eleventh year (11-20), and that of a Vaisya in the twelfth (12-22). The Upanayana meant the impregnation of the child's mind with the spirit of the Guru. With Upanayana

rebirth of the child took place. That is why the student was called Dwija. For Upanayana the prospective student had to present himself to the Guru with fuel in hand and by uttering the following words: "Oh Lord, I have come for Brahmacharya. Let me be a Brahmachari. Accept me as your son and pupil". Through Upanayana began the formal education or schooling of the child. The home of the teacher was the school. The pupil had to live with his preceptor as a son. There was a personal touch in education. The pupil belonged to the teacher and not to the institution. By initiation a student became a Dwija (second birth). The physical birth was regarded as the first birth and the spiritual birth was the second birth. The difference in age as regards initiation was perhaps due to supposed intellectual superiority.

The length of study was somewhat long. The Vedic learning required a long period of studentship. The standard or actual period of studentship was twelve years. A long period was necessary because of the oral method of teaching and absence of any printed material. The period of twelve years was prescribed for the study of a single Veda.

A longer period was required for the study of all the Vedas and the Vedangas. The period of studentship differed from one caste to another. The study of Vedas was compulsory for the Brahmanas. The study of at least some portions of the Vedas was compulsory for the Kshatriyas. The study of Vedas was not compulsory for the Vaisyas.

They had to study professional subjects mainly, such as agriculture, arts and crafts , *etc.* The subjects of study of the Kshatriyas chiefly included the art of warfare and defence of the country. Thus the content of study differed from one caste to another. Ancient Indian education was based on caste system.

It was impossible for every student to acquire mastery over all the subjects. So concentration on selected subjects was necessary. So 12 years was the average period of schooling. It was meant for the average students and not for the bright students. After completing the studentship the pupil could go home and lead the life of a householder. But he was always allowed to come to the Guru for discussion and advice.

Thus, the student-teacher relation was a life-long one. So in a broad Sense, the period of studentship was a life-long one. From the daily duties of teachers and students of ancient India it is evident that education was imbued with spiritual ideals. Memory played a prominent part in learning.

The school had a fixed calendar and daily time-table. In a year the school was held for four to five months. The session or annual term usually began at the full moon of the month of Sravana (July- August). On some auspicious dates the schools were closed.

The teacher used to sit on a higher seat. There was individual instruction and no class teaching or instruction of the present day. Education in ancient India was thus individualised and not institutionalised.

Apart from the Upanayana ceremony there were also other ceremonies connected with studentship such as Medhajnana, Upakarma, Utsarjana and Samavartana. The Samavartana ceremony was held without any examination. "Guru" was the examiner for an individual pupil. It was only the teacher who could judge and judge best the academic attainments of his students.

There was no public system of examination in those days. Examination was a continued process. Samavartana was held only to make the pupil prominent in the public field. At that ceremony many other "Gurus" and distinguished persons of the local community were also present who could put questions to the pupil to test his scholarship. At that ceremony the teacher used to deliver a speech advising him a lot of practical and moral guidance. The Samavartana marked the end of the period of studentship.

By 1000 B.C. the system of debates and discussion came into vogue. Specialisation was the order of the day. Different schools of thought, therefore, developed. Thus education was institutionalised. Debates and discussions were held in the parishads which constituted the centres of higher learning.

Parishads were assemblies of learned Brahmans or permanent colonies of Gurus, which gave decisions on all points connected with the Brahmanic religion and learning. The authorities differ on the constitution of a Parishad. The composition differed from 3 to 10. Whatever might be the number the members of the parishad were no doubt great scholars of repute in different branches of learning such as the Vedas, the Vedangas, Astronomy, Astrology, Medicine, Literature, Philosophy, Law, Grammar , *etc.* They were experts in their own specialised areas.

The composition of the Parishad reveals one interesting fact that specialisation in studies was of the highest type. The Parishads were in some respects like judicial assemblies and in other religious synods. They correspond to a certain extent to the associations of teachers in the Middle Ages of Europe, which developed into universities. Students were also members of the Parishads. Thus, the assemblies of many teachers and students at a particular place constituted the nucleus of something corresponding to a modem university. Some of the noted centres of learning were Taxila, Benares and Nadia.

CURRICULUM

Curriculum occupies an important place in a scheme of education. This is specially true of ancient Indian education. The curriculum is determined by the

scheme of life of people. The scheme of life is subject to change. It is dynamic and not static. The curriculum of education in ancient India developed through different stages.

Complexities of knowledge and society influenced the development of curriculum. Needs of life and needs of society determined the nature of curriculum construction. This led to different patterns of curriculum in different stages of ancient Indian education. The curriculum was thus dynamic and not static. It was a process. In the early Vedic period the three Vedas constituted the curriculum. Printing was not in vogue in India till. Printing started in China about 800 A. D. Naturally oral tradition was the only means of learning. The Brahmanic education started out with the idea of the teacher passing on to the pupil the traditions he had received, and this involved primarily learning by heart the sacred books.

In the later period the Vedangas constituted the curriculum. Here we find the sign of specialisation. Of course the study of the Vedas was not discontinued. With the passage of time more specialisation was made and new subjects were included in the curriculum. This phase gave rise to different branches of learning. The Sutra literature was the product of this time.

The sacrificial ritual (Yagna) itself gave birth to some of the sciences. The elaborate rules for the construction of altars led to the sciences of Geometry and Algebra being developed. The desire to find out auspicious times and seasons for sacrifice and other purposes gave rise to Astrology, from which Astronomy developed. The dissection of sacrificial victims was the beginning of anatomy.

The care to preserve the sacred text from corruption led to the development of Grammar and Philology, while the deep questions with regard to the universe and man's place in it led to the formation of elaborate philosophical systems and the study of logic. Medicine and Law also received an early development in India.

Reference has already been made to the Sutras. These were six in number and necessary for the reading, understanding, or sacrificial employment of the Vedas. These are called the Vedangas or members of the Veda. They comprise the following subjects: Siksha (phonetics); Chhandas (metre); Vyakarana (grammar); Nirukta (etymology); Jyotisha (astronomy) and Kalpa (ceremonial and religious practice). From these, however, other subjects developed. For example, the study of law developed from Kalpa.

The study of grammar received special attention in ancient India. Panini, who is still the greatest recognized authority, flourished in the 4th century B.C. He belonged to Gandhara. His Sutras containing the rules of grammar were in eight volumes, called the Ashtadhyayi. There was no more comprehensive collection in ancient India than this one, says Max Mueller.

Panini was followed in the 3rd century B.C. by Katyayana who wrote Varttikas or notes on Panini's rules. Somewhat later came the Mahabhashya, or great commentary, of Patanjali, which dates from about the second century B.C. These writers were the standard authorities on Sanskrit grammar.

Lexicography was also cultivated in India at an early date. There were many early writers on astronomy in India, and their works were reduced to a concise and practical form by Aryabhata, who was born at Pataliputra in A.D. 476. He taught the rotation of the earth on its axis, and explained the causes of the eclipses of the sun and moon.

Another famous Indian astronomer was Bhaskaracharya, who was born in A.D. 1114. Mathematics and Algebra also developed to a great extent in ancient India. Lilavati was a recognised mathematician of the time. Indian scholars were influenced by Greek learning.

As the material for the study of the subjects included in the six Angas increased and accumulated, it became impossible for one student to acquire mastery of all subjects, and so special schools arose for the study of special subjects. At first the Angas were no doubt short treaties, but in course of time they grew enormously in bulk.

Evidently more specialisation was needed in some parts of the field of knowledge. This specialisation began probably about the 5th century B.C. There were special law schools. Law Code of Manu grew up in one of these special law schools. The science of medicine also developed in India at an early date. One of the great authorities was Charaka who flourished in the first century A.D. Another great name is that of Susruta, who lived about the fourth or fifth century A.D. It is probable that the development of the medical science was due to the influence of Buddhism. Hindu physicians are called Vaidyas, and Ayurvedic medicine is still practised in India.

The subject of philosophy also developed in ancient India. The Aryan Rishis compiled their high philosophical thoughts in the Upanishads, Brahmanas and Samhitas. All the six systems of Indian philosophy began to develop before the beginning of the Christian era—Nyaya, Baisesika, Sankhya, Yog, Mimamsa and Vedanta.

Impact of Buddhism as a socio political and religious force was felt in the 3rd century B.C. The curriculum of this period included Tripitaka-Vinaya, Abhidharma and Sutra. With the progress of time Buddhist curriculum also included the Vedas. Buddhism and Hinduism interacted. Each was influenced by the other.

Hindu learning became a part of Buddhist learning though emphasis was given on Buddhist literature. The major Buddhist literature also influenced Hindu learning.

'Milinda Panho' included subjects like Sippas, some parts of the Epics, Buddhist Literature, Medicine *, etc.*

In the Epic period curriculum included the Epics, the Vedas, the Vedangas, politics, military science, diplomacy, science of archery *, etc.* The Epic period represents the rise of the Kshatriyas. The Buddhist period represents the rise of the Vaisyas. The Epic was finally shaped in the Gupta age.

METHOD

The teacher used to recite the subjects of learning and the students had to hear the recitation. The student used to fix his eyes and mind on the teacher. The 'Gayatri' must be recited. The syllable 'Om' must precede the recitation of the Vedas. The recitation was an approved method of teaching in the Vedic age.

Teaching-Learning was treated as a great solemn act. The transfer of knowledge from the teacher to the student was treated as something sacred. The teacher had the moral obligation to hand down to the pupil the exact contents of the sacred books as he himself had perceived them. The ancient Gurus devised wonderful arrangements for the accurate preservation of the sacred texts. The general method of teaching was rote.

The connotation of the term 'rote' was different in those days from the meaning which we think today. The student had to conserve and memorise the learning. He had to commit on his own initiative a whole textbook to memory. It was memorisation no doubt, but it was not mechanical like today.

Memorisation was a laborious process in those days. There was a question-answer procedure. A lecture generally consisted of sixty questions. A lecture used to start with a question first from the teacher to the students. It was then followed by questions from the students. Questions could be repeated. To learn by heart, every syllable had to be pronounced with high accent. The teacher was in the habit of giving explanations when required by the pupil. The Sastras were composed in language so condensed that a considerable amount of explanation was needed.

To relieve the monotony of the laborious process of learning by heart and to create some interest, stories and fables were told to the students. The system of teaching was individual, and each pupil was separately instructed by the teacher.

There were occasional debates and discussions which helped to clarify difficult thoughts and ideas. The student had to understand clearly and to memorize and conserve.

The method was divided into three phases:

- Sravana (Hearing)

- Manana (Thinking)
- Nidhidhyasana (Revelation)

Learning was individualised. Each individual pupil had to put questions and learn and think by himself. Teacher-pupil relation was absolutely personal and this greatly helped to develop the spiritual mind of the pupil. Real learning was insight and revelation. Hence there was no system of terminal or final examination.

Each student proceeded according to his pace. The teacher determined the standard of learning or academic attainment of the pupil. He was the sole and best judge of the pupil.

STATE AND EDUCATION

There was no state system of education in ancient India. But the state patronised education in different ways. Patronage of education was regarded as one of the most important duties of the kings. In those days the king was the state. So any patronage on the part of the kings meant patronage of the state.

Many ancient kings like Janaka of Mithila, Yasovarman of Kanauj, Vikramaditya VI of Chalukya, Chandra Gupta and Vikramaditya of Pataliputra, Ajatasatru of Varanasi patronised education. The kings of Kasi, Kasola and Bideha also patronised education. They used to appoint many learned men as members of their courts in the capacities of Raj Jyotishi, Raj Purohita, Raj Kabi , *etc.*

Endowments were granted to educational institutions. Vidyadana or a gift in the cause of education was pronounced to be the best of gifts and even superior to the gift of land (Bhumidana). The king used to grant lands or pensions or stipends to the learned scholars. Kings like Kanishka, Harsha and Chandragupta II liberally helped learned men. Kalidasa, Umapati, Vanabhatta, Bhababhuti were all court poets. Sometimes kings used to fund or endow educational institutions, as was for instance done by the Guptas at Nalanda. Some of the Taxila students were state scholars. The state used to help education in many indirect ways also. It employed many learned men in administrative posts.

Harisena, the author of the Allahabad 'Prasasti', was appointed judge. Kings used to offer scholarships to students to enable them to complete their education. Further indirect help to the cause of education was given by the state by exempting poor but learned students from taxation. Kings used to organise and patronise the Parishads.

Many of the kings offered aids to the poorer students. Students also enjoyed scholarships. The kings patronised education in ancient India without state control. Even when hundreds of villages were given to the Nalanda University by Hindu Gupta emperors, they did not stipulate that Buddhism should adopt a particular

policy towards the religion of the donors. The richer people also contributed and patronised education generously. They helped the cause of education in substantial ways. Sometimes they used to fund free boarding and feeding houses for poor students. The rich people used to construct and maintain school and college buildings.

They even used to make grants of lands to meet some recurring expenses. Sometimes village communities and trade guilds organised and financed educational institutions from their own resources. "Respect for learning had always been the redeeming feature of the East.

There were few wealthy men who did not entertain a Maulavi, a Pandit or a Guru to teach their sons, and along with them, the sons of their friends and dependants. There was not a single villager who did not take pride in devoting a portion of his produce to a respected teacher".

The society at large also helped in the spread of education. The society was always anxious to help the cause of education in a variety of ways. Even men of ordinary means used to support the cause of education in a variety of ways. On auspicious occasions like Upanayana and marriage, families used to give donations in cash or kind to teachers and educational institutions. Begging was prevalent both in the Brahmanical and Buddhistic periods.

Through begging a close social contact was established between the society and the students and the teacher. Begging had social sanction and support. Teachers and students were invited to the houses of the rich people. The villagers round the Nalanda University very often used to give donations.

This was the popular participation in education. So education was free. The Hindu society tried to make fairly efficient arrangement and provision for the education of the rising generation almost free of cost.

8

Science and Technology during Ancient Times in India

SCIENCE IN ANCIENT INDIA

Science and technology in ancient India covered many major branches of human knowledge and activities, including mathematics, astronomy and physics, metallurgy, medical science and surgery, fine arts, mechanical and production technology, civil engineering and architecture, shipbuilding and navigation, sports and games.

According to the 19th century British historian, Grant Duff:

"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."

SCIENCES

Astronomy: Classical Indian astronomy documented in literature spanning the Maurya (Vedanga Jyotisha, ca. 5th century BCE) to the Mughal (such as the 16th century Kerala school) periods. The first named authors writing treatises on astronomy emerge from the 5th century CE, the date when the classical period of Indian astronomy can be said to begin. Besides the theories of Aryabhata in the *Aryabhatiya* and the lost *Arya-siddhanta*, we find the *Pancha-Siddhantika* of Varahamihira. From this time on, we find a predominance of geocentric models, and possibly heliocentric models, in Indian astronomy, in contrast to the "Merucentric" astronomy of Puranic, Jaina and Buddhist traditions whose actual

mathematics has been largely lost and only fabulous accounts remain. The astronomy and the astrology of ancient India (Jyotisha) is based upon sidereal calculations, although a tropical system was also used in a few cases. For example, Uttarayana was determined according to a tropical system in the *Mahabharata*, or by Lagadha in the *Vedanga Jyotisha*. But even then, sidereal astronomy was the mainstay. Now, even Uttarayana is determined according to the sidereal system of Hindus.

LINGUISTICS

Linguistics (along with phonology, morphology, *etc.*) first arose among Indian grammarians who were attempting to catalog and codify Sanskrit's rules. Modern linguistics owes a great deal to these grammarians, and to this day, for example, key terms for compound analysis such as bahuvrihi are taken from Sanskrit.

Linguistics was pursued in ancient India for many centuries. The Sanskrit grammar of PGini (c. 520 – 460 BCE), who is often considered the founder of linguistics, contains a particularly detailed description of Sanskrit morphology, phonology and roots, evincing a high level of linguistic insight and analysis. In particular, he is most famous for formulating the 3,959 rules of Sanskrit morphology in the text *Acmdhyy+*.

