

Current affairs 26th and 27th January 2025 by Saurabh Pandey Sir

K.M. Cherian: A Pioneer in Cardiac Surgery

Legacy of K.M. Cherian

✚ K.M. Cherian was a renowned cardiac surgeon in India.

□ He performed India's first coronary bypass surgery.

□ A prominent figure in the field of cardiac surgery, his contributions significantly impacted cardiac healthcare in India.

Final Days

📅 K.M. Cherian passed away on a Saturday.

📍 His death occurred in Bengaluru.

🕒 He was 82 years old at the time of his death.

Impact and Recognition

🏆 His work in cardiac surgery has left a lasting legacy in the medical field.

The Emergence of Chronic Pulmonary Aspergillosis

What is Chronic Pulmonary Aspergillosis?

This chronic lung disease is caused by the fungus *Aspergillus fumigatus*, primarily affecting individuals with weakened immune systems. It often occurs in pre-existing lung cavities, making it a significant concern for those who have battled TB.

The Link Between TB and CPA

The connection between TB and CPA is particularly alarming. CPA frequently manifests in patients who have either active TB or have recently completed treatment. The symptoms can mimic those of TB, making it challenging to diagnose without proper testing.

Recommendations for Healthcare Providers

To combat this issue, the researchers suggest training healthcare providers to recognize CPA symptoms and educate tea workers about respiratory health, nutrition, and hygiene.

This proactive approach could make a difference in managing respiratory diseases in the region.

Conclusion

In conclusion, the emergence of chronic pulmonary aspergillosis among Assam's tea plantation workers is a pressing public health concern. With TB already posing a significant threat, the added risk of CPA underscores the need for comprehensive healthcare strategies. By focusing on early diagnosis and education, we can help mitigate the impact of these diseases on vulnerable populations.

India's Space Program: A Leap into 2025

Introduction to India's Space Ambitions

As we step into 2025, India's space program is gearing up for an exciting phase. After laying down a robust vision in 2024, the Indian Space Research Organisation (ISRO) is now ready to shift gears and operate in mission mode. With the PSLV-C60 mission already in progress, the groundwork for ambitious projects like Chandrayaan-4 and the Bharatiya Antariksh Station is being firmly established.

The PSLV-C60 Mission: A New Dawn Launch Details and Objectives

On December 30, 2024, the PSLV-C60 mission took off from the Satish Dhawan Space Center (SDSC) in Sriharikota. This mission was not just another launch; it was a significant step towards realizing India's aspirations in space exploration. The PSLV-C60 successfully deployed the Space Docking Experiment (SpaDeX) satellites into a 475-km circular orbit, setting the stage for future endeavors.

The Role of SpaceX in Space Exploration

The SpaceX mission is pivotal as it aims to test the capabilities of satellite docking in space. This is crucial for future missions, especially those involving human spaceflight.

The ISRO chairman, S. Somanath, announced that the first docking

attempt was scheduled for January 7, 2025, allowing the satellites to power up their solar cells.

The Road to Human Spaceflight Upcoming Test Flights and Their Significance

With the PSLV-C60 mission underway, India is inching closer to human spaceflight. The forthcoming test flights are expected to provide valuable data and experience, paving the way for future manned missions.

The New Launch Pad at Sriharikota

To support these ambitious plans, a third launch pad has been approved for construction at Sriharikota. T

his new facility will not only serve as a backup for the existing launch pads but will also support human spaceflight operations and the Next-Generation Launch Vehicle (NGLV).

The SpaDeX Mission: A Collaborative Effort

Key Players in the SpaDeX Mission

- The SpaDeX mission is a testament to collaboration in the space sector. Indian private company Kepler Aerospace played a crucial role by providing ground station support, enabling simultaneous command of the SpaDeX satellites.

- Additionally, Swiss company s2a systems contributed by sharing real-time data on satellite distances.

