Prelim Bits 12-03-2022 | Daily UPSC Current Affairs

Santhali Sohrai Murals

- It is one of the oldest art forms of wall painting of the Santhals that has continued since 10,000–4,000 BC.
- Sohrai paintings are age-old tribal traditional paintings based on nature themes like forest, people, and animals.
- These paintings, which can be monochromatic or colourful, are part of a long tradition of the Santhal community that dominates
    1. Keonjhar and Mayurbhanj districts of Odisha;
    2. East Singhbhum and Seraikela-Kharsawan districts of Jharkhand;
    3. Purulia district of West Bengal.
- **Occasion** - Santhali women usually paint the walls of their houses to mark **Sohrai**, a harvest festival coinciding with Diwali or Kali Puja.
- The art also adorns walls during ceremonies or special occasions, such as weddings and childbirth.
- Apart from the **Santhals**, the **Bhumij** community in the district also paints them.

In 2020, Jharkhand received a Geographical Indication tag for its Sohrai art for the murals painted by women in Hazaribagh district who do not belong to the Santhal tribe.

But, these are quite different from the murals created by the Santhal tribe.

- **Difference** - The Hazaribagh murals are more primordial with different motifs, whereas the Santhali Sohrai art features only geometric shapes.
- Besides, the women of Hazaribagh only use earth colours - red, black and white - for their murals.
- The north Karanpura valley of the district and its Satpahar and Sati hill ranges are rich in coal, iron and manganese deposits.

Source for Hazaribagh Murals	Colour
Rivers flowing through these hills thus carry Manganese-rich black clay	Black
Creamy white clay or Kaolin obtained from places where the rivers spread out	White
Haematite or iron ore deposits in the rock shelter or prehistoric caves of the valley	Red

- Hazaribagh women soak these deposits and wash them to obtain the desired paint.
- **Santhali women** use similar clay materials for black and white colour.
- But for red, they use gravel or *morrum* derived from cutting earth, instead of haematite.

Morrum is thought to be termite resistant and does not fade easily with rain.

Sohrai

- Sohrai is a five day festival of the Santhal, Munda, Prajapati, Khurmi and Oraon tribes in the Indian states of Jharkhand, Chhattisgarh, Odisha, and West Bengal.
- It is a Harvest Festival held at the start of the winter harvest season.
- It is also called cattle festival.
- It is celebrated during Amavasya in Kartik (October-November) month of the Hindu calendar.
- **For Santhals** - Sohrai is the most important festival of the Santhals.
- It is the Harvest Festival celebrated after the rice harvest in early January.

Reference

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Chandrayaan-2 Observes Argon-40 in Moon

The Chandra's Atmospheric Composition Explorer-2 (CHACE-2) of the Chandrayaan-2 makes the first-of-its-kind observations of distribution of Argon-40 in Moon's Exosphere.

> 'Exosphere' is the outermost region of the upper atmosphere of a celestial body where the constituent atoms and molecules rarely collide with each other and can escape into space.

CHACE-2

- 'CHACE-2' is a quadrupole mass spectrometer onboard Chandrayaan-2 mission.
- CHACE-2 was a sequel to the CHACE experiment on the Moon Impact Probe (MIP) of Chandrayaan-1 mission.
- It also draws heritage from the Mars Exospheric Neutral Composition Analyser (MENCA) experiment aboard the Indian Mars Orbiter Mission.

Argon-40

- Noble gases serve as important tracers to understand the processes of surface-exosphere interaction.
- Argon-40 (Ar-40) is such an important tracer atom to study the dynamics of the lunar exospheric species.
- An inert, colorless and odorless element, Argon is a noble gas. The vast majority of Argon on Earth is the isotope Argon-40.
- Ar-40 originates from the radioactive disintegration of Potassium-40 (K-40) present below the lunar surface.
- [The production of argon-40 from potassium-40 decay is utilized as a means of determining Earth's age (potassium-argon dating).]
- Once formed, Ar-40 diffuses through the inter-granular space and makes way up to the lunar exosphere through seepages and faults.