His sophisticated grammar of Sanskrit continues to be in use to this day. The Indian grammatical tradition is believed to have been active for many centuries before PGini, and anticipates by millennia certain developments in the West, such as the phoneme and the generation of word forms by the successive application of morphological rules for example. (Outside of India, the phoneme seems to have been discovered and forgotten several times through history.)

The South Indian linguist Tolkppiyar (c. 3rd century BCE) wrote the *Tolkappiyam*, the grammar of Tamil, which is also still in use today. Bhartrihari (c. 450 – 510) was another important author on Indic linguistic theory. He theorized the act of speech as being made up of three stages: conceptualization by the speaker; performance of speaking; and comprehension by the interpreter. The work of PGini, and the later Indian linguist Bhartrihari, had a significant influence on many of the foundational ideas proposed by Ferdinand de Saussure, professor of Sanskrit, who is widely considered the father of modern structural linguistics.

MATHEMATICS

Main authors of classical Indian mathematics (400 CE to 1200 CE) are scholars like Aryabhata, Brahmagupta, and Bhaskara II. Indian mathematicians made early contributions to the study of the decimal number system, zero, negative numbers, arithmetic, and algebra. In addition, trigonometry, having evolved in the Hellenistic world and having been introduced into ancient India through the translation of

Greek works, was further advanced in India, and, in particular, the modern definitions of sine and cosine were developed there. These mathematical concepts were transmitted to the Middle East, China, and Europe and led to further developments that now form the foundations of many areas of mathematics.

MEDICINE AND SURGERY

Ayurvedic practice was flourishing during the time of Buddha (around 520 BC), and in this period the Ayurvedic practitioners were commonly using Mercuric-sulphur combination based medicines. An important Ayurvedic practitioner of this period was Nagarjuna, a Buddhist herbologist, famous for inventing various new drugs for the treatment of ailments. Nagarjuna was accompanied by Surananda, Nagbodhi, Yashodhana, Nityanatha, Govinda, Anantdev, Vagbhatta *, etc.* During the regime of Chandragupta Maurya (375-415 AD), Ayurveda was part of mainstream Indian medical techniques, and continued to be so until the colonisation by the British. Chakrapani Dutta (DuttaSharma) was a Vaid Brahman of Bengal who wrote books on Ayurveda such as "Chakradutta" and others. Chakrapani Dutta was the Rajavaidya of Great King Laxman Sen {some says rajVaid of King Nayapala (1038-1055)}. It is believed by some practitioners that Chakradutta is the essence of Ayurveda.

Ayurveda has always been preserved by the people of India as a traditional "science of life", despite increasing adoption of European medical techniques during the time of British rule. For several decades the reputation and skills of the various Ayurvedic schools declined markedly as Western medicine and Western-style hospitals were built. However, beginning in the 1970s, a gradual recognition of value of Ayurveda returned, and today Ayurvedic hospitals and practitioners are flourishing throughout all of India. As well, the production and marketing of Ayurvedic herbal medicines has dramatically increased, as well as scientific documentation of benefits. Today, Ayurvedic medicines are available throughout the world.

PHYSICS

A number of Indian theories on physics have attracted the attention of Indologists. Veteran Australian Indologist Arthur Llewellyn Basham has concluded that:

> *"They were brilliant imaginative explanations of the physical structure of the world, and in a large measure, agreed with the discoveries of modern physics."*

ATOMISM

The concept of the atom in ancient India derives from the classification of the material world in five basic elements by Indian philosophers. This classification

existed since Vedic times (c. 1500 BCE). The elements were the earth (*prithvi*), fire (*agni*), air (*vayu*), water (*jaal*) and ether or space (*aksha*). The elements were associated with human sensory perceptions: smell, touch, vision, taste and ether/space respectively. Later, Buddhist philosophers replaced ether/space with life, joy and sorrow.

Ancient Indian philosophers believed that all elements except ether were physically palpable and hence comprised of minuscule particles. The smallest particle, which could not be subdivided, was called paramanu in Sanskrit (shortened to *parmanu*), from *parama* (*ultimate* or *beyond*) and *anu* (*atom*).

Thus, "*paramanu*" literally means "*beyond atom*" and this was a concept at an abstract level which suggested the possibility of splitting atoms, which is now the source of atomic energy. However, the term "atom" should not be conflated with the concept of atom as it is understood today.

The 6th century BCE Indian philosopher Kanada was the first person who went deep systematically in such theorization. Another Indian philosopher, Pakudha Katyayana, a contemporary of Buddha, also propounded the ideas of atomic constitution of the material world. All these were based on logic and philosophy and lacked any empirical basis for want of commensurate technology.

> Will Durant wrote in *Our Oriental Heritage*:
>
> *"Two systems of Hindu thought propound physical theories suggestively similar to those of Greece. Kanada, founder of the Vaisheshika philosophy, held that the world was composed of atoms as many in kind as the various elements. The Jains more nearly approximated to Democritus by teaching that all atoms were of the same kind, producing different effects by diverse modes of combinations. Kanada believed light and heat to be varieties of the same substance; Udayana taught that all heat comes from the sun; and Vachaspati, like Newton, interpreted light as composed of minute particles emitted by substances and striking the eye."*

LIGHT

In ancient India, the philosophical schools of Samkhya and Vaisheshika, from around the 6th – 5th century BCE, developed theories on light. According to the Samkhya school, light is one of the five fundamental "subtle" elements (*tanmatra*) out of which emerge the gross elements. The atomicity of these elements is not specifically mentioned and it appears that they were actually taken to be continuous.

According to the Vaisheshika school, motion is defined in terms of the movement of the physical atoms and it appears that it is taken to be non-instantaneous. Light

rays are taken to be a stream of high velocity of *tejas* (fire) atoms. The particles of light can exhibit different characteristics depending on the speed and the arrangements of the *tejas* atoms. Around the first century, the *Vishnu Purana* refers to sunlight as "the seven rays of the sun".

Later in 499, Aryabhata, who proposed a heliocentric solar system of gravitation in his *Aryabhatiya*, wrote that the planets and the Moon do not have their own light but reflect the light of the Sun. The Indian Buddhists, such as Dignga in the 5th century and Dharmakirti in the 7th century, developed a type of atomism that is a philosophy about reality being composed of atomic entities that are momentary flashes of light or energy.

They viewed light as being an atomic entity equivalent to energy, similar to the modern concept of photons, though they also viewed all matter as being composed of these light/energy particles.

TECHNOLOGY

Chemistry and Metallurgy: Ancient India's development in chemistry was not confined at an abstract level like physics, but found development in a variety of practical activities.

Metallurgy has remained central to all civilizations, from the Bronze Age and the Iron Age, and later. It is believed that the basic idea of smelting reached ancient India from Mesopotamia and the Near East. In ancient India, the science of smelting reached a high level of refinement and precision. In the 5th century BCE, the Greek historian Herodotus observed that the:

"Indian and the Persian army used arrows tipped with iron."

The ancient Romans used armour and cutlery made of Indian iron. In India itself, certain objects testify to the high level of metallurgy. An iron pillar believed to be cast in the Gupta period around the 5th century stands by the side of Qutub Minar World heritage site in Delhi. It is 7.32 m tall, with a diameter of 40 cm at the base tapering to 30 cm at the top, and is estimated to weigh 6 tonnes.

Standing in the open for last 1500 years, it has withstood wind, heat and water without rusting, except for very minor natural erosion. This kind of rust-proof iron was not possible until iron and steel was discovered a few decades before. An influential Indian metallurgist and alchemist was Nagarjuna (b. 931). He wrote the treatise *Rasaratnakara* that deals with preparations of *rasa* (mercury) compounds.

It gives a survey of the status of metallurgy and alchemy in the land. Extraction of metals such as silver, gold, tin and copper from their ores and their purification were also mentioned in the treatise.

Ancient India's advanced chemical science also finds expression in activities like distillation of perfumes and fragrant ointments, manufacturing of dyes and chemicals, preparation of pigments and colours, and polishing of mirrors. Paintings found on walls of Ajanta and Ellora World Heritage sites still look fresh after 1000 years, further testifying to the high level of science.

Will Durant wrote in *Our Oriental Heritage*:

> *"Something has been said about the chemical excellence of cast iron in ancient India, and about the high industrial development of the Gupta times, when India was looked to, even by Imperial Rome, as the most skilled of the nations in such chemical industries as dyeing, tanning, soap-making, glass and cement... By the sixth century the Hindus were far ahead of Europe in industrial chemistry; they were masters of calcinations, distillation, sublimation, steaming, fixation, the production of light without heat, the mixing of anesthetic and soporific powders, and the preparation of metallic salts, compounds and alloys.*
>
> *The tempering of steel was brought in ancient India to a perfection unknown in Europe till our own times; King Porus is said to have selected, as a specially valuable gift from Alexander, not gold or silver, but thirty pounds of steel. The Moslems took much of this Hindu chemical science and industry to the Near East and Europe; the secret of manufacturing "Damascus" blades, for example, was taken by the Arabs from the Persians, and by the Persians from India."*

CIVIL ENGINEERING AND ARCHITECTURE

India's urban civilization is traceable to Mohenjodaro and Harappa, now in Pakistan, where planned urban townships existed 5000 years ago. From then on, Indian architecture and civil engineering continued to develop, and was manifestated temples, palaces and forts across the Indian peninsula and neighbouring regions. Architecture and civil engineering was known as *sthapatya-kala*, literally "the art of constructing".

During the Kushan Empire and Mauryan Empire, Indian architecture and civil engineering reached regions like Baluchistan and Afghanistan. Statues of Buddha were cut out, covering entire mountain cliffs, like in Buddhas of Bamyan, Afghanistan. Over a period of time, ancient Indian art of construction blended with Greek styles and spread to Central Asia.

On the east, Buddhism took Indian style architecture and civil engineering to places like Sri Lanka, Indonesia, Malaysia, Vietnam, Laos, Cambodia, Thailand, Burma, China, Korea and Japan. Angkor Wat is a testimony to the contribution of Indian civil engineering and architecture to Cambodian Khmer heritage. In mainland

India, there are several ancient architectural marvels, including World Heritage Sites like Ajanta, Ellora, Khajuraho, Konark, Mahabodhi Temple, Sanchi, Brihadisvara Temple and Mahabalipuram.

PRODUCTION TECHNOLOGY

Mechanical and production technology of ancient India ensured processing of natural produce and their conversion into merchandise of trade, commerce and export. A number of travelers and historians (including Megasthanes, Ptolemy, Faxian,Xuanzang, Marco Polo, Al Baruni and Ibn Batuta) have indicated a variety of items, which were produced, consumed and exported around that society's "known world" by the ancient Indians.

SHIPBUILDING AND NAVIGATION

The science of shipbuilding and navigation were well-known to ancient Indians. Sanskrit and Pali texts are replete with maritime references. Indians, particularly from coastal regions, traded with several nations across the Bay of Bengal like Cambodia, Java, Sumatra, Borneo, even China and South America, and across the Arabian Sea like Arabia, Egypt and Persia. A panel found in Mohenjodaro depicts a sailing craft, and thousands of years later Ajanta murals also depict a sea-faring ship.

Around 500 CE, sextants and mariner's compass were not unknown to ancient Indian shipbuilders and navigators. J.L. Reid, a member of the Institute of Naval Architects and Shipbuilders, England, around the beginning of the 20th century wrote in the *Bombay Gazetteer* (Volume XIII, Part II, Appendix A) that "The early Hindu astrologers are said to have used the magnet, in fixing the North and East, in laying foundations, and other religious ceremonies. The Hindu compass was an iron fish that floated in a vessel of oil, pointing north. The fact of this older Hindu compass seems placed beyond doubt by the Sanskrit word *MATSYA-YANTRA* ("fish-machine"), which Molesworth calls "mariner's compass".

FINE ARTS

Music had a divine character and the Indian Goddess of learning, *Saraswati*, is always shown holding a veena. Likewise, Krishna is associated with the "*bansuri*", (flute) — a musical instrument which traveled throughout the world from India. Indian devotional songs and reciting influenced religious recitations in several eastern countries, where the style was adopted by Buddhists monks. India developed several types of musical instruments and forms of dancing, with delicate body movements and grace.

Paintings have remained the oldest art form as found in several cave paintings across the globe. Pre-historic cave paintings have been discovered in India in places

like Bhimbetka, a UNESCO World Heritage site. In relatively recent times, rock paintings and carvings had significantly developed, and many such carvings have been found dating to the period of Emperor Ashoka. Indian influences may be seen in paintings at Bamyan, Afghanistan, and in Miran and Domko in Central Asia. Sometimes, they depict not only Buddha but Hindu deities such as Shiva, Ganesha and Surya.

GAMES AND SPORTS

Several games now familiar across the world originated in India: chess, ludo, snakes and ladders, and playing cards. The epic *Mahabharata* (c. 500 BCE) narrates an incident where a game called chaturanga was played between two groups of warring cousins. In some form or the other, the game continued to evolve into chess. H. J. R. Murry, in his book *A History of Chess*, concluded that "chess is a descendant of an Indian game played in the 7th century CE". The Encyclopædia Britannica states, "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. His book, *Ain-e-Akbari*, which mirrors life of that time, records game of cards is of Indian origins. The Buddha games list, which dates back to the 6th or 5th century BCE, is the earliest list of games known. Indian martial arts have been practiced for millennia. In particular, Kalaripayattu is native to the South Indian state of Kerala. *Kalaripayattu* consists of a series of intricate movements that train the body and mind.

SCIENTIFIC METHOD IN ANCIENT INDIA

Contrary to the popular perception that Indian civilization has been largely 'concerned with the affairs of the spirit and "after-life", India's historical record suggests that some of the greatest Indian minds were much more concerned with developing philosophical paradigms that were grounded in reality. The premise that Indian philosophy is founded solely on mysticism and renunciation emanates from a colonial and orientalist world view that seeks to obfuscate a rich tradition of scientific thought and analysis in India.

Much of the evidence for how India's ancient logicians and scientists developed their theories lies buried in polemical texts that are not normally thought of as scientific texts. While some of the treatises on mathematics, logic, grammar, and medicine have survived as such-many philosophical texts enunciating a rational and scientific world view can only be constructed from extended references found in philosophical texts and commentaries by Buddhist and Jain monks or Hindu scholars (usually Brahmins).

Although these documents are usually considered to lie within the domain of religious studies, it should be pointed out that many of these are in the form of extended polemics that are quite unlike the holy books of Christianity or Islam. These texts attempt to debate the value of the real-world versus the spiritual-world. They attempt to counter the theories of the atheists and other skeptics. But in their attempts to prove the primacy of a mystical soul or "Atman"-they often go to great lengths in describing competing rationalist and worldly philosophies rooted in a more realistic and more scientific perception of the world. Their extensive commentaries illustrate the popular methods of debate, of developing a hypothesis, of extending and elaborating theory, of furnishing proofs and counter-proofs.

It is also important to note that originally, the Buddhist world view was an essentially atheistic world view. The ancient Jains were agnostics, and within the broad stream of Hinduism-there were several heterodox currents that asserted a predominantly atheistic view. In that sense, these were not religions as we think of today since the modern understanding of religion presumes faith or belief in a super-natural entity.

That so many scholars from each of these philosophical schools felt the imperative to prove their extra-worldly theories using rationalist tools of deductive and inductive logic suggests that faith in a super-natural being could not have been taken for granted. This is borne out by the memoirs of Hieun Tsang (the Chinese chronicler who traveled extensively in India during the 7th C. AD) who describes the merchants of Benaras as being mostly "unbelievers"! He also wrote of intense polemics and debates amongst followers of different Buddhist sects.

Similiarly, there is other evidence that suggests that amongst the intellectuals of ancient India, atheism and skepticism must have been very powerful currents that required repeated and vigourous attempts at persuasion and change. Nevertheless, over centuries, the intellectual discords between the believers and non-believers became more and more muted. The advocates of mystic idealism prevailed over the skeptics, so that eventually, (at the popular level) each of these philosophies functioned as traditional religions with their pantheon of gods and goddesses enticing and lulling most into an intellectual stupor. But at no point were the advocates of "pure faith" ever powerful enough to completely extinguish the rationalist current that had so imbued Indian philosophy.

