Prelim Bits 13-11-2021 | UPSC Daily Current Affairs

Devasahayam

A Hindu man from Tamil Nadu, who converted to Christianity in the 18th century, is set to become the first Indian layman to be declared a saint by the Vatican for "enduring increasing hardships" to embrace Christianity.

- Born as Neelakanda Pillai in Nattalam village of Kanyakumari District in Tamil Nadu in 1712, he went on to serve as a soldier in the court of Travancore's Maharaja Marthanda Varma.
- Here, he met a Dutch naval commander, who taught him about the Catholic faith.
- In 1745, soon after he was baptised, he assumed the name 'Lazarus' or 'Devasahayam' meaning 'God is my help'.
- But he then faced the wrath of the Travancore state, which was against his conversion.
- False charges of treason and espionage were brought against him and he was divested of his post in the royal administration.
- While preaching, he particularly insisted on the equality of all people, despite caste differences. This aroused the hatred of the higher classes.
- He faced harsh persecution and imprisonment after he converted to Christianity, ultimately resulting in his killing in 1752.
- Devasahayam was declared Blessed in 2012, 300 years after his birth.

Earth's First Landmass

A new study suggests that the Earth's first continents, known as the cratons, emerged from the ocean between 3.3 billion and 3.2 billion years ago.

- This new study has challenged the widely accepted view that the continents rose from the oceans about 2.5 billion years ago.
- It has also found that the earliest continental landmass to emerge may have been Jharkhand's Singhbhum region.

The sandstones tell us 'when the first landmasses were formed' and the granite tells us 'how the first landmasses were formed'.

Studying these sedimentary rocks gives information about the formation of first landmass, as sedimentary rocks could only form once land broke through the surface of early Earth's oceans.

- **Sandstones** - The study found sandstones in Singhbhum with geological signatures of ancient river channels, tidal plains and beaches over 3.2 billion years old, representing the earliest crust exposed to air.
- All these water bodies could have only existed if there was continental land.
- Thus, it was inferred that the Singhbhum region was above the ocean before 3.1 billion years

ago.
- Patches of the earliest continental land, however, exist in Australia and South Africa, too.
- The team studied the **zircons** (with uranium) in the rocks using a technique called mass spectrometry to find the age of the rocks.
- **Granites -** The granites that form the continental crust of Singhbhum region are 3.5 to 3.1 billion years old.
- They were formed through extensive volcanism that happened about 35-45 km deep inside the Earth.
- This process continued on-and-off for several years until all the magma solidified to form a thick continental crust in the area.
- Due to the thickness and less density, the continental crust emerged above surrounding oceanic crust owing to buoyancy.
- The earliest emergence of continents may have contributed to a proliferation of photosynthetic organisms, which would have increased oxygen levels in the atmosphere.
- Once you create land, what you also create is shallow seas, like lagoons.

5G Technology

Lava International becomes the first Indian brand to launch 5G smart phone under the brand name 'Agni' for domestic consumers.

- 5G is the fifth-generation wireless technology that operates in the millimeter wave spectrum (30-300 GHz).
- It is the latest upgrade in the long-term evolution (LTE) mobile broadband networks.
- 5G mainly works in 3 bands, namely low, mid and high frequency spectrum.

Spectrum	Benefit	Limitation
Low frequency spectrum	High coverage and speed of internet and data exchange	Maximum speed is limited to 100 Mbps
Mid frequency spectrum	Higher speeds compared to the low frequency	Relatively limited coverage area and penetration of signals
High frequency spectrum	Highest speed of all the three bands	Extremely limited coverage area and penetration of signals

- **Pros of 5G** - 5G can provide higher speed (20 Gbps speed), lower latency and greater capacity than 4G LTE networks.
- It increases more bandwidth that will help transfer the data as soon as possible. Less tower congestion.
- **Cons of 5G -** Limited global coverage, decreased broadcast distance, the upload speeds are not over 100 Mbps when compared to 4G, weakened device batteries, lack of early encryption in the connection process, etc

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