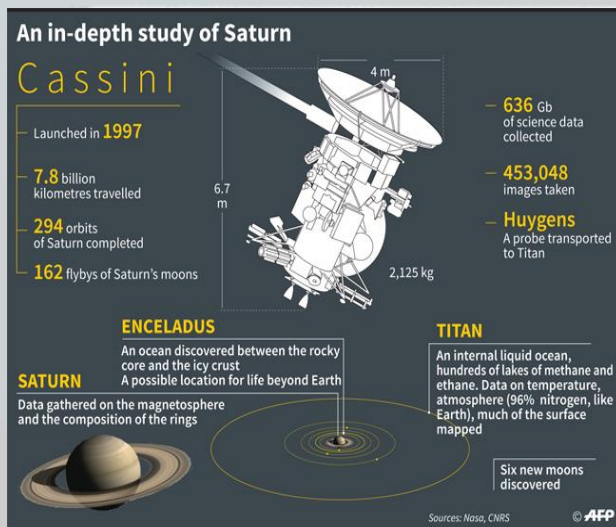


## Cassini and Saturn

- Molecules including methanol, ethane, and oxygen are present in gaseous plumes emitted from Saturn's moon Enceladus.
- The Cassini spacecraft first discovered large plumes of material escaping into space from Enceladus's southern hemisphere in 2005.
- These plumes appear to be coming from a subsurface ocean through fissures in the moon's icy surface



- Composition of the plumes is the five already identified molecules along with newly identified hydrocarbons hydrogen cyanide (HCN), acetylene (C<sub>2</sub>H<sub>2</sub>), propylene (C<sub>3</sub>H<sub>6</sub>), and ethane (C<sub>2</sub>H<sub>6</sub>), and traces of an alcohol (methanol) and molecular oxygen.
- These compounds could potentially support extant microbial communities or drive complex organic synthesis leading to the origin of life," the authors write.
- The ability of these compounds to support life on Enceladus, however, depends largely on how diluted they may be in the moon's subsurface ocean, the authors note.

The Hindu


## Woolly dogs

- DNA analysis of a 19th century dog, paired with traditional knowledge acquired through interviews, have provided new insights into the decline of Coast Salish "woolly dogs" an extinct Indigenous dog once bred for its unique woolly coat.
- Given the ubiquity of European ancestry present in many dog breeds at the time, the findings of the study suggest that the Coast Salish peoples carefully and successfully maintained the genetic integrity of the woolly

dog's genetic lineage for a substantial period

## Pangolin

**Endangered pangolins**  
The world's most heavily trafficked mammal



No reliable global population estimates but drastic local declines documented

- Increasing demand for their meat and body parts is fuelling illegal hunting
- More than 1 million pangolins believed to have been poached from the wild in the past decade

**CITES\* in September banned all international trade in pangolins**  
\*CITES: Convention on International Trade in Endangered Species

**Diet:** ants, termites  
**Behaviour:** Solitary, nocturnal  
Digs long burrows to hunt termites and for shelter  
Can climb trees  
Good swimmer

**Defence**  
Rolls into a ball  
Easy to catch for illegal meat and medicine market


**Scales**  
Made from keratin, the substance that also forms human hair and nails  
Sought on the black market for supposed medicinal benefits

Young travel on mother's tail

Source: CITES/savepangolins.org/UCN

**PLIGHT OF PANGOLINS**  
Pangolins are the world's most trafficked mammals.

There are **nine** species of pangolins in the world, out of which **two** are found in India.



**Pangolin species found in India:**


- Indian pangolin (Endangered)**  
Nearly **6000** pangolins were poached in India between 2009 and 2017
- Chinese pangolin (Critically Endangered)**  
20 tonnes of pangolins and their parts are trafficked every year

Pangolins are prized for their meat, which is considered a delicacy in China and Vietnam.

Additionally, they are poached for their scales, which are used as ingredients in traditional Asian medicine

**PANGOLIN FACTS**

WORLD PANGOLIN DAY IS 17TH FEB



- The Indian Pangolin is also called the thick-tailed Pangolin.
- It's often on its own and it's very shy.
- Pangolins curl into a ball when they see an enemy.
- It's nocturnal. It sleeps in its burrow during the day.
- It has scales like other pangolins.
- It has a long, sticky tongue. But no teeth.