EARLY RATIONALIST SCHOOLS

One of the most ancient of India's rationalist traditions is the "Lokayata". Maligned and discredited by the evangelicals of mystical Buddhism and Vedantic Hinduism, their world view was sharply atheistic and scientific for their time. Unlike those who believed in reincarnation or an after-life, and in the indestructibility of

the human soul-they refused to make artificial distinctions between body and mind. They saw the human mind as part and parcel of the human body-not as some separate entity that could have an independent existence from the human body. They acknowledged nothing but the material human body and the material universe around it. They rejected sacrificial gifts and offerings for the after-life as was common amongst followers of Brahmanical Hinduism during the time of Medhatithi in A.D 900 (a commentator on the writings of Manu who acknowledges that the Lokayatas were atheists or non-believers.)

For instance, they ridiculed the Brahmanical rituals of animal sacrifice: "If a beast slain in the Jyotistoma rite itself goes to heaven, Why then does not the sacrificer also offer his father?"

"If beings in heaven are gratified by our offerings made here, Then why not give the food down below to those who stand on the housetop?"

"If offerings produce gratification to beings who are dead, why make provisions for travellers when they start on a journey?"

"If he who departs from the body goes to another world, How is it that he comes not back again, restless for love of his kindred?"

The Lokayatas dismissed the Vedic priests and their Vedic mantras as nothing but a means of livelihood for those lacking in genuine physical or mental abilities. Instead, they gave primacy to human sense-perception, and through the application of the inferential process-they developed their theories of how the world worked.

One of the most notable aspects of the Lokayata belief system was their intuitive understanding of dialectics in nature. Many argued the mind-body separation as follows: Since the body is made up of things lacking consciousness-but the mind is a conscious entity-mind and body must necessarily be different-and consciousness must imply the existence of something else akin to the "soul".

The Lokayatas countered this by citing the example of fermentation-how an intoxicating drink could be produced from something that was not itself an intoxicant. In essence they had discovered the principle that the whole was greater than the sum of it's parts. That physical and chemical processes could lead to dramatic changes in the properties of the substances combined. They were able to understand how special transformations could produce new qualities that were not evident in the constituent elements of the newly-created entity.

As keen observers of nature, they were probably amongst the first to understand the nature of different plants and herbs and their utility to human well-being. As such, it is likely that Indian medicine gradually evolved from the early scientific knowledge and understanding of the Lokayatas. Since the Lokayatas believed that consciousness emerged from the living human body, and ended with it's death-it is

more than likely that the widely prevalent Indian custom of cremating the dead also originated amongst them.

This is not to say that the Lokayatas' understanding of the world was as elaborate and precise as that provided by today's science. By the standards of the 20th century, some of their formulations could be considered primitive and inadequate. That is only to be expected. Knowledge of science has expanded considerably since their times. But what is more important is that their world view was driven by a rational and scientific approach.

For instance, some later philosophical schools countered the Lokayata arguments concerning mind-body unity by bringing up the evidence of memory. Nyaya-Vaisesika philosophers like Jayanta and Udayana pointed out that the process of daily eating meant that the human body was constantly changing. The process of ageing also pointed to how the human body was ever-changing. Yet, an old person could remember in detail an incident from childhood. In other words-they tried to argue that memory was evidence of a human soul that existed beyond the mere physical body. Yet, we know today that memory is but a combination of proteins that can survive the length of human existence. There is both continuity and change in nature. The Lokayata world view howsoever sketchy and incomplete was not in contradiction with modern science.

If some of their characterizations required later revisions or refinement, or even corrections, it didn't take away from their fundamentally scientific approach. Their inadequacies were a consequence of incomplete knowledge and the understandable inability to see all the complexities of nature that we are now able (through advanced scientific instruments and centuries of accumulated knowledge). Their errors did not, however, stem from stubborn faith or deliberate rejection of reality and real-world phenomenon.

In practice, (according to some historians) India's ancient Tantric followers may have also had a largely rational world view, which sprang from a practical mindset and was impaired only by the limited amount of scientific knowledge available to humanity at that time. Critics of the tantrics dismissed them as sexually obsessed hedonists. But they failed to acknowledge that the early tantrics had an intuitive scientific streak and their understanding of sexual reproduction is probably what may have also impelled them to develop basic agricultural tools and other implements. In that sense, they were India's early technologists.

THE AGE OF SCIENCE AND REASON

But even amongst those Indian philosophers who accepted the separation of mind and body and argued for the existence of the soul, there was considerable dedication to the scientific method and to developing the principles of deductive

and inductive logic. From 1000 B.C to the 4th C A.D (also described as India's rationalistic period) treatises in astronomy, mathematics, logic, medicine and linguistics were produced. The philosophers of the Sankhya school, the Nyaya-Vaisesika schools and early Jain and Buddhist scholars made substantial contributions to the growth of science and learning. Advances in the applied sciences like metallurgy, textile production and dyeing were also made.

In particular, the rational period produced some of the most fascinating series of debates on what constitutes the "scientific method": How does one separate our sensory perceptions from dreams and hallucinations? When does an observation of reality become accepted as fact, and as scientific truth? How should the principles of inductive and deductive logic be developed and applied? How does one evaluate a hypothesis for it's scientific merit? What is a valid inference? What constitutes a scientific proof?

These and other questions were attacked with an unexpected intellectual vigour. As keen observers of nature and the human body, India's early scientist/philosophers studied human sensory organs, analyzed dreams, memory and consciousness. The best of them understood dialectics in nature-they understood change, both in quantitative and qualitative terms-they even posited a proto-type of the modern atomic theory. It was this rational foundation that led to the flowering of Indian civilization.

This is borne out by the testaments of important Greek scientists and philosophers of that period. Pythagoras-the Greek mathematician and philosopher who lived in the 6th C B.C was familiar with the Upanishads and learnt his basic geometry from the Sulva Sutras. (The famous Pythagoras theorem is actually a restatement of a result already known and recorded by earlier Indian mathematicians). Later, Herodotus (father of Greek history) was to write that the Indians were the greatest nation of the age. Megasthenes-who travelled extensively through India in the 4th C. B.C also left extensive accounts that paint India in highly favourable light (for that period).

Intellectual contacts between ancient Greece and India were not insignificant. Scientific exchanges between Greece and India were mutually beneficial and helped in the development of the sciences in both nations. By the 6th C. A.D, with the help of ancient Greek and Indian texts, and through their own ingenuity, Indian astronomers made significant discoveries about planetary motion. An Indian astronomer-Aryabhata, was to become the first to describe the earth as a sphere that rotated on it's own axis. He further postulated that it was the earth that rotated around the sun and correctly described how solar and lunar eclipses occurred.

Because astronomy required extremely complicated mathematical equations, ancient Indians also made significant advances in mathematics. Differential

equations-the basis of modern calculus were in all likelihood an Indian invention (something essential in modeling planetary motions). Indian mathematicians were also the first to invent the concept of abstract infinite numbers-numbers that can only be represented through abstract mathematical formulations such as infinite series-geometric or arithmetic. They also seemed to be familiar with polynomial equations (again essential in advanced astronomy) and were the inventors of the modern numeral system (referred to as the Arabic numeral system in Europe).

The use of the decimal system and the concept of zero was essential in facilitating large astronomical calculation and allowed such 7th C mathematicians as Brahmagupta to estimate the earth's circumferance at about 23,000 miles-(not too far off from the current calculation). It also enabled Indian astronomers to provide fairly accurate longitudes of important places in India.

The science of Ayurveda-(the ancient Indian system of healing) blossomed in this period. Medical practitioners took up the dissection of corpses, practised surgery, developed popular nutritional guides, and wrote out codes for medical procedures and patient care and diagnosis. Chemical processes associated with the dying of textiles and extraction of metals were studied and documented. The use of mordants (in dyeing) and catalysts (in metal-extraction/purification) was discovered.

The scientific ethos also had it's impact on the arts and literature. Painting and sculpture flourished even as there were advances in social infrastructure. Universities were set up with dormitories and meeting halls. In addition, according to the Chinese traveller, Hieun Tsang, roads were built with well-marked signposts. Shade trees were planted. Inns and hospitals dotted national highways so as to facilitate travel and trade.

India's rational age was thus a period of tremendous intellectual ferment and vitality. It was a period of scientific discovery and technological innovation. Accompanied by challenges to caste discrimination and rigidity and religious obscurantism-it was also a period of great social upheaval that eventually led to society becoming more democratic, allowing greater social interaction between members of different castes and expanding opportunities for social mobility amongst the population. Social ethics drew considerable attention in this period. Rules of engagement during war were constructed so as to eliminate non-military casualties and destruction of pasture-land, crop-land or orchards. The notion of chivalry in war was popularized-it meant not attacking fleeing or injured soldiers. It also required warring armies to provide safe passage to women, children, the elderly and other non-combatants.

The rational period thus saw progress on several fronts. Not only did it create an enduring foundation for India's civilization to develop and mature-it has also had it's impact on the growth of other civilizations. In fact, India's rational period

served as a vital link in the long and varied chain of human progress. Although colonial history has attempted to usurp this collective heritage of the planet and make it exclusively euro-centric, it is important to note that fundamental and important discoveries in science and innovations in technology have come from many different parts of the globe, albeit at different times and stages of world civilization. India made significant contributions in this regard. If India is to fully recover from the depredations of colonial rule, it is imperative that we don't forget the achievements of this inspiring epoch.

WHY SCIENCE DECLINED IN ANCIENT INDIA?

A learned medical specialist from Nagpur, in a recent article in lay press, while describing ancient medical sciences in India, has remarked that fall of science of surgery was because of 'ahimsa' taught by the Buddha. Though the remark was as an orbus dictum, it shows not only his ignorance of Indian history and of Buddhism, but also desire for making false charges on Buddhism due to, may be, his contempt for the Buddhists. The surgery was never considered 'himsa' by the Buddhists, nor for that matter by anybody. Certainly fall of sciences was not because of 'ahimsa' of the Buddha. Modern science is undoubtedly a contribution of the west. That way, in all societies, there were attempts of obstruction to progress of science. In India they got more success. There was a time in Indian history when Indian science was not only famous in the country, but it was so all over the world. If the progress of Indian science would have been maintained unhindered after the sixth century A.D., we Indians, today, would have been foremost in the scientific field.

GOLDEN ERA OF SCIENCE IN INDIA

From the ruins of Harappa and Mohenjodaro, it is clear that there existed a pre Aryan urban civilization of Dravidians, which went by the name of Nagas. It shows great development of town planning, water supply and urban facilities, sanitary drainage and granaries.

Gold used for ornaments in Harrapan culture was from Kolar gold mines, the only source available, which is proved by a committee of metallurgical experts under sir Edwin Pascoe, who performed chemical analysis, under the direction of Sir John Marshall. So gold mining was a flourishing industry of the time. This also shows the communicating links between south and north, Vindhyas and forests of Dandakaranya were no bar. The copper used in Harrapan civilization was imported from Rajputana, and tin from Hazaribagh. It used various types of stones quarried all over India, and some imported from outside.

The modern number system of 0 to 9 with use of decimal point is the contribution of Indian mathematicians. It spread to Europe via Arab countries.

Mauryan India also achieved remarkable success in fields of Engineering, town planning, architecture and art. India's first irrigation dam belongs to this era and was aptly called "Sudarshana", *i.e.,* beautiful in later inscriptions of Rudradamana.

We know the importance of Ashokan pillars for aesthetic beauty, craftsmanship and religious declarations, but it was also known for the science of polishing of stones to such an extent that it became the distinguishing mark, the structures with high polish being ascribed to Ashokan period. Such gloss and polish, Marshall says, "no modern mason can produce", Vincent Smith calls it "the despair of modern masons", Tom Coryat and Whittekar described it as of brass, Chaplain Terry as a pillar of marble, and Bishop Heber as pillar of cast metal.

In the first and third centuries A.D., two important texts were composed on medical science, namely Charak Samhita and Sushrut samhita, which show the advanced stage medical knowledge in India.

Susrut Samhita, which is a text of surgical science, describes more than one hundred instruments of surgery. It also describes the plastic surgery procedures, specially the operation of rebuilding of nose, what we today call as rhinoplasty.

At the time of invasion of Alexander, India was famous for medicine and surgery.

In Buddhist books, we find mention of Jivaka who operated on the brain of a merchant. He was appointed by Emperor Bimbisara as a physician for Lord Buddha and cured him of constipation by making use of inhaling fragrance of medication on a lotus flower. The science of Inhalers in modern medicine is pretty recent. He cured diseases of head, a fistula by ointment, jaundice and performed surgery on brain and intestinal "entanglements" as per the Vinaya texts, which Radha Kumud Mukharji calls were "not given to exaggeration like a work of fiction".

Ashoka had sent medical missions to five Hellenistic States of Europe for humanitarian service, with aushadha, mula and phala, as per Rock Edict 2 and 13.

Education of medicine was compulsory in Nalanda Mahavihara and even I-Tsing had to undergo a course.

Up to seventh or eighth century A.D., Indian physicians and surgeons were respectfully appointed in Baghdad.

Indian medical books were popular in China. A Chinese work composed in 455 A.D., is derived from Indian text. A number of medical books are found in Chinese Buddhist collection. A text on Children's Diseases, named "Ravana-kumara-charita" was translated into Chinese as late as 11th century.

Indian Medical science and arithmetic was highly valued in the west. Greek and Iranian physicians knew Indian medical texts. It is recorded that Barzouhych, a subject from Sassanid King Khusro I's court (531-579 A.D.) visited India for study of medicine.

Meharauli iron pillar, which is standing in the courtyard of Kutub Minar at Delhi, belongs to fourth century A.D. It is standing there, defying the ravages of times, for centuries but not a spot of rust or corrosion on it. Its composition was examined by a committee of experts, who held that, it was beyond the capacity of any Iron foundry in the world of that time to manufacture such a masterpiece.

From Periplus we know that the sword made of Indian steel is proverbial in Arabic literature, showing the highest skills and knowledge of metallurgy. The famous Damascus blade was made from Indian steel. Ancient South Indian bronzes are praised even now in the whole world not only for their craftsmanship but also for metallurgy. Sultanguanj colossal Buddha in copper is a metallurgical masterpiece and a marvel, still preserved in Birmingham museum.

Jawaharlal Nehru describes how the Roman Emperor scolded his daughter for wearing so little clothing on her person, while in fact she was fully clad in Indian made muslin clothing, showing the high degree of skill in textile industry.

It is recorded that, "the Roman beauties, decked in even seven folds of Muslin, and parading themselves on the highways of Rome, became a menace to its morals." and import of Indian textiles had to be banned by Roman Parliament. The ban on imports was necessary also because of balance of payment crisis. Pliny estimates one million pounds sterling drain per year. It resulted in favourable trade balance for India, with a stable gold currency for the Kushana empire.

India was also famous for paints and dyes, which were the products for export. The pictures of Ajanta are famous not only for aesthetic beauty, art and history but also for quality of paints and pigments used. The science and art of ship building suffered most during "kali varjya". The sea worthy people of south India were great voyagers. They built ships of huge tonnage, traveled to far east, established settlements, colonies and even kingdoms and propagated their faith both brahmnic and Buddhist. All these qualities became futile after imposition of ban on sea travel.

DHANVANTARI

In the medical field, the scholars of present time, seem to have forgotten about Jivaka, Nagarjuna, Sushruta, Charaka and Vagbhata.

They appear to give more importance to Dhanvantari. The picture presented of him is not as a medical teacher, but as an imaginary mythological puranik god who

sprang up from the churning of ocean of milk by the devas and danavas. Why the former historical dignitaries are ignored in preference to him will be clear if we bear the fact in mind that all leading names in ancient medicine were Buddhists. So they had to invent a god for Ayurveda.

However, there is a minor medical work going by name of Dhanvantari. It is a Nighantu or a medical dictionary. It is mentioned in Amarkosha, and hence in original form must have preceded the Amarkosha; but its extant form it must be ascribed to a later date. Amar, writer of Amarkosha, was according to tradition one of the nine jewels at the court of Vikramaditya, whose very identity it has not yet been possible for scholars to fix beyond all doubt. He is "known as a poet, and was certainly a Buddhist who knew the Mahayana and used Kalidasa", as per Winternitz, His date is uncertain but he probably flourished before the eighth century A.D.