The Docking Process: Challenges and Successes

The docking process was not without its challenges. Initially, the satellites

were separated by significant distances, but as they moved closer, ISRO faced unexpected drift issues. However, after several adjustments, the satellites successfully docked on January 16, 2025, marking a historic achievement for ISRO.

POEM4: The Orbital Testbed Innovative Payloads and Experiments

Following the SpaDeX mission, the PSLV's fourth stage transitioned to the PSLV Orbital Experimental Module (POEM4). This phase involved carrying 24 payloads, including innovative experiments from ISRO and private industries. Notable experiments included the germination of cowpea seeds in orbit and testing robotic manipulators.

Leadership Changes at ISRO

As the SpaDeX and POEM4 missions progressed, ISRO saw a change in leadership. V.

Narayanan took over as chairman on January 14, 2025, bringing fresh perspectives to the organization.

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The Transporter 12 Mission: A Milestone for Indian Companies Pixxel Space and the Firefly Satellites

On January 15, 2025, three Indian companies launched their payloads aboard SpaceX's Transporter 12 mission. Pixxel Space made headlines with its Firefly hyperspectral satellites, marking the first private Indian satellite constellation.

Digantara's Space Camera for Object Tracking

Digantara also contributed with its Space Camera, designed for tracking objects in low-earth orbit, enhancing

India's capabilities in space situational awareness.

XDLINX Labs and the Elevation 1 Satellite

XDLINX Labs launched its Elevation 1 satellite, which successfully established communication links, showcasing the growing prowess of Indian private space companies.

Future Prospects: Third Launch Pad and Engine Tests

The Indian government has approved the construction of a third launch pad at SDSC, expected to be completed by 2029. Additionally, ISRO successfully tested its Vikas engine's restart capability, a crucial step for future missions.

Conclusion: India's Space Odyssey Continues

As we look ahead, India's space program is poised for remarkable advancements. With successful missions, innovative collaborations, and a clear vision, the future of Indian space exploration looks brighter than ever.

The Fascinating Origins of Dinosaurs

Introduction to Dinosaurs

Dinosaurs have long captured our imagination, dominating the earth's land ecosystems for millions of years. From the towering plant-eating giants like Argentinosaurus to the ferocious

meat-eating brutes like Tyrannosaurus, and even the bizarre Therizinosaurus with its

Wolverine-like claws, these creatures were as diverse as they were fascinating. But have you ever wondered where they all began? The origin of dinosaurs remains a bit of a puzzle, and researchers are piecing together clues to uncover their birthplace.

The Diversity of Dinosaurs Plant-Eating Giants

Imagine a creature so massive that it could reach the treetops with ease. That's Argentinosaurus for you! These gentle giants roamed the earth, munching on vegetation and shaping the ecosystems around them.

Meat-Eating Brutes

On the flip side, we have the terrifying Tyrannosaurus. With its powerful jaws and sharp teeth, this predator ruled the land, striking fear into the hearts of other dinosaurs.

The Weirdos

And then there's Therizinosaurus, a dinosaur that looks like it walked straight out of a sci-fi movie. With its long claws, it's a reminder that not all dinosaurs fit the mold we expect.

The Puzzle of Dinosaur Origins

The Birthplace of Dinosaurs

So, where did these incredible creatures first appear? Recent research suggests a

surprising location for their origins, based on the oldest-known dinosaur fossils and the evolutionary relationships among these early forms.

The Role of Fossils

Fossils are like time capsules, giving us a glimpse into the past. The earliest-known dinosaur fossils date back to around 230 million years ago, including species like Eoraptor and Herrerasaurus from Argentina. These fossils reveal that dinosaurs had already undergone millions of years of evolution by the time they first appeared in the fossil record.

The Geography of the Triassic Period

During the Triassic Period, all the continents were part of a giant supercontinent called Pangaea. Dinosaurs emerged in the southern portion of this landmass, known as Gondwana. This area, which today includes parts of northern South America and northern Africa, was likely the cradle of dinosaur evolution.

