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# India's First Epigraphic Reference to Halley's Comet: Srisailam Inscription and India's Astronomical Heritage

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## Recent Developments:

- The **Archaeological Survey of India (ASI)** has identified the **first known Indian epigraphical reference to Halley's Comet** in a copper-plate inscription dated **?aka 1378 (1456 CE)** preserved at the **Mallikarjunaswamy Temple, Srisailam, Andhra Pradesh**.
- The inscription, written in **Sanskrit** using the **Nagari script**, records the appearance of a comet and a subsequent meteor shower, events that correspond with the documented appearance of **Halley's Comet in 1456 CE**.
- The discovery provides the first inscriptional evidence linking medieval Indian records with a globally observed astronomical event and highlights the role of temples as repositories of scientific observations.

## Geographical and Ecological Setting of Srisailam:

### *Location and Physical Features:*

- The **Srisailam** temple complex is situated on the platearegion of the **Nallamala Hills**, a major hill system of the **Eastern Ghats** located in Andhra Pradesh.
- The site overlooks the deep gorge of the **Krishna River**, where the river flows through a narrow rocky canyon traditionally known as **Patalaganga**.
- Dense dry deciduous forests dominate the surrounding landscape and contribute to the ecological significance of the region.
- The area lies within the **Nagarjunsagar-Srisailam Tiger Reserve**, which is the largest tiger reserve in India in terms of geographical extent.

## Religious and Cultural Significance of Srisailam:

### *Unique Sacred Status:*

- Srisailam occupies a unique position in Indian sacred geography because it functions simultaneously as a **Jyotirlinga** and a **Shakti Peetha**.
- The shrine represents **Lord Shiva** in the form of **Mallikarjuna Swamy** and **Goddess Parvati** in the form of **Bhramaramba Devi**.
- It is regarded as the only major pilgrimage centre where these two important traditions of Hindworship converge at the same site.
- Both presiding deities are traditionally considered **Swayambhu**, indicating self-manifested forms rather than sculpted icons.
- Historical literature frequently refers to the shrine as **Dakshina Kailasa**, emphasizing its importance in southern India.

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## Historical Evolution of Srisailam:

### *Dynastic Patronage and Development:*

- The earliest historical reference to the region is associated with the **Satavahana period**, where inscriptions indicate the antiquity of the settlement.
- The **Badami Chalukyas** contributed to early structural development through stone architecture and land grants.
- The **Kakatiya dynasty**, including rulers such as **Rudrama Devi**, strengthened and expanded the temple complex through donations and renovations.
- The **Reddy rulers**, particularly Prolaya Vema Reddy and Anavema Reddy, improved pilgrimage infrastructure by constructing stone stairways and rest mandapas.
- The **Vijayanagara Empire** transformed Srisailam into a major royal religious centre through extensive architectural additions and patronage.
- The **Qutb Shahi rulers** maintained continuity in temple administration and revenue support despite political transitions.

## Architectural Features of the Temple Complex:

### *Dravidian Temple Architecture:*

- The temple represents a mature form of **Dravidian architecture** characterized by monumental enclosures and elaborate gateways.
- Massive stone **Prakara walls** surround the complex and contain sculptural panels depicting warfare, hunting scenes, elephants, processions and Shaivite narratives.
- Multi-tiered **Gopurams** dominate the entrances and display characteristic post-Vijayanagara architectural elements.
- The temple mandapas contain intricately carved pillars featuring **Yalis**, mythical composite creatures commonly found in South Indian temple art.
- Structural engineering techniques were employed to support the heavy stone roofing systems.

## The 1456 CE Copper-Plate Inscription:

### *India's First Epigraphic Reference to Halley's Comet:*

- The copper-plate inscription dated **28 June 1456 CE** records the appearance of a comet and an associated meteor shower.
- The inscription was issued during the reign of **Vijayanagara ruler Mallikarjuna** and records a land grant to a Vedic scholar.
- The celestial event described in the inscription corresponds closely with the globally documented appearance of **Halley's Comet** in **1456 CE**.
- The inscription demonstrates that medieval Indian scholars carefully observed and documented unusual astronomical phenomena.
- The discovery challenges the notion that temple inscriptions were restricted only to religious or administrative matters and highlights their scientific value.

## Understanding Halley's Comet:

### *Scientific Characteristics:*

- **Halley's Comet** is one of the most famous periodic comets visible from Earth.
- It is classified as a **short-period comet** with an orbital period of approximately **75–76 years**.
- The comet consists primarily of ice, dust and rocky material left over from the formation of the Solar System.

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- As it approaches the Sun, solar radiation causes sublimation of volatile materials, producing a bright coma and characteristic tail.
- The comet follows a **retrograde orbit**, moving in the opposite direction to the planets around the Sun.
- Its orbit is highly elliptical and extends beyond the orbit of **Neptune** at its farthest point.
- The comet was named after **Edmond Halley**, who successfully predicted its return using Newtonian mechanics.
- Halley's Comet last appeared in **1986** and is expected to return again in **2061**.

### Astronomy in Ancient and Medieval India:

#### *Scientific Tradition and Observational Knowledge:*

- Ancient Indian literature frequently refers to comets using terms such as **Dhumaketu**, indicating long-standing awareness of transient celestial objects.
- Indian astronomical traditions combined mathematical calculations with systematic sky observations.
- Texts associated with **Varahamihira**, **Aryabhata** and later scholars contributed significantly to observational astronomy.
- Temple institutions often served as centres for preserving astronomical knowledge, calendrical systems and scientific records.
- The Srisailam inscription provides direct inscripational evidence supporting the continuity of this tradition.

### Importance of Epigraphy in Historical Reconstruction:

#### *Role of Inscriptions as Historical Sources:*

- Epigraphy provides reliable primary evidence for political, social, economic, cultural and scientific developments.
- Copper-plate inscriptions are particularly valuable because they preserve original records with precise dates and contextual information.
- Astronomical references contained in inscriptions assist historians in establishing accurate chronologies.
- Such records enable cross-verification of historical events with independently documented celestial phenomena.
- The Srisailam inscription demonstrates how epigraphy can contribute simultaneously to historical and scientific research.

### Significance of the Discovery:

#### *Historical, Scientific and Cultural Relevance:*

- The inscription strengthens evidence for the advanced observational capabilities of medieval Indian scholars.
- It contributes valuable historical data for reconstructing the long-term orbital history of Halley's Comet.
- The discovery highlights the multidisciplinary role of temples as centres of religion, administration, education and scientific observation.
- It enriches understanding of the interaction between astronomy, culture and governance in medieval India.
- The finding enhances the importance of Srisailam in both Indian heritage studies and the global history of astronomy.

### Value Addition for UPSC:

#### *Important Facts and Concepts:*

- **First Indian Epigraphic Reference to Halley's Comet:** Srisailam Copper-Plate Inscription, **1456 CE**.
- **Location:** Srisailam, Andhra Pradesh.
- **Dynasty:** Vijayanagara Empire.

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- **Script:** Nagari.
- **Language:** Sanskrit.
- **Ruler Mentioned:** Mallikarjuna of Vijayanagara.
- **Comet Designation:** 1P/Halley.
- **Orbital Period:** Approximately 75–76 years.
- **Last Appearance:** 1986.
- **Next Expected Appearance:** 2061.
- **Largest Tiger Reserve in India:** Nagarjunsagar-Srisaïlam Tiger Reserve