ARYABHATTA

Aryabhatta, born in 476 A.D., flourished in the centre of Buddhist heart land, *i.e.,* Capital of Magadhan empire, at Pataliputtra. and his Aryabhatiya was composed in A.D. 499. He was first to treat Mathematics as a distinct subject and he dealt with evolution and involution, area and volume, progressions and algebraic identities, and intermediate equations of the first degree. He also arrived at a 'remarkably accurate value of PI, *viz.* 3.1416'

Aryabhatta was also the first to hold that the earth was a sphere and rotated on its axis. For this, he gave a beautiful analogy that to a person travelling in a boat, trees on the shore appear to move in oppoite direction, similarly because earth is rotating on its axis towards east, it appears to us as if the sun moves from east to west. He also explained that the eclipses were not the work of Rahu and Ketu or some other 'rakshasa', but were caused by the shadow of the earth falling on the moon. As we will see later, both these views were rejected and severely condemned by later astrologers like Varahmihira and Brahmagupta. One of the most important features of Aryabhatta's mathematical system is his unique system of notation. It is based on the decimal place value system, unknown to other ancient people, but now in use throughout the civilized world. Whether Aryabhatta invented the system or merely improved on an existing one cannot be definitely stated.

But with the doubtful exception of Bakhshali manuscript, which is referred by some to c. A.D. 200, the earliest use of the system occurs in Aryabhatiya, and it is found in all later mathematical works. Thus till that time, which was the golden era of Buddhism and decline had yet to start, India was in no way inferior or behind any other country of the world, in the field of science.

BUDDHIST RULERS AND SCIENCE

In third fourth century B.C., in the Asokan times, there was great advances in veterinary science. For treatment of elephants, "Palkapya samhita" and for treatment of horses, "Shalihotra samhita" were written. We find in his edicts, mention of hospitals established by him for men and animals even in far off places in south India. All this shows the growth of Veterinary science in India.

All these show that Indian science was well advanced up to sixth century. One has to ponder over what were the reasons which not only obstructed the progress of science, but also destroyed what was already achieved. One has to understand the history, literature and puranas, and social conditions to find these out.

It is clear from the dates, that the age of progress of science in India was the age of glory of Buddhism. Acharya Charak was the 'rajvaidya' in the court of Buddhist emperor, Kanishka, of first century A.D. Buddhist philosopher Nagarjuna was also their contemporary. He was also famous physician. The contribution of Charak to "Charak Samhita" is as important as Nagarjuna's contribution to "Sushrut Samhita". Whatever knowledge of ayurveda was being spread through the oral traditional method of Guru sishya teaching was revised and reduced to writing in the times of Buddhist rulers.

During the early centuries of Christian era, medical science was on zenith. In this development, the contribution of Buddhists was enormous. Through them, the knowledge spread all over the other foreign countries.

ROLE OF BUDDHIST FAITH

As a matter of fact, science spreads only when it is free from the fetters of traditions. Lord Buddha had given that freedom to Indian society, that freedom of thought and action. Liberated from the severe caste rules, society was taking keen interest in progress of scientific pursuits. Jivaka, discussed above, was an infant found on a dung heap, and still could reach such an illustrious position, only because of Buddhist environment. We know in brahmanic tradition, admission to school was based on caste as is seen by examples of Karna, Ekalavya and Satyakama Jabaala.

The situation was quite opposite in Brahmanic teaching institutions, In Brahmanic Gurukulas, there were no criteria for admission apart from the caste of the prospective student and whims and fancies of the teacher. Examples of denial of admission to very meritorious candidates on the basis of caste are seen.

Glaring example is of Eklavya. Not only the guru Dronacharya denied admission to Eklavya, but demanded Eklavya's thumb as gurudakshina for education NOT imparted by him. Many people feel it is irony of fate and mockery of awards, that

such a name is associated with highest sports awards in this country today, without any protest from the sufferers of the system.

Second example is of Karna, who got admission to Parashurama's class, which was exclusively reserved for the brahmins, on false statement of caste. Benefit of his knowledge, labeled as unlawfully obtained, was withdrawal when his caste became known, which ultimately lead to his death. Example of Satyakama Jabala is mentioned by many orthodox people to erroneously show that education in Upanishadic times was open to low caste people. This is a wrong inference drawn from his story. Satyakama was asked by his guru his caste. His mother sent a word to the guru that she did not know the exact father of the child as she had relations with many people.

This frank statement, the guru declared, can only be a statement of a son of a brahmin. So the admission to the gurukul was done on the basis of brahmin caste. Not only that, the test applied by him, and his presumption of brahmin caste, was derogatory to non-brahmins, because it was his belief that only brahmins could speak such a truth and non-brahmins could not have uttered such truth.

BUDDHISM AND SCIENCE

Kurt F. Leidecker, President Buddhist Centre of America, and others very aptly observe in "Buddhism and Science":

> *"Perhaps one reason (for progress of science) is that Buddhist thinking has always enjoyed the greatest freedom untrammeled by dogmatism and authority of any kind, not even that of Buddha himself. We have his words in the Kalama Sutta which should be given in the hands of any who write and pronounce judgment on Buddhism."*
>
> *"Science observes, describes, establishing the truth on ocular demonstration and verification by experiment which anyone may undertake without the least faith in ultimate results."*
>
> *"Whatever progress has been made in the western world in science and technology, was made not because of faith and belief in supernatural, but largely by rejecting it or being indifferent to it."*
>
> *"Science is based most assuredly on analysis, that is, scrutinizing every phenomenon and examining every part of it and finding out how it came about. That is exactly what the Buddha did."*
>
> *"The fact is that in the history of Buddhism there has never been any altercation with scientists, and no war has ever been declared on science. Warfare between science and Christianity? Yes, there has been too much of it. Warfare between science and Buddhism? Never."*

CRUSADE AGAINST SCIENCE

There were wars against science in the western world also. But it is in India that the antagonists of science won the war. Brahmins opposed Buddhists, and their relations were so strained on the issue of caste supremacy, that they became bitter enemies of each other. They opposed every thing in which Buddhists were experts, even the science. Dr. Ambedkar very rightly said, "It must be recognized that there never has been a common Indian Culture, that historically there have been three Indias, Brahmanic India, Buddhist India and Hindu India, each with its own culture. It must be recognized that the history of India before the Muslim invasions is the history of a mortal conflict between Brahmanism and Buddhism."

In the far off counties, the Buddhists were getting name and fame, but at home in India, there were efforts to dig out and uproot their moorings. Later when Buddhist became weaker due to internal differences and contradictions, the brahmins put themselves in citadel, in which the new arrangements were made by which they declared as inferior and degraded all those things, which Buddhists were good at and for which Buddhists were famous for all over the world.

Even science was not spared from this fate. A famous scientist of modern India, Dr. Neelaratna Dhar aptly observes that, the progress of science was obstructed by the decline of Buddhism in India. The help and support received from Buddhist Universities and monasteries to chemical and medical sciences in the hospitals was stopped. After the fall of Buddhism, Brahmins dominated and they denounced, condemned, denigrated and maligned all those things in which the Buddhists had excelled.

In the fight against the Buddhists, kali varjya was clamped on this society. Hinduism got rearranged, and in its new concept, foreign travel was forbidden. All vocations relating to science were declared sacrilegious, blasphemous, heretical and disrespectful. Caste rules, rules of high and low, rules of untouchability and inequality all were made more and more strict. All knowledge and science was made more secret, secluded, hidden and concealed and every new thought and invention was opposed.

Due to ban on travel to foreign lands, India got cut off from the rest of the world. The society was not like a frog in the pond, before; but due to severance of bonds of communications with the outside world, the stupid injunctions of priests became the words of authority. There is a phrase in Marathi saying, whatever priest tells is east and whenever he says is the new moon day. In such circumstances, it was natural that all scientific progress got suffocated.

The various vocations were graded according to basis of caste hierarchy, white collar jobs were kept by higher castes and the rest of population, the shudras *i.e.,*

the working class, the marathas or kunbis, the malis, the telis, the gawalis, the lohars, the sutars, the mangs, the mahars, the chamars, the paradhis, the gonds, the bhils *, etc. , etc.* all 'shudras and ati-shudras' in Mahatma Phule's terminology and 'bahujans' in todays terminology, were made the beasts of burden to carry out all activities requiring toil and sweat. By this the prestigious castes lost all links with practical aspects of technology and means of production.

All niceties of life, food clothing housing and attendant luxuries, wealth, comfort, and prosperity was concentrated in the hands of three varnas, and to provide these the shudras had to toil and sweat their blood out. All the productive work which is done in western countries by choice, option and preference was done in India as a burden, a charge, an obligation, a stress through a feeling of frustration and pressure of compulsion due to 'purva karma', the deeds of past life.

The society was made to believe that those people who do not work with their hands are more civilized, sophisticated, cultured, noble, dignified and worshipable, and have attained that position because of the good deeds they had done in the past lives; the good deeds meant, of course, the preservatin of chaturnarna.

Lord McCauley, some times, is unnecessarily blamed for creating the army of white collared babus. The reality is that this germ of white collared arrogance was already in this soil.

ROLE OF MAHABHARATA

In this important text of Hinduism, medical science, architecture, manufacture of weapons, painting, sculptor, agriculture and animal husbandry has been condemned time and again. In one place it is even said that, the food given to a vaidya, *i.e.,* a physician, in a shraaddha becomes unacceptable to the pitars like blood and pus. It is clear that till the time of Mahabharata all these vocations were declared mean, contemptible, lowly, humble and ignoble.

There are three types of treatments in ayurveda, they say. Where rasas are used is 'daivi', where fruits are used is 'manushi' and the surgery, some modern authors say, was a 'aasuri or rakshasi' knowledge. This is the brahmanic interpretation of later times. If similar sentiments prevailed in the earlier times we would not have seen the prosperity of surgical knowledge at the time of Jivaka and Sushruta *, etc.* Because of this feeling, surgery was despised and hated more and more and so it went to hands of the lower castes in the society.

It is said by Dr. Satya Prakash that science of obstetrics and maternity surgery was well developed at the time of Sushrut. When none in the outside world could think of surgical instruments, Sushrut describes various operations of maternity with these instruments. His advises about maternity are similar to modern ones.

The famous Jivaka of Buddha's time, was expert in maternity science. He was called Kumar Bhrutya Jivaka. Till the Buddhists dominated, the art and science of maternity in ayurveda flourished. After the fall of Buddhism, when brahmins dominated, they declared this science as dirty and it passed on to the women of low castes. It remained with them till the British came, and still in villages these dayees of low castes, *i.e.,* midwives, prevail even today.

The feeling of high and low was so great in the Brahmanas, that even the gods had been divided into castes, high and low. Ashwani kumars were declared shudra gods, not eligible to take part in drinking soma by Indra, who was considered ksatriya. As they were physicians, this profession degraded them to the status of shudras.

In west, all the scientist were sons of ordinary working class people, like carpenter, blacksmith, cobbler, barber *, etc.* These professions were never considered degraded. With us, the working class was always degraded castes. If they had been given some encouragement and motivation in technological fields, science in India would have flourished.

The science develops by spread of thought, but in India, there was more of secrecy to guard it from lower castes. Nobody having any useful knowledge wanted to part with his knowledge. It was within Guru and his disciple to start with. When writing came in, around beginning of Christian era, the texts were written in such a script that they were understood by only a few. Example of Varahmihir can be quoted who ordained that only selected disciples should be given such knowledge, and see that it does not pass even to his son. How much knowledge is lost in darkness, nobody can guess.

Science deals with physical world, but we were taught that world is unreal only the god was real. This raised the armies of sadhus, who were interested in philosophy and bhajan kirtan and their subject was in the world here after. They were not interested in science as world was 'mayajal' for them.

With perhaps a solitary exception of Bhaskaracharya of 12 to 14th century, there was not a single activity in the sphere of scientific knowledge, roughly from sixth century, up to 19th century when the British came.

Some people like to blame Islam for this decline in science. It is wrong to say so. Decline had started much before the Muslims came. We became slaves afterwards, we were withered and wrinkled much before that time due to our internal weaknesses. The reasons of decline of science in India are also the reasons for its defeats and political fall and are responsible for the slavery, this land suffered for centuries.

CREATION OF ILLITERACY

India is supposed to have largest number of illiterates in the world. Many institutions are fed on State revenue for the 'noble' cause of so called 'adult' literacy. But nobody tells us why India remained illiterate for centuries. It was Dr. Ambedkar who brought this fact in light. He averred that, without formal education the accumulated thought and experience relating to a subject can not be learned by a student and he will not get new perception and his horizon will not widen.

This requires schools, books and planned materials and literacy. Formal education was confined to study of to Vedas alone, in schools meant only for brahmins, as they propagated that there was no knowledge outside Vedas. Education of rest was neglected by the state. Children of vaishyas learned rudiments of business geography and arithmetic from fathers in course of business, and so did the shudra craftsmen from their parents. This education was domestic and practical. Due to this illiteracy became inherent part of Hindus. Manu and others made laws to this effect.

Those who had right to study the Vedas had right to read and write, others were deprived of this right. So according to laws of Manu, reading and writing has become the right of few high caste men and illiteracy has become the destiny of low caste multitudes. This is how literacy was prohibited and general ignorance prevailed among the masses.

FATE OF ARYABHATTA

One need not confuse between astronomy and astrology in ancient India, because both went by the name of 'jyotisha'. If the study of astronomy would have progressed in normal way, we would have achieved tremendous progress in space technology. But the blind faith in stars and imaginary 'loka's led to ruin of this science.

We know that Vedas declare that earth is stationary and sun is moving. We know the word 'achalaa' for earth, we also know the horses for the 'ratha' of sun. In spite of such ideas in Vedas, astronomers like Aryabhatta in fifth century declared, as mentioned above, that earth is moving and sun is stationary, and explained how lunar and solar eclipses take place. The priestly class saw danger to their livelihood, if Vedas were found fallible. They organized a crusade against Aryabhatta, in two ways.

Brahmagupta (c. 598 A.D.) criticized and asked, if earth is moving, where is it going to and by which way. Varahmihir (c. 600 A.D.) wrote, if earth is moving the birds would not reach their nests in the evening. If the earth is rotating fast towards east, the flags would always fly towards west, and if it is rotating slowly, it would not complete rotation in 24 hours. Same arguments were repeated by another acharya, Lallacharya in seventh eighth century. He also said if earth moves towards

East, the arrow shot in the sky would fall on the West and that the clouds would move West. If earth is moving slowly, how would it complete rotation? Even Bhaskaracharya (some time between 1114 and 1400 A.D.) totally denied that earth can move. He said Earth is fixed. As Sun and fire are hot, as Moon is cold, as water flows, as stone is hard, similarly it is natural that earth is fixed. So much so that word 'achalaa' became a alternate term for earth.

Thus Aryabhatta was ridiculed and criticized with wrong logic. Not only that, but in 10th century a fraud was committed, a fake copy of 'Aryabhatiya' was prepared declaring earth as 'achalaa', and later it was declared that this is his real text of Aryabhatta. The fraud is clear as the real point is, if Aryabhatta had originally said, in the first place, that earth is 'achalaa', why was he ridiculed, condemned and denounced for about five hundred years.

Thus astronomers, or so called 'jyotirvids' were denounced from all angles whenever opportunity presented. They were declared mean, lowly and contemptible, they were declared polluted, they were denied all respect and their means of livelihood were withdrawn. They were prohibited from being called to yadnyas, mahadanas and shraadhas. The rearer of goats, painters, vaidyas and watchers of stars must not be respected though they might be learned like a brahaspati, so says Atrisamhita. Mahabharata says those brahmins who study the stars must not be allowed to sit in the line with for meals in shraadha. (Anushasan parva, 90, 11/12) Manu III. 172, 167 declared those as lowly, contemptible and unfit for yadnas and shraadha. Nirnaya sindhu 3, and Vivek sindhu 3, also declare them unfit for being called in yadnyas and shraddha. They are also condemned and ridiculed by Brihit samhita (2-2).

These 'daivadnyas' not only deceived the masses but also the rulers, and condemned the 'jyotirvids'. They were cunning and talked glibly. Varahmihir says, he should be clever, bold, quick witted, irrepressible, smart and shrewd. They were very near the political powers and so nobody could touch them.