Observations

- CHACE-2 observations reveal an increase in the number density of Ar-40 near the sunrise terminator, a decrease through the dayside, a secondary peak near sunset terminator and a night-side minima.
- In the mid latitude regions, the variation in the number density of Ar-40 with respect to solar longitudes are similar to that of low latitude regions, despite the differences in temperature and topography.
- Further, the distribution in Ar-40 has significant spatial heterogeneity.
- There are localised enhancements (termed as Argon bulge) over several regions including the
    1. KREEP [potassium (K), rare-earth elements, and phosphorus (P)],
    2. South Pole Aitken terrain.
- Presence of Argon bulge are indicative of unknown or additional loss processes, Moon quakes or regions with lower activation energies.

The observations made by CHACE-2 provide insight on the dynamics of the lunar exospheric species, as well as on the radiogenic activities in the first few tens of metres below the lunar surface.

- **Significance** - Although Apollo-17 and LADEE missions have detected the presence of Ar-40 in the lunar exosphere, their measurements were confined to the near-equatorial region of the Moon.
- CHACE-2 observations provide the diurnal and spatial variation of Ar-40 covering the equatorial and mid latitude regions of the Moon.
- **Related Links** - Previous data from Chandrayaan-2, Chandrayaan-3

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3. https://www.indiatoday.in/science/story/chandrayaan-2-isro-moon-discovery-argon-40-cache-2-1922140-2022-03-08

Religious Polarisation

- Polarization is phenomenon that causes segregation within a society due to various factors such as religion, income inequality, etc.,
- Political polarization is the extent to which opinions on an issue are opposed, and the process by which this opposition increases over time.
- Religious Polarisation, in politics, means the use of religion by the political powers to polarize the population.
- Religious polarization has consequences beyond the religious realm, as being at one pole or the other correlates strongly with one's worldview.

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1. https://www.thehindu.com/todays-paper/tp-national/religious-polarisation-and-electoral-choices/article65216161.ece
2. https://www.npr.org/templates/story/story.php?storyId=130264527

3. https://www.dw.com/en/religious-polarization-is-india-following-pakistans-path/a-52661915

Solar Jets

Indian Institute of Astrophysics (IIA) has revealed the science behind the jets of plasma (solar jets) on the Sun's chromosphere.

> Plasma is the fourth state of matter consisting of electrically charged particles that occur just about everywhere in the sun's chromosphere.
>
> Chromosphere is the atmospheric layer just above the Sun's visible surface.

- Solar Jets, or spicules, appear as thin grass-like plasma structures. They are **bursts of plasma coming off the Sun**.
- They constantly shoot up from the surface and are then brought down by the Sun's gravity.
- The key ingredients favouring solar jets are
    1. The plasma's fluid nature,
    2. The Sun's gravity,
    3. Strong quasi periodic triggers to eject the plasma and
    4. The Sun's powerful magnetic field giving it specific direction for ejection.
- The amount of energy and momentum that these spicules can carry is of fundamental interest in solar and plasma astrophysics.
- The processes by which plasma is supplied to the solar wind, and the solar atmosphere is heated to a million degrees Celsius, still remain a puzzle.
- **Findings** - The scientists from IIA have said that the solar plasma can be imagined as threaded by magnetic field lines, much like the long chains in polymer solutions.
- They found that the underlying physics of **paint jets when excited on a speaker** is analogous to the solar plasma jets.
- They also elaborated that the plasma right below the visible solar surface (photosphere) is perpetually in a state of convection, much like boiling water in a vessel heated at the bottom.
- This is ultimately powered by the nuclear energy released in the hot-dense core.

Reference

1. https://pib.gov.in/PressReleasePage.aspx?PRID=1803536
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Swatantrata Sainik Samman Yojana

The Ministry of Home Affairs has approved continuation of Swatantrata Sainik Samman Yojanya (SSSY) for Financial Years 2021-22 to 2025-26.

- Swatantrata Sainik Samman Yojana (SSSY) is a monthly Samman Pension to freedom fighters and their eligible dependents.
- It is a Central Scheme that was launched in 1972 as a token of respect for their contribution in

the national freedom struggle.

- On the demise of the freedom fighters, the pension goes to their eligible dependents viz. spouses and thereafter, unmarried and unemployed daughters and dependent parents.
- This grant of Pension is provided from the Central Revenues.
- The Samman Pension can be drawn from the Public Sector banks.
- The amount of pension has been revised from time to time and Dearness Relief is also given since 2016.

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4. https://www.mha.gov.in/sites/default/files/FFR_FAQ_071114.pdf