Gondwana: The Supercontinent The Equatorial Regions

Researchers propose that dinosaurs likely originated in the low-latitude regions of Gondwana near the equator. This region was characterized by extreme heat and dryness, with habitats ranging from deserts to savannah-like areas.

The Earliest Known Dinosaurs

Key Fossils and Their Locations

The earliest-known dinosaur fossils, such as Saturnalia from southern Brazil and Mbiresaurus from Zimbabwe, provide crucial insights into the evolution of these magnificent creatures. While they share certain traits that define them as dinosaurs, they also exhibit enough differences to suggest a long evolutionary history.

The Environment of Early Dinosaurs Climate and Habitat

The environment where dinosaurs first emerged was not what we might expect. It was likely a harsh landscape, with seasonal wildfires and varying habitats. Previously, it was believed that dinosaurs could not thrive in such conditions, but new research challenges this notion.

Challenges in Discovering Fossils The Sahara and Amazon

Finding fossils from this time and region is no easy task. The Sahara Desert and the Amazon rainforest present significant challenges for paleontologists. The conditions in these areas are not ideal for preserving remains, and logistical difficulties make exploration tough.

Conclusion

The origins of dinosaurs are a captivating story of evolution and adaptation. As researchers continue to explore the fossil record and the geography of ancient Earth, we inch closer to understanding where

these magnificent creatures first roamed. The next time you think of dinosaurs remember that their story is still being written, and who knows what discoveries await us!

The Hindu

The Role of the Governor as Chancellor of State Universities

Introduction

The role of the Governor as Chancellor of State universities is a hot topic that sparks intense debate. Many people mistakenly view this position as a safeguard against political interference in educational institutions.

However, it's crucial to understand that this role was not enshrined in the Constitution of India but rather established through state university laws. This practice, inherited from British colonial rule, was designed to limit university autonomy rather than enhance it.

Historical Context Colonial Legacy

Back in 1857, the British established the first three universities in Calcutta, Bombay, and Madras. They appointed the Governors of these presidencies as ex-officio Chancellors to maintain direct control over these institutions.

This model allowed the Governor to wield significant power, including appointing Vice-Chancellors and presiding over convocations.

Post-Independence Adoption

Unfortunately, even after India gained independence, the model of "Governor as Chancellor" was adopted without

reassessing its relevance in a democratic context. This lack of scrutiny has led to ongoing debates about the appropriateness of this role in modern India.

The Politicization of the Governor's Office Initial Ceremonial Role

From 1947 to 1967, the Congress party dominated both the Centre and State levels, which meant that Governors were largely ceremonial figures. The real power lay with the Chief Ministers, and there was little motivation to amend the colonial-era provisions regarding the Governor's role.

Shift in Political Landscape

However, the political landscape shifted after 1967, with several states being governed by parties other than the ruling coalition at the Centre. This change transformed Governors from neutral constitutional functionaries into political instruments of the Central government, leading to clashes with state governments over university affairs.

The Dual Role of the Governor Constitutional Powers

The Governor's powers can be divided into two categories: those exercised as Governor, where he must act on the advice of the Council of Ministers, and those conferred by statutes, such as the role of Chancellor of State Universities. This distinction allows Governors to act independently in university

matters, often bypassing ministerial advice.

Statutory Powers

This ability to act at their discretion has enabled Governors to make critical decisions regarding university governance, particularly in states ruled by opposition parties, leading to significant tensions.

Comparison with the President's Role

Central Universities vs. State Universities

While both the Governor and the President have roles in university governance, their levels of consultation and legislative oversight differ significantly. The President consults with the Ministry of Education and operates within a framework that requires legislative oversight, while Governors often act unilaterally.

Existing Challenges Accountability Issues

The persistence of the “Governor as Chancellor” model has created numerous challenges in the governance of State universities. While state governments fund these institutions, Governors wield substantial power without accountability, leading to a dual authority system.