Still the public respected the jyotirvids, so the brahmins changed the meaning of the word jyotirvidya, which now meant those who study the 'effects' of stars on human beings contrary to the original meaning of study of stars, and themselves became 'daivaidnyas',-the knowers of fate. This stopped the progress of astronomy which died a natural death.

Not only that, daivadnyas later declared the means of controlling and changing fate by shanti, mantras and yadnya *, etc.* Varahmihir describes the many qualities for daivadnya, like shantik-mantras for removing calamities, poustik-mantra for increasing health wealth *, etc.*, abhichar-means of punishing the enemies. Still the common people criticized these fortune tellers. So they declared such critics as 'nastika', 'mlencha', 'chandala' *, etc.* and pronounced them of 'sankara yoni'. This

stopped all progress of astronomy. Everybody knows that 'varna sankara' is a big abuse of ancient India, and a greatest punishment in civil life. These people were boycotted and were compelled to lead an isolated life of a beast.

Thus astronomy or mathematical Jyotish was driven away by the 'falit' jyotishya, which provided bread and butter to brahmins and is still doing it. This 'falit' jyotishya has made Indians mere fatalists. Whereas in other countries, everybody exerts his own effort to change the unfavourable surrounding environment, we, in India, are more in search of Rahu and Ketu. Even today, the same thing prevails, and we find the dignitaries changing the direction of entrances to their residences and timing the oath ceremonies to match the timings of the stars. For the first time after centuries, Aryabhatta was honoured by Indian scholars, when the first ever Indian satellite was sent to orbit was named after him.

WHY ONLY SCIENCE SUFFERED?

Dr. Gorakh Prasad writes that after Bhaskaracharya, it was considered a sin to make any progress. To find errors in old texts and correct them and to search for new things was totally banned. When such a thing was brought up, the brahmins of Kashi opposed vehemently.

Some people unburden themselves by putting blame on 'foreigners', meaning Muslims, for this fall of science, but history tells us that our other activities, other than science, did not change much. Why only science suffered? Not that we had no scholars. There were fights, disputes and clashes in 'shastrartha'. The very word 'shastrartha' applied to debates, denotes that no new facts are to be discussed, whatever is to be discussed must be to find the real 'artha' *i.e.,* the meaning, of the old 'shastras'.

The philosophical texts abounded by constant churning. Puranas and smritis were compiled, edited and reedited. Various commentaries were written amending old laws. And a lot of discussion took place on poetry.

The literary innovations of metre and rhyme is plentiful in the drama and poetry of the time, and the intricacies of art and 'alankaras' were invented, which no other country has done. Poets and scholars spent their effort and capacity in observing most minute details of female anatomy and portraying it in texts, and such poets are compared with literary merit of Shakespere. Then why this ban on science alone?

The reason becomes apparent when you view the society in proper perspective. The society was divided into six thousand castes, all placed one above the other, with brahmin at the top, who also did every thing to maintain its supremacy. The real reason of fall of science was that, the science and technology brings comfort

to common masses, which our acharyas did not want. They were self centered in their own domination over the masses and their Rajput-ksatriya masters were after life of comforts and luxury throughout the period of alien rule.

The threat to these comforts was considered danger to the 'dharma'. It might be an interesting subject for study, as to what were the various things which were consideed as 'danger to dharma' in course of our history.

If these gods on the earth and their disciple rulers would have thought of broader welfare of masses, and incorporated these problems in their agenda, the science would not have suffered, neither the country would have been slave for centuries under a fistful of individuals of alien faith.

INDIAN ASTRONOMY

Indian astronomy refers to the study of astronomy in the Indian subcontinent, as documented in literature spanning the Maurya (Vedanga Jyotisha, ca. 3rd century BCE) to the Mughal (such as the 16th century Kerala school) periods. The astronomy and the astrology of ancient India (Jyotisha) is mainly based on a sidereal system of calculations. A tropical system has also been used in a few cases. For example, a tropical determination of the Uttarayana is found in the *Mahabharata*, and also in the *Vedanga Jyotisha* of Lagadha, but not in subsequent systems, which have been sidereal.

The first named authors writing treatises on astronomy emerge from the 5th century CE, the date when the classical period of Indian astronomy can be said to begin. Besides the theories of Aryabhata in the *Aryabhatiya* and the lost *Arya-siddhanta*, we find the *Pancha-Siddhantika* of Varahamihira. From this time on, we find a predominance of geocentric models, and possibly heliocentric models, in Indian astronomy, in contrast to the "Merucentric" astronomy of Puranic, Jaina and Buddhist traditions whose actual mathematics has been largely lost and only fabulous accounts remain.

LITERATURE

While the Vedanga Jyotisha of Ladaga documents the state of Indian astronomy in the Maurya period, astronomy of the classical Gupta period, the centuries following Indo-Greek contact, is documented in treatises known as Siddhantas (which means "established conclusions").

Varahamihira in his *Pancha-Siddhantika* contrasts five fo these: The Surya Siddhanta besides the Paitamaha Siddhantas (which is more similar to the "classical" Vedanga Jyotisha), the Paulisha and Romaka Siddhantas (directly based on Hellenistic astronomy) and the Vasishta Siddhanta.

The work referred to by the title *Surya Siddhanta* has been repeatedly recast. There may have been an early work under that title dating back to the Buddhist Age of India (3rd century BC). The work as preserved and edited by Burgess (1858) dates to the Middle Ages.

Whitney classifies these ancient siddhantas into four categories : "a revelation", "attributed to ancient and renowned sage", "works of actual authors", and "later texts of known date and authorship". Only a few of these ancient siddhantas can be adequately reconstructed and some of them might have been vitiated by later interpolators. Whitney's list of these siddhantas are as follows according to four categories of Whitney:

1. *Revelations :* (1) Brahma-siddhanta (a part of Vishnu-dharmottara-Purna; now lost), (2) Surya-siddhanta, (3) Soma-siddhanta(Bentley said it followed the system of Surya Siddhanta), (4) Brihaspati-siddhanta (Whitney could not locate any extant version), (5) Narada-siddhanta.
2. *By Ancient Sages :* (6) Garga-siddhanta, (7) Vyasa-siddhanta, (8) Paraúara-siddhanta, (9) Pauliúa-siddhanta, (10) Pulastya-siddhanta, (11) Vasicmha-siddhanta.
3. *Ancient Authors :* (12) Laghu Arya-siddhanta, (13) B[ihad-Arya-siddhanta, (14) Varaha-siddhanta, (15) Brahma-siddhanta (of Brahmagupta), (16)Romaka-siddhanta.
4. *Dated Authors :* (17) Bhoja-siddhanta, (18) Siddhanta-úiromani, (19) Siddhanta-sundara, (20) Graha-laghava, (21) Siddhanta-tattva-viveka, (22) Siddhanta-sarvabhauma.

COORDINATE SYSTEM

In Hindu Astronomy, the vernal equinox (the First Point of Aries) is often calculated at 23°From 0° Aries (1950 CE), *i.e.,* about 7° Pisces. The constellation that marks this vernal equinox is the Uttarabhadra.

In the time of the Puranas, the vernal equinox was marked by the Ashwini constellation (beginning of Aries), which gives a date of about 300-500 CE. The Vishnu Purana (2.8.63) states that the equinoxes occur when the Sun enters Aries] and Libra, and that when the sun enters Capricorn, his northern course (from winter to summer solstice) commences, and the southern course when he enters Cancer.The Brahmanas place the Equinox in Krittika (Pleidas) and the Rig Veda in Mrigasira (Orion). These would indicate a time of around 1900 BCE and 4000 BCE, respectively.

In the Surya Siddhanta, the rate of precession is set at 54" (it actually is 50.3"), which is much more accurate than the number calculated by the Greeks.

The Hindus use a system of 27 or 28 Nakshatras (lunar constellations) to calculate a month. Each month can be divided into 30 lunar tithis (days). There are usually 360 or 366 days in a year. It has been argued that Nilakantha Somayaji's (1444-1550) work shows a better equation of the centre for Mercury and Venus "than was available either in the earlier Indian works or in the Islamic or European traditions of astronomy till the work of Kepler, which was to come more than a hundred years later."

COMPUTATIONAL PLANETARY MODELS

There are a large number of computational planetary models presently employed by almanac makers in India. Many Indian almanacs are now prepared on the basis of modern astronomy, including the Rashtriya Panchanga published by government, which no pandit buys. Surya Siddhanta, two Arya Siddhantas of two Aryabhattas and Brahma Siddhanta are major ancient theoretical models which form the basis of most of traditional almanacs. Of these Surya Siddhanta ("Saura") is the most important, which Varaha Mihira had declared in ca. 550 AD to be the "most accurate". It is interesting to note that Varaha Mihira did not include Aryabhatiya among the five major siddhantas dealt by him, although Aryabhatiya had been written just half a century before Pañcasiddhantika.

ARYABHATAN MODEL

Aryabhata (476–550), in his magnum opus *Aryabhatiya*, propounded a computational system based on a planetary model in which the Earth was taken to be rotating on its axis and the periods of the planets were given with respect to the Sun. Some have interpreted this to be a heliocentric model, but this view has been disputed by others. He recognized that the light from the Moon and the planets was reflected from the Sun and accurately calculated many astronomical constants, such as the periods of the planets, times of the solar and lunar eclipses, and the instantaneous motion of the Moon (expressed as a differential equation). The first major astronomer to attack the *Aryabhatiya* was Varahamihira. Brahmagupta was the greatest critic of Aryabhatiya; he devoted an entire chapter 'Tantra Pariksha' in his treatise *Brhm-Sphuta-Siddhnta* to criticizng the *Aryabhatiya* in the harshest of terms.

Bhaskara II (1114–1185) expanded on early models in his astronomical treatise *Siddhanta-Shiromani*, where he mentioned the law of gravity, discovered that the planets don't orbit at a uniform velocity, and calculated many astronomical constants based on this model, such as the solar and lunar eclipses, and the velocities and instantaneous motions of the planets.

Arabic translations of Aryabhata's *Aryabhatiya*, known as *Jije Al Arzbahar* by al-Khwarizmi, were available from the 8th century but is not available now, while

Latin translations were available from the 13th century, before Copernicus had written *De revolutionibus orbium coelestium*. In 1030, al-Biruni had also discussed the theories of Aryabhata, Brahmagupta and Varahamihira in his *Ta'rikh al-Hind* (*Indica* in Latin; *Chronicles of India* in English), often quoting Brahmagupta's *Brahmasiddhanta* for authoritative statements. Regarding whether the earth was at rest or revolving, the latter being the view of Aryabhata, he wrote:

As regards the resting of the earth [...] this, too, is a dogma with the Hindu astronomers. Brahmagupta says in the *Brahmasiddhanta*: "Some people maintain that the *first* motion (from east to west) does not lie in the meridian, but belongs to the earth. But Varahamihira refutes them by saying: 'If that were the case, a bird would not return to its nest as soon as it had flown away from it towards the west.' And, in fact, it is precisely as Varahamihira says.

Brahmagupta says in another place of the same book: "The followers of Aryabhata maintain that the earth is moving and heaven resting. People have tried to refute them by saying that, if such were the case, stones and trees would fall from the earth." But Brahmagupta doe not agree with them, and says that that would not necessarily follow from their theory, apparently because he thought that all heavy things are attracted towards the centre of the earth. He says: "On the contrary, if that were the case, *the earth would not vie in keeping an even and uniform pace with the minutes of heaven, the praGas of the times.*"

NILAKANTHAN MODEL

In 1500, Nilakanthan Somayaji (1444-1544) of the Kerala school of astronomy and mathematics, in his *Tantrasangraha*, revised Aryabhata's model for the planets Mercury and Venus. His equation of the centre for these planets remained the most accurate until the time of Johannes Kepler in the 17th century.

Nilakanthan Somayaji, in his *Aryabhatiyabhasya*, a commentary on Aryabhata's *Aryabhatiya*, developed his own computational system for a partially heliocentric planetary model, in which Mercury, Venus, Mars, Jupiter and Saturn orbit the Sun, which in turn orbits the Earth, similar to the Tychonic system later proposed by Tycho Brahe in the late 16th century. Nilakantha's system, however, was mathematically more effient than the Tychonic system, due to correctly taking into account the equation of the centre and latitudinal motion of Mercury and Venus. Most astronomers of the Kerala school of astronomy and mathematics who followed him accepted his planetary model.

CALENDARS

In the Vedanga Jyotisa, the year begins with the winter solstice. Hindu calendars have several eras:

- The Hindu calendar, counting from the start of the Kali Yuga, has its epoch on 18 February 3102 BC Julian (23 January 3102 BC Gregorian).
- The Vikrama Samvat calendar, introduced about the 12th century, counts from 56-57 BC,.
- The "Saka Era", used in some Hindu calendars and in the Indian national calendar, has its epoch near the vernal equinox of year 78.
- The Saptarshi calendar traditionally has its epoch at 3076 BCE.

INTERACTIONS WITH HELLENISTIC ASTRONOMY

Hellenistic astronomy is known to have been practiced near India in the Greco-Bactrian city of Ai-Khanoum from the 3rd century BCE. Various sun-dials, including an equatorial sundial adjusted to the latitude of Ujjain have been found in archaeological excavations there. Numerous interactions with the Mauryan Empire, and the later expansion of the Indo-Greeks into India suggest that some transmission may have happened during that period.

Several Greco-Roman astrological treatises are also known to have been imported into India during the first few centuries of our era. The *Yavanajataka* ("Sayings of the Greeks") was translated from Greek to Sanskrit by Yavanesvara during the 2nd century CE, under the patronage of the Western Satrap Saka king Rudradaman I.

Later in the 6th century, the *Romaka Siddhanta* ("Doctrine of the Romans"), and the *Paulisa Siddhanta* ("Doctrine of Paul") were considered as two of the five main astrological treatises, which were compiled by Varahamihira in his *Pañca-siddhantika* ("Five Treatises"). Varahamihira wrote in the Brihat-Samhita: "The Greeks, though impure, must be honored since they were trained in sciences and therein, excelled others....." The Garga Samhita also says: "The Yavanas are barbarians, yet the science of astronomy originated with them and for this they must be reverenced like gods."

However, this view has been disputed by some scholars who argue for an indigineous development of classical Indian astronomy and dismiss the possible Greek influences. They point to numerous similarities between Indian astronomy during the classical period and during the earlier pre-Hellenistic Vedic period. Some have also suggested the possibility of Pythagoras visiting India and learning the Vedic sciences and philosophy there, which in turn may have had an influence on early Greek sciences and philosophy. Others have suggested mutual influence between Hellenistic and Indian astronomers, as it is known that Brahmins and Yogis were active in the Mediterranean, hence it has also been suggested that Vedic astronomy may have had an influence on some of the ideas of Hipparchus and Ptolemy.

ANCIENT INDIA TECHNOLOGY

Ancient India saw the relationship between knowledge of science and technology, with religion and social relations. The archaeological remains of the Indus Valley reveal knowledge of applied sciences. Scientific techniques were used in irrigation, Metallurgy, making of fired bricks and pottery, and simple reckoning and measurement of areas and volumes. Aryan achievements in the field of astronomy, mathematics and medicine are well known. Chinese records indicate knowledge of a dozen books of Indian origin. Brahmagupta's Siddhanta as well as Charaka's and Susrata's Samhitas were translated into Arabic in the 9th or 10th centuries A.D.In ancient Indian mathematics was known by the general name of Ganita, which included arithmetic, geometry, algebra, astronomy and astrology.

It was Aryabhatta, who gave a new direction to trigonometry. The decimal system too was an innovation of India. By the third century B.C. mathematics, astronomy and medicine began to develop separately. In the field of mathematics ancient Indians made three distinct contributions, the notation system, the decimal system and the use of zero. The earliest epigraphic evidence of the use of decimal system belongs to the fifth century A.D. Before these numerals appeared in the West they had been used in India for centuries. They are found in the inscriptions of Ashoka in the third century B.C.Indians were the first to use the decimal system.