**SCALY FUTURE FOR INDIA'S PANGOLINS**

Netted, trapped, shot or snared, pangolins in India are poached for their scales and other body parts that are smuggled in large numbers to other countries for use in traditional medicines.



**WILL YOU LEND YOUR HAND?**  
Help Stop Pangolin Poaching And Trade

Report poaching, smuggling or illegal trade to the Wildlife Crime Control Bureau ([www.wccb.gov.in](http://www.wccb.gov.in)), local Forest and Police Departments.

Hunting, trapping and trade in pangolins is a punishable offence under the Wildlife (Protection) Act, 1972. Their international trade is restricted and liable for prosecution.

Pangolin images © Rajesh Kumar Walsapeta

**TRAFFIC India Office**  
C/O WWF-India, 172-B, Lodi Estate  
New Delhi-110003  
Tel: 011-41504786/435516291  
Email: [trafficking@wwf.in](mailto:trafficking@wwf.in)

**#StopIllegalWildlifeTrade**  
<http://support.wwf.in/india/pangolin.html>  
[www.trafficking.org](http://www.trafficking.org) [www.wwf.in](http://www.wwf.in)

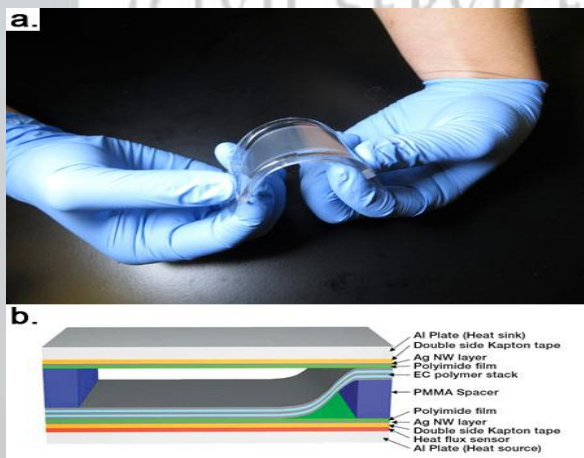
- Based on genomic analyses, researchers reveal illegal pangolin trafficking routes from origins in Africa to markets in Asia.
- The approach offers new opportunities to monitor pangolin poaching in near real time, allowing for targeted and more effective anti-trafficking measures.



- Pangolins are in high demand in Asia because their scales are believed, without scientific support, to have medicinal properties in traditional medicines, particularly in China.
- The white bellied pangolin is the world's most trafficked mammal.
- The Hindu

### Electro calorie device

- Combining a flexible solar cell with an electro caloric device, researchers have created solar powered clothing that allows the body to adapt dynamically to changes in ambient temperature, thus allowing the new device to guarantee the safety and comfort of the human body.
- Active thermo regulatory systems used allow for rapid cooling or warming but often have large power demands, limiting their use in more conventional clothing types.



### H1N2

- Several subtypes of the influenza virus are assigned according to combinations of mutations in the proteins on the surface of the virus hemagglutinin (H) and neuraminidase (N).
- The former binds to sialic acid receptors in the host. New influenza viruses can emerge through a process called reassortment where the co-infecting viruses could swap genomic fragments.
- Influenza A H1N2 is a subtype of influenza that is endemic in pigs and is rarely reported in humans.
- Swine influenza viruses normally do not infect humans, however, in rare cases, sporadic infections can occur especially with close contact with animals carrying the virus.
- Genome sequencing revealed that the virus belonged to a distinct clade 1B.1.1 of influenza viruses.
- While distinct from recent human cases of A(H1N2), its genetic makeup showed similarity to swine influenza viruses found in the UK and no other mutations of concern have been detected in this variant

## Current Affairs 17<sup>th</sup> December 2023 by Saurabh Pandey

- According to the UKHSA, the variant influenza virus presents a low risk to the general public.
- However, people with direct regular exposure to pigs may be at a higher risk of acquiring this virus.
- Influenza viruses have the potential to spill over into human populations and cause severe illnesses although the variant virus detected in the U.K. does not show any characteristics suggestive of pandemic potential.