Delays in University Governance

Disagreements between Governors and state governments can result in delays in appointing Vice-Chancellors, causing administrative paralysis and affecting various aspects of the university operations.

Lack of Academic Qualifications

Many Governors lack the necessary academic qualifications or experience to effectively guide educational institutions, often relying on limited and non-transparent advice.

Insights from Various Commissions Rajamannar Committee Recommendations

Various commissions have examined the Governor's role and proposed reforms. The Rajamannar Committee argued that the Governor should perform his functions as Chancellor on the advice of the state government.

Sarkaria Commission Findings

The Sarkaria Commission recognized that the Governor's role as Chancellor is statutory and should be defined by state laws, recommending consultation with Chief Ministers.

M.M. Punchhi Commission Suggestions

The M.M. Punchhi Commission suggested that the Governor should focus on constitutional responsibilities and avoid statutory roles like that of the Chancellor.

Alternative Models for University Governance

Ceremonial Chancellor Model

One proposed model is the Ceremonial Chancellor model, which removes the Governor's discretionary powers and mandates him to act on the advice of the State Council of Ministers.

Chief Minister as Chancellor Model

Another model is the Chief Minister as Chancellor, which has faced criticism for being unsuitable for a powerful political figure.

State-Appointed Chancellor Model

The State-Appointed Chancellor model allows the state government to appoint a ceremonial Chancellor, ensuring that the appointee is an eminent academician or public figure.

Dismantling Colonial Legacies

The Need for Reform

Reforming State universities in India requires a careful balance of accountability, minimizing political interference, and promoting institutional self-governance. The first step is to divest the Governor of his colonial-era role as Chancellor.

Conclusion

While some states have made strides in reforming university governance, others face delays in obtaining necessary approvals. The need for impartial treatment by the President and the Government of India is crucial

for facilitating progressive reforms that dismantle colonial-era structures.

The Hindu

Obesity Classification and Challenges in India

New Classification System

Two Stages of Obesity:

Innocuous Obesity: Increased body fat without dysfunction.

Obesity with Consequences: Impact on physical functions and related diseases.

Focus on Abdominal Fat

Adverse Effects: Emphasizes the negative impact of abdominal fat distribution.

Target Population: Particularly affects Asian Indian populations.

Revised Definitions for Asian Indians

2009 Definitions: Specific obesity definitions for Asian Indians.

Higher Body Fat Percentages: Recognizes their unique body composition.

Lower BMI Thresholds for Diabetes: Adjusted to reflect health risks.

Lower BMI Thresholds

New Guidelines:

Overweight: ≥ 23 - 24.9 kg/m^2 .

Obesity: $\geq 25 \text{ kg/m}^2$.

Comparison: Western standards are $\geq 25 \text{ kg/m}^2$ for overweight and $\geq 30 \text{ kg/m}^2$ for obesity.

Ideal Waistline Measurements

Recommended Waistlines:

Men: $>90 \text{ cm}$.

Women: >80 cm.

Comparison: Lower than Western standards of 102 cm for men and 88 cm for women.

Rising Obesity Rates

📈 Increase from 2005 to 2020:

Women: From 12.6% to 24%.

Men: From 9.3% to 22.9%.

Limitations of BMI

⚠️ **BMI as a Measure:** Not reliable for diagnosing obesity.

Potential Misdiagnosis: Can lead to negative health consequences.

Summary: The revised obesity classification system in India addresses the unique challenges faced by Asian Indians, with lower BMI thresholds and rising obesity rates, emphasizing the need for early intervention through diet and exercise.

The Hindu

Ilulissat Icefjord: A Natural Wonder

Overview

🐻 Ilulissat Icefjord is located in Greenland, celebrated for its breathtaking natural beauty.

✳️ Recognized as a UNESCO World Heritage Site for its distinctive glacial landscape.

❑ Home to the Sermeq Kujalleq glacier, one of the most active glaciers globally.

🐼 Supports a variety of wildlife, including seals and numerous bird species.