The famous mathematician Aryabhata (A.D. 476-500) was acquainted with it. The Chinese learnt this system from the Buddhist missionaries, and the western world borrowed it from the Arab as when they came in contact with India. Zero was discovered by Indians in about the second century B.C. From the very beginning Indian mathematicians considered zero as a separate numeral, and it was used in this sense in arithmetic. In Arabia the earliest use of zero appears in A.D. 873. The Arabs learnt and adopted it from India and spread it in Europe. So far as Algebra is concerned both Indians and Greeks contributed to it, but in Western Europe its knowledge was borrowed not from Greece but from the Arabs who had acquired it from India.

In the second century B.C. Apastemba contributed to practical geometry for the construction of altars on which the kings could offer sacrifices. It describes acute angle, obtuse angle, right angle *, etc.* Aryabhata formulated the rule for finding the area of a triangle, which led to the origin of trigonometry. The most famous work of his time is the Suryasiddanta the like of which was not found in Contemporary ancient east.

During the Gupta period mathematics was developed to such an extent and more advanced than any other nation of antiquity. Quite early India devised a rudimentary algebra which led to more calculations than were possible for the

Greeks and led to the study of number for its own sake. The earliest inscription regarding the data by a system of nine digits and a zero is dated as 595 A.D. evidently the system was known to mathematicians some centuries before it was employed in inscriptions.

Indian mathematicians such as Brahmagupta (7th century), Mahavira (9th century) and Bhaskara (12th century) made several discoveries which were known to Europe only after Renaissance. The understood the importance of positive and negative quantities, evolved sound system of extracting squares and cube roots and could solve quadratic and certain types of indeterminate equations. Aryabhata gave approximate value of pie. It was more accurate than that of the Greeks. Also some strides were made in trigonometry, empirical geometry and calculus. Chiefly in astronomy the mathematical implications of zero and infinity were fully realized unlike anywhere in the world.

Among the various branches of mathematics, Hindus gave astronomy the highest place of honour. Suryasidhanta is the best know book on Hindu astronomy. The text was later modified two or three times between 500 A.D. and 1500 A.D. The system laid down in the book can even now be used to predict eclipse within an error of two or three hours. The most renowned scholars of astronomy were Aryabhata and Varhamihira. Aryabhata belonged to the fifth century and Varahamihira to the sixth.

Aryabhata calculated the position of the planets according to the Babylonian method. He discovered the cause of lunar and solar eclipses. The circumference of the earth which he measured on the basis of the speculation is considered to be correct even now. He pointed out that the sun is stationary and the earth rotates around it. The book of Aryabhata is the Aryabhatiya. Varhimihira's well-known work is called Brihat Samhita which belongs to the sixth century A.D. Varhaihira stated that the moon rotates around the earth and the earth rotates around the earth rotates around the sun.

He utilized several Greek works to explain the movement of the planets and some other astronomical problems. Although Greek knowledge influenced Indian astronomy, there is no doubt that Indian pursued the subject further and made use of it in their observations of the planets. Aryabhata wrote a book when he was barely 23 years. Varhmihira of the sixth century wrote a summary of five astronomical books current wrote a summary of five astronomical books current in his time. Brahamagupta of the seventh century A.D. appreciated the value of observation and astronomy and his book was translated into Arabic.

One last great scientist was Bhaskara II. One of the chapters in the book Siddhanta Shiromani, dealing with mathematics, is the well-known work of Lilavait. Nevertheless, Indian views on the origin and evolution of the universe was matter

of religion rather than of science. The cosmic schemes of Hindus and Jains in fundamentals were the same. All postulated a flat earth although Indian astronomers came to know that this was incorrect early in the Christian era. The idea of flat such remained for religious purposes.

Regarding astronomy proper it was studied as a Vedanta. Its name was Jyotisa. A primitive kind of astronomy was developed mainly for the purpose of settling the dates and times at which periodical sacrifices were to be performed. Several Greek words gained momentum in Sanskrit through knowledge of Greek astronomy. The sixth century astronomer Varahamihira called one of his five astronomical systems as Romaka Siddhanta. It is only western astronomy that introduced in Indian the sign of the Zodaic. The seven-day week, the hour, and several other ideas. Later, Indian astronomers made some advances on the knowledge of the Greeks and passed on their knowledge with that of mathematics via the Arabs to Europe. As early as seventh century, a Syrian astronomer knew of the greatness of Indian astronomy and mathematics. In the field of medicine, Aurveda was the contribution of India. Seven hundred hymns in the Vedas, particularly Atharva Veda, refer to topics of Ayurveda. Indeed, the whole approach was not scientific. The earliest mention of medicines is in the Atharva Veda. As in order ancient societies, the remedies recommended in it are replete with magical charms and spells. Medicine could not develop along scientific lines.

In post-Maurya time India witnessed two famous scholars of the Aurveda, Susrtua and Charaka. In the Susrutasmhita Susruta describes methods of operating contract, stone disease and several other ailments. He mentions as many as 121 implements to be used for operations. For the treatment of disease he lays special emphasis on diet. And cleanliness for Charaka wrote the Charakasamhita in the second century A.D. It is like encyclopedia of Indian medicines. It describes various types of fever, leprosy, hysteria and tuberculosis. Possibly Charaka did not know that some of these are infections. His book contains the names of a large number of plants and herbs which were to be used as medicine. The book is thus useful not only for study of ancient Indian medicine but also for ancient Indian flora and chemistry. In subsequent centuries Indian medicines developed on the lines laid down by Charaka.

The Vedic hymns attribute various diseases to demons and spirits and the remedies for hymns prescribing correctly the symptoms of pulmonary tuberculosis, and connecting dropsy with heart diseases. However, national medicine began to 800 B.C. Medicine became a regular subject of study at centres like Taxila and Varanasi. The latter specialized in surgery. Susrutasmhita was compiled in the fourth century A.D. Charaka compiled the teachings of two of his predecessors who served at Taxila. Charaka and Susruta's Samhits reached as far as Manchuria through translations in Tibetan and other Asian languages. In the eighth century A.D. these books influenced European medicine as carried over by two Arabs. Charaka Samhita

was published as late as 1550 in Arabic. Despite these achievements, medicine did not make any remarkable strides, for absence of dissection led to ignorance of anatomy and physiology. Indians were equally aware of the functions of internal organs such as lungs and brain. Surgery of some kind was even during the Vedic period. It was only from the time of Susruta that surgery came to occupy an important place in medicine. Surgical operations were performed like taking the fetus out of the womb, including caesarian, section, treatment of fistula, removal of stone from bladder and plastic surgery for the nose. Despite the developments as the above in medicine, ancient Indian doctors, in general had no knowledge of the functions of brain, although they knew the importance of the spinal cord and the existence of nervous system.

Once again social taboos stood in the way of the growth of medical knowledge. It was a taboo to touch dead bodies. Despite the fact that the physiological knowledge of ancient Indians was very poor, Indians evolved empirical surgery. They knew bone-setting, plastic surgery and surgeons in ancient India were experts is repairing noses, ears and lips lost, or injured by mutilation. The physician was a respectable member of society as the Vaidyas were ranked higher in the hierarchy. Even to this day the rules of professional behaviour laid down in medical tests are almost the same as those of Hippocrates. Of course, some statements at one place state that the Physicians should not betray the patients and should be always of pleasant speech. In this context, he pleads that every day they must pray on rising and going to bed, since the work of the welfare of the all beings specially cows.

Regarding physics, it was closely linked with religion and theology and it even differed from sect to sect. Almost all religions believed that the universe consisted of elements like earth, air, water, and akasa (ether). Most schools maintained that there were as many types of atoms as there were elements. Some Buddhists conceived atom as the minutes object capable of occupying space but also as occupying the minutest possible duration of time coming into being and vanishing almost in an instant only to be succeeded by another atom caused by the first. This somewhat resembles the quantum theory of Planck. The Vaisesika School believed a single atom to be a point in space completely without magnitude. Further, most of the schools believed that atoms constitute molecules. However, the Indian atomic theories were not based on experiment but intuitive logic. The great theologian Sankara strongly argued against their existence. Beyond this knowledge of atoms, physics in India did not develop much. However, in the science of acoustics, India made real discovers. Based on experience for this correct recitation on Vedas, the human era was highly trained for the phonetic study-distinguished musical tones far closer than those of other ancient musical systems much earlier than other civilization.

Regarding chemistry and metallurgy too, some progress was made in ancient times. The Harappans developed metallurgy of copper and bronze about 2500 B.C. The Vedic Aryans tanned leather, fermented grains and fruits, and dyed scale production of copper, iron and steel, brass, silver and gold and their alloys. Indian steel was highly esteemed in the ancient world and it was exported in large quantities. Tin and mercury were imported and worked. And from the seventh century, alchemy was referred to in literature. The medical chemistry of ancient India did succeed in producing many important alkalis, acids and metallic salts. It is claimed by Bashama that ancient Indians ever discovered a form of gun powder. The coming of middle ages, Indian chemists, like their counterparts in the rest of the world, became increasingly interested in a specific remedy for all diseases, the source of perpetual youth, and even the surest means to salvation. Although they could not make precious metals, they could understand the chemistry of metallic salts. The heights attained by Indians in metallurgy and engineering are borne out by the almost pure copper stature of Buddha found at Sultanganj and the famous iron Pillar at Mehrauli (Delhi which has been able to withstand rain and weather for centuries without rusting).

ANCIENT INDIA MEDICINE

Ancient India saw great advancements in medical science. Some of these fields were dental surgery, cataract extraction and plastic surgery. It is amazing that even in the absence of anesthesia some of the complex operations are performed. Around 800 B.C the first instances of surgery were recorded. It was considered as one of the eight branches of Ayurveda. Shushruta-Samhita is the oldest treatise dealing with surgery. The main medical practitioners were Atraya, Charaka and Shusruta. Shushruta studied human anatomy with an aid of a dead body. He had described in great detail surgery in eight parts which included chedya, lekhya, vedhya, esya, ahrya, vsraya and sivya. He excelled in plastic surgery and ophthalmology (removing cataracts). The restoration of mutilated nose or rhinoplasty was one of the greatest contributions of Shushruta. The success rate was very high attracting people from all the country and outside. He meticulously carried out the operation almost similar to the steps followed by modern day plastic surgeons.

Medical tradition goes back to Vedic period when Dhanvantari was worshipped as God of medicine and Ashwin Kumars were given divine status. Ayurveda was an indigenous system of medicine meaning the science of longevity. It constitutes information about diseases, their diagnosis and expected cures. Charaka was a noted Ayurveda practitioner who wrote that physician who fails to enter the body of a patient with the lamp of knowledge and understanding can never treat diseases. He put more emphasis on prevention rather than cure. He made these remarks in his famous treatise Charaka Samahita which are held in great reverence even today.

The other notable fields were physiology, etiology and embryology. He also wrote extensively on digestion, metabolism and immune system. He wrote that body functions as it contains three deshabille, phlegm and wind. These are produced when dhatus-blood, flesh and marrow act on food consumed. The body becomes sick when there is imbalance between three doshas. He prescribed drugs to restore this balance.

Charaka also wrote about genetics like the factors responsible for sex of a child. Agnivesa another famous physician wrote an encyclopedic treatise in the eighth-century B.C. Ayurveda as an art of healing was treated with respect in ancient period. The knowledge was systemized being considered at par with Vedas. This body of knowledge was spread among sages, hermits and other religious men who moved from one place to another. Those who solely practiced this were known as Vaidyas belonging to Brahmin caste. The treatises of Ayurveda were passed from generations to generations.

AYURVEDA

Ayurveda is a system of traditional medicine native to the Indian Subcontinent and practiced in other parts of the world as a form of alternative medicine. In Sanskrit, the word Ayurveda consists of the words, meaning 'life', and *veda*, meaning 'related to knowledge' or 'science'. Evolving throughout its history, Ayurveda remains an influential system of medicine in South Asia. The earliest literature of Ayurveda appeared during the Vedic period in India. The *Sushruta Samhita* and the *Charaka Samhita* were influential works on traditional medicine during this era. Ayurvedic practitioners also identified a number of medicinal preparations and surgical procedures for curing various ailments and diseases.

As per Indian heritage and science, "Ayurveda" is an Upaveda or annexure to the four main vedas (knowledge systems). The famous treaties of Ayurveda are *Charaka Samhita* by Sage Charaka, which details the prevention and treatment of disease, and *Sushruta Samhita* of Sage Sushruta, which deals with Ayurvedic surgical procedures. In the Ayurvedic system, the prevention of all types of disease has a prominent place in treatment, including restructuring a patient's lifestyle to align with the course of nature and the four seasons to guarantee complete wellness.

Ayurveda is considered to be a form of complementary and alternative medicine (CAM) within the western world, where several of its methods, such as the use of herbs, massage, and Yoga as exercise or alternative medicine, are applied on their own as a form of CAM treatment. However, such alternative therapy approaches are not unique to Ayurveda because they are also available under the systems of Unani medicine, Greek medicine and Islamic medicine.

OVERVIEW

Ayurveda is grounded in a metaphysics of the 'five great Elements'—all of which compose the Universe, including the human body. Chyle (called Rasa dhatu), blood (called Rakta dhatu), flesh (called Mamsa dhatu), fat (called Medha dhatu), bone (called Asthi dhatu), marrow (called Majja dhatu), and semen or female reproductive tissue (called Shukra dhatu) are held to be the seven primary constituent elements of the body. Ayurveda stresses a balance of three Humors or Energies: *vata* (wind/air), *pitta* (bile) and *kapha* (phlegm). According to Ayurveda, these three regulatory principles— *Doshas*—are important for health, because when they are in balanced state, the body is healthy, and when imbalanced, the body has diseases. Ayurveda hold that humans possess a unique combination of *Doshas*. In Ayurveda, the human body perceives attributes of experiences as 20 *Guna*. Surgery and surgical instruments are employed. It is believed that building a healthy metabolic system, attaining good digestion, and proper excretion leads to vitality. Ayurveda also focuses on exercise, yoga, meditation, and massage. Thus, body, mind, and spirit/consciousness need to be addressed both individually and in unison for health to ensue.

The practice of *Panchakarma* is believed to eliminate toxic elements from the body. Eight disciplines of Ayurveda treatment, called Ashtangas, are given below:

- Internal medicine (*Kaaya-chikitsa*)
- Paediatrics (*Kaumarabhrtyam*)
- Surgery (*Shalya-chikitsa*)
- Treatment of diseases above the clavicle (*Salakyam*)
- Demonic possession (*Bhuta vidya*): *Bhuta vidya* has been called psychiatry.
- Toxicology (*Agadatantram*)
- Prevention diseases and improving immunity and rejuvenation (*rasayana*)
- Aphrodisiacs and improving health of progeny (*Vajikaranam*).

PRACTICES

Several philosophers in India combined religion and traditional medicine—notable examples being that of Hinduism and Ayurveda. Shown in the image is the philosopher Nagarjuna—known chiefly for his doctrine of the *Madhyamika* (middle path)—who wrote medical works *The Hundred Prescriptions* and *The Precious Collection*, among others.

Buddhism may have been an influence on the development of many of Ayurveda's central ideas — particularly its fascination with balance, known in Buddhism as

Madhyamika. Balance is emphasized; suppressing natural urges is seen to be unhealthy, and doing so may almost certainly lead to illness. To stay within the limits of reasonable balance and measure is stressed upon. Ayurveda places an emphasis on moderation in food intake, sleep, sexual intercourse, and the intake of medicine.

Ayurveda incorporates an entire system of dietary recommendations. Chopra (2003)—on the subject of Ayurveda dietetics—writes:

Ayurvedic dietetics comprise a host of recommendations, ranging from preparation and consumption of food, to healthy routines for day and night, sexual life, and rules for ethical conduct. In contrast to contemporary practitioners of New Age Ayurveda, older Ayurvedic authors tended to be religiously neutral. Even Buddhist authors refrained from trying to convert the patient to follow their particular religious ways.

For diagnosis the patient is to be questioned and all five senses are to be employed. The *Charaka Samhita* recommends a tenfold examination of the patient. The qualities to be judged are: constitution, abnormality, essence, stability, body measurements, diet suitability, psychic strength, digestive capacity, physical fitness and age. Hearing is used to observe the condition of breathing and speech. The study of the vital pressure points or *marma* is of special importance.

