

Achievements of the Gupta Empire

The Gupta Empire existed from the mid-to-late 3rd century CE to 590 CE. At its zenith, from approximately 319 to 550 CE, it covered much of the Indian subcontinent and is called the Golden Age of India. These are some of the major achievements from this period.

Mathematics

One of the important developments was the decimal system notation. The place-value system achieved its final stage during this time. During the Gupta period, there was no symbol for denoting 'zero'. The mathematician Aryabhatta used the powers of ten with null co-efficients to indicate 'zero'. The Gupta's used alphabetical letters to represent numbers. Aryabhatta's technique was used to calculate the precise diameter of a surface.

Another important concept developed during this time was Trigonometry. Calculations for the area of a triangle were described. Concepts like 'sine' were also known to the Gupta. New techniques also evolved during this period to solve problems based on Diophantine equations or Aryabhatta algorithm, algebra and geometry.

Astronomy

One of the important developments was Aryabhatta's theory that the earth is round in shape and not flat. The theory of gravity was promulgated by the astronomers of the Gupta period. Aryabhatta also proved that the earth revolves around its own axis every day. He was of the opinion that the motion of stars was a result of the motion caused by the rotation of the earth.

This theory of Aryabhatta contradicts the previously believed notion that it is the sky that rotates and not the stars. He believed that the Earth's orbit is elliptical and not circular. He scientifically elucidated the reasons for the occurrence of the solar and lunar eclipse. Aryabhatta stated that the lunar eclipse occurs when the moon enters into the shadow of the Earth. He also calculated that it takes around 365 days for the earth to complete one revolution around the sun.

Medicine

During the Gupta period there was usage of mercury and iron in medicine. The use of these materials indicates the fact that the people belonging to the Gupta era had

the knowledge of chemistry and they even practiced it. Doctors during that time were aware of operations and also knew how to conduct one when required.

Literature

Literature reached its pinnacle during the Gupta Dynasty. The primary themes of literature were poetry and romantic comedies. The literature work of the Gupta period related to human behavior more than the religious ideas. Sanskrit literature was very popular and was sponsored by many Gupta empire rulers. Chandragupta II had nine poets in his court. The supreme poet among these nine was Kalidasa.

The Prakrit literature was also very popular during the Gupta rule. One of the best illustrations of Prakrit literature was the Paumacariyam. It was in the Gupta period that the Vedic Puranas achieved their final form. The Markandeya purana was popular during the Gupta era as it was believed that goddess Durga was worshiped during this period.

Education

Education played an important role in the Gupta period. Primary education could be procured by the people. Formal and higher education was procured by staying in agraharas or monasteries. Women could obtain education, unlike in other parts of the world. There were many educational institutions and universities set up in major cities.

Nalanda University was established by Kumaragupta I in the 5th century. The university was an important learning center and was one of the first universities which provided hostels for the students. The Takshila University was one of the first centers in the world which offered higher education. The university was established before the Gupta Empire came into existence, somewhere around 700 BCE. The standard of education of both the universities was so high that it attracted students from as far as China and Persia.

Administrative System

The Empire was classified into separate administrative divisions like Rajya, Rashtra, Desha, Mandala, etc. Thus, importance was given to decentralization of power. The administrative division helped the rulers to systematically control their territories. The provinces were divided into numerous districts or Vishayas and a Vishayapati was appointed to control it. They were assisted in this work by his council of representatives.

During the Gupta dynasty period, the charge of managing the welfare of the villages was upon the rural bodies which comprised of the headman of the village and the elders. The trading cities were organized by the guild merchants. The Empire carried out trade activities with countries like China, Ceylon, several European countries and the East Indian islands.

Judicial System

The Gupta Empire had a separate judicial system. At the lowest level of the judicial system was the village assembly or trade guild. These were the councils appointed to settle the disputes between the parties that appear before them.

The King presided over the highest court of appeal. In discharging his duty, the King was assisted by judges, ministers, priests, etc. The decision or the judgement of the court was based on the legal texts, the social customs prevailing during those times, or upon the decision of the King. It is believed that the punishments awarded to the guilty persons were mild.

Art & Architecture

The Gupta period is generally regarded as a classic peak of North Indian art for all the major religious groups. Although painting was evidently widespread, the surviving works are almost all religious sculpture. The period saw the emergence of the iconic carved stone deity in Hindu art, as well as the Buddha figure and Jain tirthankara figures, the latter often on a very large scale.