🛖 A favored destination for tourists, offering ice fjord tours and hiking opportunities.

🌐 Plays a crucial role in climate change studies due to its rapid ice melting.

📷 Offers stunning views, drawing photographers, and nature enthusiasts.

Significance

Tourism: Attracts visitors for its unique landscapes and adventure activities.

Wildlife: Provides habitat for diverse species, contributing to ecological studies.

Climate Research: Serves as a key site for understanding glacial dynamics and climate change impacts.

Chimpanzee Urination Study: Insights and Findings

🐼 A new study identifies a phenomenon called 'contagious urinations' among chimpanzees.

🏠 The research was conducted on 20 captive chimpanzees at the Kumamoto Sanctuary in Japan.

❑ Over 600 hours of observation documented 1,328 urination events among the chimpanzees.

🔍 Analysis revealed that urination events were significantly synchronized, indicating non-random behavior.

👤 The likelihood of contagious urination increased with physical proximity to the initial urinator.

🐒 Chimpanzees with lower dominance ranks were more likely to urinate when others did, suggesting social hierarchy influences this behavior.

□ The study highlights the social dynamics and behavioral patterns in chimpanzee communities.

Summary: A study on chimpanzees reveals that urination behavior can be contagious, influenced by social hierarchy and proximity.

The Hindu

Climate Impact on West Greenland's Lakes

Record Heat and Precipitation

🌡️ Unprecedented Conditions: Fall 2022 saw record-breaking heat and rainfall in the West Greenland.

Lakes Turned Brown

🌳 Color Change: Around 7,500 lakes in the area turned brown due to environmental stress.

Carbon Emission

🌍 Greenhouse Gas Contribution: The lakes began emitting carbon, adding to greenhouse gas levels.

Decreased Water Quality

💧 Quality Decline: The water quality of these lakes significantly worsened due to extreme climate events.

Ecological Change

📉 Critical Tipping Point: Researchers observed that the extreme conditions pushed Arctic lakes past a critical ecological threshold.

Rapid Transformation

□ Accelerated Changes: By July 2023, the lakes experienced rapid changes in their physical, chemical, and biological properties, a process typically spanning centuries.

Study Findings

📊 Research Insights: A new study highlights the impact of climate change on the Arctic ecosystems.

Summary: Extreme climate events in the fall of 2022 led to significant ecological changes in West Greenland's lakes, affect their color, carbon emissions, and water quality within a few months.

A critical ecological threshold is a point at which an ecosystem experiences a sudden change in its quality, structure, or function. This change can be caused by external factors, such as natural processes or human activities.

Explanation

- **Threshold crossing:** When an ecosystem crosses a critical ecological threshold, it may not be able to return to its previous state.

- **Ecosystem health:** Crossing a threshold can lead to rapid changes in the health of an ecosystem.

- **Non-linearity:** Ecological thresholds are non-linear, meaning that small changes can cause large responses in the ecosystem.

- **Thresholds and resilience:** Thresholds can reinforce or degrade the resilience of a stable state.

Thresholds and economic consequences: Crossing a threshold can have serious economic consequences.

The Hindu

Strongyloides stercoralis Infection and Research

🌐 Over 600 million people globally are affected by *Strongyloides stercoralis*.

📍 These infections are mainly located in tropical and subtropical regions.

🔍 Some strains of the threadworm are showing resistance to **ivermectin**, the main treatment.

☐ Researchers discovered that nematodes have varied reactions to carbon dioxide during different life cycle stages.

🔧 Understanding the carbon dioxide-sensing pathway could lead to new methods for prevention or treatment.

🎯 Targeting the carbon dioxide response might effectively combat infections.

📌 Continuous research is essential to tackle the increasing resistance to current treatments.

Summary: Over 600 million people are infected with *Strongyloides stercoralis*, with some strains showing resistance to ivermectin; research on their carbon dioxide response may lead to new treatment strategies.

The Hindu