Chopra (2003) identifies five influential criteria for diagnosis: 'origin of the disease, prodrominal (precursory) symptoms, typical symptoms of the fully developed disease, observing the effect of therapeutic procedures, and the pathological process.'

Hygiene—also a component of religious virtue to many Indians—is a strong belief. Hygienic living involves regular bathing, cleansing of teeth, skin care, and eye washing. Occasional anointing of the body with oil is also prescribed.

Oils—such as sesame and sunflower oil—are extensively used in Ayurvedic medicine. Studies show that both these oils contain substantial amount of linoleate in triglyceride form. Oils rich in linoleic acid may have antineoplastic properties.

Ayurveda stresses the use of vegetable drugs. Fats are used both for consumption and for external use. Hundreds of vegetable drugs are employed, including cardamom and cinnamon. Some animal products may also be used, for example milk, bones, and gallstones , *etc.* Minerals—including sulfur, arsenic, lead, copper sulfate, gold—are also consumed as prescribed.. This practice of adding minerals to herbal medicine is known as Rasa Shastra.

In some cases alcohol is used as a narcotic for the patient undergoing an operation. The advent of Islam introduced opium as a narcotic. Both oil and tar are used to stop bleeding. Oils may be used in a number of ways including regular consumption

as a part of food, anointing, smearing, *head massage*, and prescribed application to infected areas.

The proper function of channels—tubes that exist within the body and transport fluids from one point to another—is seen as vital, and the lack of healthy channels may lead to disease and insanity.

Sushruta identifies that blockages of these channels may lead to rheumatism, epilepsy, paralysis, and convulsions as fluids and channels are diverted from their ideal locations. Sweating is favoured as a manner in which to open up the channels and dilute the *Dosha*s causing the blockages and harming a patient—a number of ways to take steam bathing and other steam related cures are recommended so that these toxins are released.

HISTORY

Ayurveda traces its origins to the Vedas—the Atharvaveda in particular—and is connected to Hindu religion. The *Sushruta Samhita* of Sushruta appeared during the 1st millennium BC. Dwivedi and Dwivedi (2007)— on the work of the surgeon Sushruta—write:

The main vehicle of the transmission of knowledge during that period was by oral method. The language used was Sanskrit — the vedic language of that period (2000-500 BC). The most authentic compilation of his teachings and work is presently available in a treatise called *Sushruta Samhita*. This contains 184 chapters and description of 1120 illnesses, 700 medicinal plants, 64 preparations from mineral sources and 57 preparations based on animal sources.

Underwood and Rhodes (2008) hold that this early phase of traditional Indian medicine identified 'fever (takman), cough, consumption, diarrhea, dropsy, abscesses, seizures, tumours, and skin diseases (including leprosy).' Treatment of complex ailments—including angina pectoris, diabetes, hypertension, and stones—also ensued during this period. Plastic surgery, cataract surgery, puncturing to release fluids in the abdomen, extraction of foreign elements, treatment of anal fistulas, treating fractures, amputations, cesarean sections, and stitching of wounds were known. The use of herbs and surgical instruments became widespread. The *Charaka Samhita* text is arguably the principal classic reference. It gives emphasis to the triune nature of each person: body care, mental regulation, and spirtual/ consciousness refinement.

Cataract in Human Eye—magnified view seen on examination with a slit lamp. Cataract surgery was known to the physician Sushruta. In India, cataract surgery was performed with a special tool called the *Jabamukhi Salaka*, a curved needle used to loosen the lens and push the cataract out of the field of vision. The eye would later be soaked with warm butter and then bandaged.

Other early works of Ayurveda include the *Charaka Samhita*, attributed to Charaka. The earliest surviving excavated written material which contains the works of Sushruta is the *Bower Manuscript*—dated to the 4th century AD.

The Bower manuscript cites directly from Sushruta, and is of special interest to historians due to the presence of Indian medicine and its concepts in Central Asia. Vagbhata—the son of a senior doctor by the name of Simhagupta— also compiled his works on traditional medicine. Early Ayurveda had a school of physicians and a school of surgeons. Tradition holds that the text *Agnivesh tantra*—written by the legendary sage Agnivesh, a student of the mythological sage Bharadwaja—influenced the writings of Ayurveda.

The Chinese pilgrim Fa Hsien (ca. 337-422 AD) wrote about the health care system of the Gupta empire (320-550 AD) and—in the process—described the institutional approach of Indian medicine which is also visible in the works of Charaka, who mentions a clinic and how it should be equipped. Madhava (700 AD), Sarngadhara (1300 AD), and Bhavamisra (1500 AD) compiled works on Indian medicine. The medical works of both Sushruta and Charaka were translated into the Arabic language during the Abbasid Caliphate (750 AD). These Arabic works made their way into Europe via intermediaries. In Italy the Branca family of Sicily and Gaspare Tagliacozzi (Bologna) became familiar with the techniques of Sushruta.

British physicians travelled to India to see Rhinoplasty being performed by native methods. Reports on Indian Rhinoplasty were published in the *Gentleman's Magazine* by 1794. Joseph Constantine Carpue spent 20 years in India studying local plastic surgery methods. Carpue was able to perform the first major surgery in the western world by 1815. Instruments described in the *Sushruta Samhita* were further modified in the Western World.

SUSRUTA

Ayurveda, the ancient Indian medicine system is better recognised now by the West. It is less known that great strides were made in the field of surgery too. Rhinoplasty, inoculation against small pox , *etc.* were practiced in India even as late as the 18th Century AD, as shown by Dharampal. Indian surgery has great potentialities for research.

The Indian technique of rhinoplasty has earned many laurels outside the country. Similarly, plastic surgery as a whole, management of injuries, and some simple measures as substitutes of surgical manipulations have of late been brought to light. Susruta was a great surgeon of ancient India, though there is considerable controversy about his age. Surgical science was called *Salya-tantra* (*Salya* – broken

parts of an arrow and such other sharp weapons; *tantra* – manoeuvre). The broken parts of the arrows or similar pointed weapons of the enemy were regarded as the commonest and most dangerous of foreign objects causing wounds and requiring surgical treatment. Thus a primitive sort of surgery was as old as warfare itself.

Susruta is stated to be the son of Visvamitra in the *Susrutasamhita*. The exact identity of this Visvamitra is not known clearly. Sustruta was sent to study Ayurveda with special emphasis on *Salya* (surgery) under Divodasa Kasi Raja Dhanvantari of the Upanishadic age. Since the text contains a reference to Krishna the identity and chronology of his father Visvamitra becomes confused.

DATE OF SUSRUTA

Though there is general agreement about the great antiquity of Susruta, there is considerable controversy about his exact age.

Lietard and Max Neuburger were of the opinion that Susrutra must have lived as late as the 1st century A.D. to 10th century A.D. The discovery of the Bower manuscript which contains reference to Susruta and which has been ascribed to the 4th century A.D. led Macdonell to place Susruta not later than the 4th century A.D. But Hessler and Mukhopadhyaya believed that Susruta should have lived at about 1000 B.C.

Nagarjuna's *Upayahrdaya* refers to Susruta and this takes him definitely to a period before Nagarujna who is believed to have lived about 2000 years ago. Further, Susruta has been mentioned both in *Mahabhasya* of Patanjali and the *Varttika* of Katyayana. It seems that the descendants of Susruta were earlier than Panini, the great grammarian. Although the grammatical works do not mention Susruta to be the promulgator of *Salyatantra*, all the grammarians quote him as the famous teacher and originator of a specialised branch of learning, and the followers were known after him as Sausrutas. No other teacher in the name of Susruta is known except the medical writer who was the propagator of *Salyantantra*. Hence, Susruta is believed to be older than Panini, though there are others who push his antiquity back to 3000BC, which does not seem tenable. Hoernle places Susruta at about 600 B.C. as Susruta counts only 300 bones in the body and on this ground, Hoernle believes him to be posterior to Atreya and Yajnavalkya and thus takes him to 600 B.C.

Susruta and his fellow-students started their education under Divodasa Dhanvantari. Divodasa explains to them briefly the nature of the purusa (person) who is afflicted with disease and who is to be treated: the nature of disease which causes pain and its eradication; the types of food, the *dravyas* and the time-factor. He also asks his students to consult as many other disciplines as necessary in order to attain sound knowledge in one's own subject. Amongst the illustrious students

of Divodasa were Aupadhanava, Aurabhra, Susruta and Paushkalavata who wrote treatises on *Salyatantra* (surgery) which became the sources of the later works on this subject.

SUSRUTASAMHITA

The Sushruta Samhita is a Sanskrit redaction text on all of the major concepts of ayurvedic medicine with innovative chapters on surgery, attributed to Sushruta, likely a historical sage physician of 1500 B.C. Varanasi, sometimes dubbed the "Father of Surgery".

The text as preserved dates to the 3rd or 4th century AD. The Bower Manuscript holds some of the most important information related to the early Ayurvedic documents. Amongst the eight divisions of medical knowledge, surgery was considered the most important branch. The text was translated into Arabic in the 8th century.

The *Sushruta Samhita* contains 184 chapters and description of 1120 illnesses, 700 medicinal plants, a detailed study on Anatomy, 64 preparations from mineral sources and 57 preparations based on animal sources.

CONTENTS

The Sushruta samhita is in two parts, the Purva-tantra in five sections and the Uttara-tantra. Those two parts together encompass, apart from Salya and Salakya, the other specialities like medicine, pediatrics, geriatrics, diseases of the ear, nose, throat and eye, toxicology, aphrodisiacs and psychiatry. Thus the whole Samhita, devoted as it is to the science of surgery, does not fail to include the salient portions of other disciplines too. In fact, Sushruta emphasises in his text that unless one possesses enough knowledge of relevant sister branches of learning, one cannot attain proficiency in one's own subject of study.

The Samhita is thus an encyclopaedia of medical learning with special emphasis on Salya and Salakya. The Sutra-sthana, Nidana-sthana, Sarira-sthana, Kalpa-sthana and Chikitsa-sthana are the five books of the Purvatantra containing one hundred and twenty chapters. Incidentally, the Agnivesatantra known better as the Charaksamhita and the Astangahrdaya of Vagbhata also contain one hundred and twenty chapters in all. The Nidana-sthana gives the student the knowledge of aetiology, signs and symptoms of important surgical diseases and those ailments, which have a bearing on surgery. The rudiments of embryology and anatomy of human body along with instructions for venesection (cutting of veins), the positioning of the patient for each vein, and protection of vital structures (marma) are dealt with in the Sarira-sthana.

This also includes the essentials of obstetrics. Principles of management of surgical conditions including obstetrical emergencies are contained in the Chikitsa-sthana, which also includes a few chapters on geriatrics and aphrodisiacs. The Kalpa-sthana is mainly Visa-tantra, dealing with the nature of poisons and their management.

Thus the Purva-tantra embraces four branches of Ayurveda. The Uttara-tantra, contains the remaining four specialities, namely Salakya, Kaumarabhrtya, Kayacikitsa and Bhutavidya. The entire Uttara-tantra has been called Aupadravika since many of the complications of surgical procedures like fever, dysentery, cough, hiccough, krmi-roga, pandu, kamala, *etc.*, are briefly described here. The Salakya-tantra portion of the Uttara-tantra contains various diseases of the eye, the ear, the nose and the head. Thus the whole Samhita is one comprehensive treatise on the entire medical discipline.

It is generally agreed that this Samhita in the present shape is the outcome of the efforts of not one person but of several. Sushruta, the son of Visvamitra and student of Divodasa Dhanvantari, the king of Kasi, should have been the first author of this Samhita as a whole or of the portion short of Uttara-tantra. A certain Vrddha Sushruta or Sushruta the elder is also mentioned by some commentators of this SamhitA.Dalhana says that the Pratisamskarta or redactor of this Sushruta-samhita was Nagarjuna. Who this Nagarujuna was is not clear, although renowned published author and Ayurvedic physician Dr. Vasant Lad claims it is the Buddhist Monk Bhikshu Nagarjuna, the Abbot of Nalanda University. There had been many Nagarjunas in the past.

On the whole, the entire Samhita is a complete work on medicine with special attention to Salya and Salakya tantras. The succinct and sombre style and the overall superiority of the Sushrutasamhita led to the extinction of other treatises which preceded this compilation or were contemporary. As a text-book, it is unrivalled in respect of composite teaching of the subject of surgery with reference to all allied branches of medical learning required by a surgeon. It is a forerunner of Vagbhata's Astanga-sangraha. Sushruta ordains that anyone who wants to attain surgical skill should study anatomy by practical observation of the various structures composing the body. The study of anatomy is dealt with in the Sarirasthana of the Sushrutasamhita. He proposed first to deal with embryology and then anatomy of human body which is an extension of the embryo. He further deals with obstetrics and embryology together. After this, the Samhita describes the sequential development of the structures of the foetus. For this study of anatomy, Sushruta advocates dissection of dead body.

Perhaps we could evaluate the status of surgery during any period by the type of instruments in vogue during that period. Sushruta gives a list of blunt and sharp

instruments and adds that a surgeon, by his own experience and intelligence, may invent and add new instruments to facilitate the surgical procedures. He points out that the hand is the most important and the best instrument but for which the operation of other instruments ceases. The blunt instruments are meant for removal of foreign bodies, for sucking the fluids, for facilitating the various surgical procedures and for visualising the lesions. The double-armed axile instruments, which have two moving limbs to hold and pull any object are called svastika-yantras and they resemble the various types of forceps.

Sushruta's classification and description became the basis for the development of instruments. In fact he can be said to have been the first person to introduce the diagnostic instruments and their principles, which were modified later with the introduction of optical system in their construction. Fourteen types of bandaging capable of covering almost all the regions of the body are described for the practice of the student on dummies. Some important procedures, which preceded actual surgery, as cauterisation by Ksaras (alkaline substances) or Agni and application of leeches were being practised extensively. Thermal cauterisation for therapeutic purposes has been advocated by heating various substances and applying them at the desired sites.

This type of practice seems to be quite old and is used in the Himalayan Medicine system also and is known as Tau-Dam. Sushruta has covered the accidental burns in its four degrees, the effect of heatstroke, sunstroke and frostbite due to excessive cold and also the effect of lightning which he calls vidyut-dagdha. This classification underlines his view that all thermogenic trauma, whether due to extreme cold or heat, either wet or dry, chemical or inert fluid, produces damage almost similar and hence has to be managed as one entity. The great value of Sushruta's classification could be realised from the fact that this concept gained validity in modern surgery only recently after 1950 and is now uniformly accepted in the classification and management of these injuries.

Sushruta has pointed out that haemorrhage can be arrested by apposition of the cut edges with stitches, application of styptic decoctions, by cauterisation with chemicals or heat. That the progress of surgery and its development is closely associated with the great wars of the past is well known. The vrana or injury, says Sushruta, involves breakdown of body-components and may have one or more of the following seats for occurrence, viz., skin, flesh, blood-vessels, sinews, bones, joints, internal organs of chest and abdomen and vital structures. Classically vrana, the wound, is the ultimate explosion of the underlying pathological structure. It is, in Sushruta's words, the sixth stage of a continuous process, which starts with sotha.

Sushruta says that in the first stage, the ulcer is unclean and hence called a dustavrana. By proper management it becomes a clean wound, a suddhavrana.

Then there is an attempt at healing and is called ruhyamana-vrana and when the ulcer is completely healed, it is a rudhavrana. Sushruta has advocated the use of wine with incense of cannabis for anaesthesia. Although the use of henbane and of Sammohini and Sanjivani are reported at a later period, Sushruta was the pioneer of anaesthesia.

Sushruta describes eight types of surgical procedures: Excision (chedana) is a procedure whereby a part or whole of the limb is cut off from the parent. Incision (bhedana) is made to achieve effective drainage or exposure of underlying structures to let the content out. Scraping (lekhana) or scooping is carried out to remove a growth or flesh of an ulcer, tartar of teeth, *etc.* the veins, hydrocele and ascitic fluid in the abdomen are drained by puncturing with special instrument (vyadhana).

The sinuses and cavities with foreign bodies are probed (esana) for establishing their size, site, number, shape, position, situation, *etc.* Sravana (blood-letting) is to be carried out in skin diseases, vidradhis, localised swelling, *etc.* in case of accidental injuries and in intentional incisions, the lips of the wound are apposed and united by stitching (svana).

