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Innovations in Ancient India

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Innovations in Ancient India

//Facts do not cease to exist
 because they are ignored//

- Aldous Huxley* (1894-1963).



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Who discovered the law of gravitation?

Many apples had fallen in India before Newton's Gravity Laws???





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Guruthavakarshan Sakti

- **Bhaskaracharya** (11 Century AD), the famous Indian mathematician in his text "*Leelavathi*" explains, "Earth has *Guruthavakarshan sakti* (Gravitational force). Due to mutual attraction between the planets, (planets) they are able to hold themselves firmly in space.
- In his other text, "Siddhanta Shiromani," Bhaskaracharya reveals that, "Earth naturally attracts every object in the space towards itself. Because of this attracting force, all objects fall on the earth.
- Brahmagupta (7th Century AD), renowned mathematician in his famous text "Brahma Sputa Siddhanta," discloses, "like water having natural downward flow, Earth also has similar attraction power, because of which all objects get attracted towards it."



Bhaskaracharya (11 Century AD)

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Hijacked Indian Aeronautics

 In 1895, on Chawpati beach in front of dozens of journalists and other witnesses including Maharaja of Baroda and Hon'ble Justice Mahadev Govind Ranade, a Sanskrit Scholar called Shivkar Bapuji Talpade presented an unmanned aircraft that flew in the skies upto 1500 feet.

(Source: Deccan Herald, Dec. 16, 2003)

- He claimed to have based all the technology for his machine on Vaimanika Sastra of Bharadwaj Rishi.
- His device used a mercury vortex engine, a technology NASA is currently working on.

<image>

SUNDARA VIMANA

(image source: Vymaanika Shaastra Aeronautics of Maharshi Bharadwaaja - By G. R. Josyer).

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Ship Building Skills

- Indian maritime history begins during the 3rd millennium BCE (5000 years old) when inhabitants of the Indus Valley initiated maritime trading contact with Mesopotamia.
- "Le-hindus" written by Francious Balazar Solvyans (a French navigator)- the Englanders had learnt ship building and allied techniques from Indians.
- **"Yuthakalpatharu"** written by **King Bhoja** in 6th **Century-** how ships are to be constructed, their varieties and their nomenclature.





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Indian Chemistry

- The iron pillar of Mehroli, almost seven meters high and weighing more than six tons, was erected by Chandragupta II Vikramaditya (375 CE–414 CE).
- In a report published in the journal Current Science, R. Balasubramaniam of the IIT Kanpur explains how the pillar's resistance to corrosion is due to a passive protective film at the iron-rust interface. The presence of second phase particles (slag and unreduced iron oxides) in the microstructure of the iron, that of high amounts of phosphorus in the metal, and the alternate wetting and drying existing under atmospheric conditions, are the three main factors in the three-stages formation of that protective passive film.

(Source: *On the Corrosion Resistance of the Delhi Iron Pillar*, R. Balasubramaniam, Corrosion Science, Volume 42 (2000) pp. 2103-2129.)



Image Source: www.indianetzone.com/37/metal_art_india.htm

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Indian Astronomy & Mathematics

- Aryabhattiyam- a text on astronomy and mathematics by Aryabhatta(476-550A.D.)
- Calculated value of **Pi** (π) to four decimal places: 3.1416 close to the actual value Pi (3.14159) and the sine table in trigonometry.
- The **earth rotates** on its axis, and moves around the sun in its orbit and the moon rotates round the earth.
- The light of the planets and the moon are reflection from the sun.
- Explained the eclipse of the moon and the sun.
 "Chadayati sasi suryam sasinam mahati ca bhuchhaya"

-Aryabhattiyam, Golapada, Sloka 37.

- Earth is Round from all sides "Bhūgolah Sarvato Vrttah" -Aryabhattiyam, Golapada, Sloka 6.
- Calculated number of days Earth takes to revolve round the Sun (365 days six hours and 30 seconds) and number of hours that earth takes to revolve around itself (23 hours, 56 minutes, 4.1 seconds)
- Concept of Zero (0) -On which modern Computer Technology Exists.
- Computed the circumference of the earth as 24835 miles which is close to modern day calculation of 24900 miles.
- Kepler, Copernicus and Galileo belong 16th & 17th Century.

Thank You...

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