The Hindu

### CT SCAN

- Ever since physicians started using computed tomography (CT) for medical imaging, its use grew rapidly.
- The benefits of CT imaging in clinically needed cases are well known.
- However, its potential for increased cancer risks and relatively high cumulative doses from multiple scans have raised concerns among the medical and scientific community.
- Radiation doses at moderate (over 100 mGy) to high (over 1 Gy) values are known to cause haematological malignancies (blood cancers) in both children and adults and other cancers

About CT scan

- A CT (computed tomography) scan is an imaging test that helps healthcare providers detect diseases and injuries.
- It uses a series of X-rays and a computer to create detailed images of your bones and soft tissues.
- A CT scan is painless and noninvasive

A CT scan takes pictures of your:

- Bones.
- Muscles.
- Organs.
- Blood vessels.
- A CT (computed tomography) scan is a type of imaging test. Like an X-ray, it shows structures inside your body.
- But instead of creating a flat, 2D image, a CT scan takes dozens to hundreds of images of your body.
- To get these images, a CT machine takes X-ray pictures as it revolves around you.

The Hindu

### Verdict on Art 370 and federalism

Can a State be turned into a Union Territory?

## Current Affairs 17<sup>th</sup> December 2023 by Saurabh Pandey

- The Court observed that carving out the Union Territory of Ladakh out of J&K was permissible under Article 3 of the Constitution and accordingly upheld the Jammu and Kashmir Reorganisation Act, 2019.
  - However, owing to the assurance given by the Union government that J&K's statehood would be restored soon, the court did not go into the issue of whether the conversion of J&K into a Union Territory was valid.
  - Importantly, the court pointed out that the views of the State legislature regarding the proposed reorganisation of the State are recommendatory and not binding on Parliament.
  - The Chief Justice, however, cautioned that "the necessary effect of converting a State to Union Territories which is that autonomy would be diminished, the historical context for the creation of federating units, and its impact on the principles of federalism and representative democracy" must be borne in mind
  - Reiterating similar concerns, Justice Sanjiv Khanna stated that the conversion of a State into a Union Territory has "grave consequences" and denies the citizens of the State an elected government, and impinges on federalism.
  - Thus, such a conversion has to be justified by giving very strong and cogent grounds
- What about the role of the State?**
- The Court ruled that the President while exercising powers under Article 370(3) of the Constitution can 'unilaterally' notify that Article 370 ceases to exist.
  - It further said that there was no requirement for the President to secure the concurrence of the State government in this regard as mandated by the provisos to Article 370(1)(d).
  - "The principle of consultation and collaboration underlying the provisos



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to Article 370(1)(d) would not be applicable where the effect of the provision is the same as Article 370(3).

- Since the effect of applying all the provisions of the Constitution to Jammu and Kashmir through the exercise of power under Article 370(1)(d) is the same as issuing a notification under Article 370(3) that Article 370 ceases to exist, the principle of consultation and collaboration are not required to be followed,” the Chief Justice reasoned.
- It was also pointed out that such collaboration between the President and the State government would have been necessary if provisions of the Indian Constitution were to be applied to the State in a manner that would require amendments to the State Constitution.
- However, in this case, the President through Presidential Order [C.O.272] ensured a total application of the Indian Constitution to the State to the effect that the State’s Constitution became inoperative

### What did the Court specify about the President’s powers?

- The petitioners had pointed out that the proviso to clause 3 of Article 370 makes it clear that the presidential

power to abrogate Article 370 was contingent on the recommendation of the J&K Constituent Assembly.

- However, the Court ruled that even after the dissolution of the Constituent Assembly on January 26, 1957, the President’s power to abrogate the provision by exercising powers under Article 370(3) subsists and could be exercised “unilaterally”.
- The Chief Justice asserted that holding the power under Article 370(3) cannot be exercised after the dissolution of the Constituent Assembly would lead to “freezing of the integration” contrary to the purpose of introducing the provision.
- Concurring with this view, Justice Kaul emphasized that the purpose of Article 370 was to slowly bring J&K on par with the other States of India and thus the “requirement of recommendation of [the] J&K Constituent Assembly cannot be read in a manner making the larger intention redundant”

### What about ‘asymmetric federalism’?

- The Court pointed out that unlike the Constitution of India, “there is a clear absence” in J&K’s Constitution of a reference to sovereignty.

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- Article 370 was held to be merely a “feature of asymmetric federalism” similar to other provisions in the Constitution such as Articles 371A to 371J examples of special arrangements for different States.
- “If the position that Jammu and Kashmir has sovereignty by virtue of Article 370 were to be accepted, it would follow that other States which had special arrangements with the Union also possessed sovereignty.

The Hindu



SAURABH PANDEY

— CSE —

(CIVIL SERVICES EXAMINATION)

FROM BASICS TO UPSC BRILLIANCE