To obtain proficiency and acquiring skill and speed in these different types of surgical manipulations, Sushruta had devised various experimental modules for trying each procedure. For example, incision and excision are to be practised on vegetables and leather bags filled with mud of different densities; scraping on hairy skin of animals; puncturing on the vein of dead animals and lotus stalks; probing on moth-eaten wood or bamboo; scarification on wooden planks smeared with beeswax, *etc.* On the subject of trauma, Sushruta speaks of six varieties of accidental injuries encompassing almost all parts of the body.

Sushruta also gives classification of the bones and their reaction to injuries. varieties of dislocation of joints (sandhimukta) and fractures of the shaft (kanda-bhagna) are given systematically. He classifies and gives the details of the six types of dislocations and twelve varieties of fractures. He gives the principles of fracture treatment, viz., traction, manipulation, appositions and stabilisation. Sushruta has described the entire orthopaedic surgery, including some measures of rehabilitation, in his work.

As war was a major cause of injury, the name Salyatantra for this branch of medical learning is derived from Salya, the arrow of the enemy, which in fights used to be lodged in the body of the soldiers. He emphasises that removal of foreign bodies is fraught with certain complications if the seat of the Salya be a marma.

Sushruta also discusses certain surgical conditions of ano-rectal region, he has given all the methods of management of both haemorrhoids and fistulae. Different types of incision to remove the fistulous tract as langalaka, ardhalangalaka,

sarvabhadra, candraadha (curved) and kharjurapatraka (serrated) are described for adoption according to the type of fistula.

Sushruta was well aware of the urinary stones, their varieties; the anatomy of urinary bladder along with its relations is well recorded in the chapter on urinary stones. Varieties of stones, their signs and symptoms, the method of extraction and operative complication are given in detail. Apart from the above, surgery of intestinal obstruction (baddha-gudodara), perforated intestines (chidrodara), accidental injuries to abdomen (assaya-bhinna) in which protrusion of omentum occurs are also described along with their management. Though the contributions of Sushruta are mainly in the field of Plastic and Cataract surgery, a number of his other contributions to medicine are listed below:

Angina pectoris, mention and treatment of: The concept of *Hritshoola*—literally heart pain—was known to SushrutA.Dwivedi and Dwivedi (2007) hold that: 'It embodies all the essential components of present day definition, *i.e.,* site, nature, aggravating and relieving factors and referral. According to him angina is chest pain which is precordial, temporary, exertional, emotional, burning like and relieved by rest. He also linked this kind of pain to obesity (medoroga).'

Circulatory system, description of: The knowledge of circulation of vital fluids (such as blood or rakta dhatu and lymph or rasa dhatu) through the body was known to Sushruta. He also seems to possess knowledge of the arteries, described as 'channels' by Dwivedi and Dwivedi (2007).

Diabetes, mention and treatment of: Sushruta identified diabetes and classified it as *Madhumeha*. He further identified it with obesity and sedentary lifestyle, advising exercises to help cure it.

Hypertension, mention and treatment of: Sushruta also explains hypertension in a manner which matches the modern symptoms of the disease.

Leprosy, mention and treatment of: Writing in the Encyclopedia Britannica 2008, Kearns and Nash (2008) state that the first mention of leprosy is described in the Indian medical treatise *Sushruta Samhita* (6th century BCE). *The Cambridge Encyclopedia of Human Paleopathology* (1998) holds that: "The *Sushruta Samhita* from India describes the condition quite well and even offers therapeutic suggestions as early as about 600 B.C."

Obesity, mention and treatment of: Obesity was known to Sushruta who also related it with diabetes and heart disorder. He recommended physical work in order to help cure it and its side effects.

Stones, mention and treatment of: The earliest operation for curing stones is also given in the *Sushruta Samhita*. The operation involved exposure and going up through the floor of the bladder.

PLASTIC SURGERY

Sushruta lays down the basic principles of plastic surgery by advocating a proper physiotherapy before the operation and describes various methods or different types of defects, viz., (1) release of the skin for covering small defects, (2) rotation of the flaps to make up for the partial loss and (3) pedicle flaps for covering complete loss of skin from an area. He has mentioned various methods including sliding graft, rotation graft and pedicle graft. Nasal repair or rhinoplasty has been described in greater detail, which to this day has stood the test of time and is mentioned as the Indian method of rhinoplasty in the books of plastic surgery. Lastly, labioplasty too has received his attention. In short, all the principles of plastic surgery, viz., accuracy, precision, economy, haemostasis and perfection find an important place in Sushruta's writings on this subject.

Surgical science – Salyantantra – embraces all processes aiming at the removal of factors responsible for producing pain or misery to the body or mind. Health is, according to Sushruta, a state of physical and mental well-being brought about and preserved by the maintenance of humours, good nutrition, proper elimination of waste products and a pleasant harmony of the body and the mind. Sushruta warns that improper intervention with surgical manoeuvre due either to ignorance of the progress of the disease-process, greed for money or lack of judgement, lead only to complications. A conscientious surgeon, on the other hand, considers his patient as a whole. For diseases divorced from patients are abstractions from reality. Any surgical manoeuvre is a phased programme planned well and then executed. The pascatkarman included the rehabilitation and removal of complications.

LEGACY

The earliest surviving excavated written material which contains the works of Sushruta is the *Bower Manuscript*—dated to the 4th century AD, almost a millennium after the original work.

The medical works of both Sushruta and Charak were translated into Arabic language during the Abbasid Caliphate (750 AD). These Arabic works made their way into Europe via intermediaries. In Italy the Branca family of Sicily and Gaspare Tagliacozzi (Bologna) became familiar with the techniques of Sushruta.

British physicians travelled to India to see rhinoplasty being performed by native methods. Reports on Indian rhinoplasty were published in the *Gentleman's Magazine* by 1794. Joseph Constantine Carpue spent 20 years in India studying local plastic surgery methods. Carpue was able to perform the first major rhinoplasty in the western world by 1815. Instruments described in the *Sushruta Samhita* were further modified in the Western World.

CHARAKA

Charak, sometimes spelled Caraka, born c. 300 BC in a Maga Brahmin family was one of the principal contributors to the ancient art and science of Ayurveda, a system of medicine and lifestyle developed in Ancient India. He is sometimes referred to as the Father of Anatomy.

ACHARYA CHARAK AND AYURVEDA

The term Caraka is a label said to apply to 'wandering scholars' or 'wandering physicians.'

According to Charaka's translations health and disease are not predetermined and life may be prolonged by human effort and attention to lifestyle. As per Indian heritage and science of Ayurvedic system, Prevention of all types of deseas have prominent place than treatment, including restructring of life style to align with the course of natuare and four seasons, which will guarantee complete wellness.

The following statements are attributed to Acharya Charak:

A physician who fails to enter the body of a patient with the lamp of knowledge and understanding can never treat diseases. He should first study all the factors, including environment, which influence a patient's disease, and then prescribe treatment. It is more important to prevent the occurrence of disease than to seek a cure.

These remarks appear obvious today, though they are often not heeded, and were made by Charaka, in his famous Ayurvedic treatise *Charaka Samhita*. The treatise contains many such remarks which are held in reverence even today. Some of them are in the fields of physiology, etiology and embryology.

Charaka was the first physician to present the concept of digestion, metabolism and immunity. According to his translations of the Vedas, a body functions because it contains three *dosha* or principles, namely movement (vata), transformation (pitta) and lubrication and stability (kapha). The doshas are also sometimes called humours, namely, bile, phlegm and wind. These dosha are produced when *dhatus* (blood, flesh and marrow) act upon the food eaten. For the same quantity of food eaten, one body, however, produces *dosha* in an amount different from another body. That is why one body is different from another. For instance, it is more weighty, stronger, more energetic.

Further, illness is caused when the balance among the three *dosha* in a human body is disturbed. To restore the balance he prescribed medicinal drugs. Although he was aware of germs in the body, he did not give them any importance.

Charaka knew the fundamentals of genetics. For instance, he knew the factors determining the sex of a child. A genetic defect in a child, like lameness or blindness, he said, was not due to any defect in the mother or the father, but in the ovum or sperm of the parents (an accepted fact today).

Charaka studied the anatomy of the human body and various organs. He gave 360 as the total number of bones, including teeth, present in the body. He wrongly believed that the heart had one cavity, but he was right when he considered it to be a controlling centre.

He claimed that the heart was connected to the entire body through 13 main channels. Apart from these channels, there were countless other ones of varying sizes which supplied not only nutrients to various tissues but also provided passage to waste products. He also claimed that any obstruction in the main channels led to a disease or deformity in the body.

Under the guidance of the ancient physician Atreya, Agnivesa had written an encyclopedic treatise in the eighth century B.C. However, it was only when Charaka revised this treatise that it gained popularity and came to be known as *Charakasamhita*. For two millennia it remained a standard work on the subject and was translated into many foreign languages, including Arabic and Latin.

CONTRIBUTIONS

According to the Charaka tradition, there existed six schools of medicine, founded by the disciples of the sage Punarvasu Atreya. Each of his disciples, Agnivesha, Bhela, Jatukarna, Parashara, Harita, and Kshârapâni, composed a Samhita. Of these, the one composed by Agnivesha was considered the best. The Agnivesha Samhita was later revised by Charaka and it came to be known as Charaka Samhita. The Charaka Samhita was revised by Dridhbala.

Ayurveda is traditionally divided into eight branches which, in Charaka's scheme, are:

1. Sitar-Sthana, general principles
2. Nidana-Sthana, pathology
3. Vimana-Sthana, diagnostics
4. Sharira-Sthana, physiology and anatomy
5. Indriya-Sthana, prognosis
6. Chikitsa-Sthana, therapeutics
7. Kalpa-Sthana, pharmacy
8. Siddhi-Sthana, successful treatment.

CHARAKA SAMHITA

The Caraka SaChit Sutra is an ancient Indian Ayurvedic text on internal medicine written by Caraka. It is believed to be the oldest of the three ancient treatises of Ayurveda. It is central to the modern-day practice of Ayurvedic medicine; and, along with the *Sushruta Samhita* it is now identified worldwide as an important early source of medical understanding and practice, independent of ancient Greece.

ORIGINS

The text, written in Sanskrit, is the work of several authors and may represent the work of a school of thought. The term Charaka is said to apply to 'wandering scholars' or 'wandering physicians'; and 'SaChit' means 'collected' or 'compendium' and "Sutra" meaning formula in Sanskrit. The original source of this text is identified as the *Agniveœa Tantra*, based on the teachings of Punarvasu Atreya and Charaka is said to have redacted this work. Later, another scholar, Dridhabala extended it further (*Aprapte Dridhabala sampurite*). The work as extant dates to the Maurya period (roughly 3rd century BCE).

CONTENTS

The extant text has *acmanga sthna* (eight sections), totaling 120 chapters. These 8 sections are *Sitar Sthana* (30 chapters), *Nidana Sthana* (8 chapters), *Vimana Sthana* (8 chapters), *Sarira Sthana* (8 chapters), *Indriya Sthana* (12 chapters), *Chikitsa Sthana* (30 chapters), *Kalpa Sthana* (12 chapters) and *Siddhi Sthana* (12 chapters). 17 chapters of *Cikitsa Sthana* and complete *Kalpa Sthana* and *Siddhi Sthana* were added later by Dridhabala (9th century). The text starts with *Sitar Sthana* which deals with fundamentals and basic principles of Ayurveda practice. Unique scientific contributions credited to the Caraka SaChit include:

- A rational approach to the causation and cure of disease
- Introduction of objective methods of clinical examination.

"Direct observation is the most remarkable feature of Ayurveda, though at times it is mixed up with metaphysics. The SaChit emphasizes that of all types of evidence the most dependable ones are those that are directly observed by the eyes. In Ayurveda successful medical treatment crucially depends on four factors: the physician, substances (drugs or diets), nurse and patient. The qualifications of physician are: clear grasp of the theoretical content of the science, a wide range of experience, practical skill and cleanliness; qualities of drugs or substances are: abundance, applicability, multiple use and richness in efficacy; qualifications of the nursing attendant are: knowledge of nursing techniques, practical skill, attachment for the patient and cleanliness; and the essential qualifications of the

patients are: good memory, obedience to the instructions of the doctors, courage and ability to describe the symptoms."

COMMENTARIES

The most celebrated commentary on this text is the *Carakatatparyatika* or the *Ayurveda Dipika* written by Cakrapanidatta (1066). Other notable commentaries are Bhattara Harishchandra's *Charakanyasa*, Shivadasa Sena's *Charakatattvapradipika* (c.1460). Among the more recent commentaries are Narasimha Kavirâja's *Charakatattvaprakasha* and Gangadhara Kaviratna's *Jalpakalpataru* (1879). Currently, Charaka Samhita has been used as the basis for a modern Western textbook on Ayurveda: *Ayurveda: A Comprehensive Textbook of Traditional Indian Medicine for the West* (Praeger Press, 2008) by the Yale School of Medicine psychiatrist, Frank John Ninivaggi MD. His text presents these ancient concepts in terms the 21st Century student and scholar can understand, research, and apply clinically.

CHARAKA SAMHITA ON NURSING

"The Caraka (Vol I, Section xv) states these men should be, 'of good behaviour, distinguished for purity, possessed of cleverness and skill, imbued with kindness, skilled in every service a patient may require, competent to cook food, skilled in bathing and washing the patient, rubbing and massaging the limbs, lifting and assisting him to walk about, well skilled in making and cleansing of beds, readying the patient and skillful in waiting upon one that is ailing and never unwilling to do anything that may be ordered."

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Index

A HISTORY OF ANCIENT EDUCATION

Ancient education in India is a rich tapestry woven with intricate threads of philosophy, tradition, and culture, spanning millennia of history. At its core lay the pursuit of knowledge, enlightenment, and spiritual growth, deeply rooted in the ancient texts known as the Vedas and Upanishads. Education in ancient India was not merely about the acquisition of practical skills but was considered a sacred duty and a pathway to self-realization. In ancient civilizations, education played a crucial role in shaping society and transmitting cultural values. In Mesopotamia, one of the earliest known civilizations, education primarily focused on practical skills like reading, writing, and mathematics, taught in temple schools called edubbas. Similarly, in ancient Egypt, education centered around the cultivation of scribes who would serve in administrative roles. The curriculum included writing, arithmetic, and religious studies. The Gurukula system, one of the oldest educational systems in the world, formed the backbone of ancient Indian education. In this system, students would reside with their guru (teacher) in a secluded ashram or forest hermitage, imbibing knowledge through close personal interaction and experiential learning. The guru imparted not only academic knowledge but also moral and spiritual guidance, shaping the holistic development of the student. A History of Ancient Education provides a comprehensive exploration of the educational practices and philosophies across ancient civilizations, revealing their impact on the development of human knowledge and culture.

Dr. Surjeet Singh Kaswan is a Doctor of Philosophy (Ph.D.) in Physical Education from Pacific University Udaipur, Masters of Philosophy from Kurukshetra University, Kurukshetra, Masters in physical education from Chandigarh University, Chandigarh, Bachelor in physical education from Mohan Lal Sukhria University, Udaipur, Course of physical education from Shri Gandhi Teacher Training Physical College, Bhilwara and Diploma in yoga from Jaipur Yoga Center, Jaipur Masters of Arts in Public Administration, from Bikaner University, Bikaner and under graduation from university of Ajmer, Ajmer. Dr. Kaswan has a brilliant academic record. Teaching comes naturally to him making him tremendously popular among the students for his style of teaching. He has an experience of over 32 years of teaching undergraduate and postgraduate students in Physical Education. He has presented various scientific papers in international, national and state level conferences. His various articles can also be easily seen among referred national and international journals. Dr. Kaswan is presently working as the Dean, Faculty of Physical Education, Tantia University, Sri Ganganagar. Ten Ph.D. students have been awarded degrees so far, under his guidance. He is frequently called as an external examiner for Ph.D. viva voce, UG & PG practical exams in various private and government colleges and universities. He is also the question paper setter/answer sheet evaluator in various private and government colleges/universities. Dr. Kaswan is truly a multifaceted personality in physical Education. He is a good academician, a good teacher, skillful organizer and is very actively involved in social activities.

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