

PRAJYA

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**Cheetahs
reintroduced
in India**

WORLD **OZONE** **DAY**

16th September



**Earth without
ozone is like a
house without
roof**

**Go Green,
Go Genius**

**Get in the
ZONE
to save
OZONE!**

SAVE OZONE; SAVE EARTH.



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&
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"Good art looks new because the artist has recombined something old to make something better."

Renewal is an automatic process in Nature. It has to be a conscious part of every individual or collective behaviour. People and organisations that give importance to renewing their capabilities progress faster and achieve much more.

India has discovered its potential in IT sector and has been making breath-taking strides in offering solutions to a wide range of processes catering to domestic and international customers. Digital India is a phenomenon evolving each day, empowering even the people of humble means. If the beta testing were an indicator, the first day results of Open Network of Digital Commerce's performances are indeed encouraging.

The reintroduction of cheetahs into the Indian ecosystem is a welcome effort to renew India's biodiversity. The Kadavur sanctuary for Slender Loris will revitalise the population of the critically endangered species. This in turn will help increase crop production in the region.

Administrative reforms in the structure of Indian Railways, the plans to offer green ratings to railway establishments, deployment of Real time Information Systems will enhance the quality of service to passengers.

Tapping renewable sources of energy is the only way forward to recharge mother Earth. Building hybrid power plants using different renewable sources is a leap ahead.

Read, reflect and revert with your thoughts and feelings.

We look forward to your support and suggestions.



- Editorial Team

Dear Readers,

There have been requests from quite a few readers for hard copies of Prajya. We understand that quite a high percentage of our young readers keep revisiting some articles, and a handy print version within reach induces one to read more often, highlight things and make notes. This also partly contributes to students spending less screen time. The Prajya team is happy to bring to you the issue in print.

However, there are few things that we want to be careful about:

- A. We don't want to print more than what is required and
- B. Keep the cost of the print version (plus postage) within reasonable limits.

Please note that the access to free online e-version will continue.

So, it will greatly help us if you could fill in the details in the link provided.

<http://bit.ly/Prajya>

Happy Reading !

Watch out for the Monthly Prajya Quiz online

Visit <https://davchennai.org/publications/prajya-news-magazine/>



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WHO says one in four adults has high blood pressure, which is the common reason for sudden heart attack or stroke.

UN Awards for initiative taken to control **HYPERTENSION**

Hypertension is a condition where the blood pressure is higher than normal. Blood pressure changes throughout the day based on one's activities. If one's blood pressure measures consistently above normal, then it can be concluded that the person has hypertension. Prolonged hypertension can cause heart diseases, heart attacks and strokes.

WHO says one in four adults has high blood pressure, which is the common reason for sudden heart attack or stroke. It is a growing health issue in India. Around 20 crore adults have hypertension and approximately only 2 crores (12%) have it under control.

The Indian Government under the National Health Mission has taken the initiative to control and prevent hypertension among the citizens. Around 3.4 million hypertensive people were identified and put on treatment at various government health facilities.

This mammoth task has been recognized and bestowed the '2022 UN Inter- agency Task Force and WHO Special Programme on Primary Health Care Awards' to India at the UN General Assembly event.





GIORGIA MELONI

Italy's first woman Prime Minister

Political empowerment of women is one of the key elements of human rights. History has proved several times that women are no less than men in political leadership. Current Indian President being a woman from the underprivileged community proves the importance given by our country to their political empowerment.

In the elections to Italian Parliament held recently a coalition of right-wing political parties



led by **Brothers of Italy Party** emerged winners. The President appointed Giorgia Meloni, leader of the winning coalition as the Prime Minister. She became the first woman to reach the helm of Italian government.

Brothers of Italy, a right-wing conservative party, was founded by her in 2012. The party gives importance to patriotism and traditional family values.

Whether her patriotic outlook and ardent faith in traditional cultural values would help her save Italy from economic slowdown and protect and promote its cultural richness remains to be seen.





Digital India (DI) is a campaign launched by India's government to promote the technological advancements of India.

When one studies history of nations, we come across one policy initiative of the concerned government that becomes the cause of upward transformation in that society. For example during the 1500s and 1600s the European countries actively supported explorers and discoverers to establish trade routes and discover new territories.

This eventually resulted in countries like England, France, Germany and Italy colonizing many African, Asian and American countries. This provided them assured and cheap supply of raw materials feeding the First Industrial Revolution, making these countries

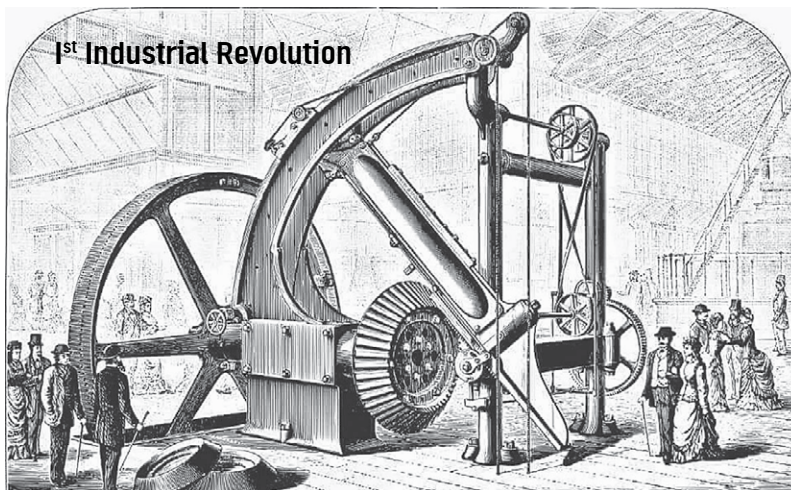
rich and powerful. GDP of these countries which had been relatively stagnant for centuries steadily climbed during the last 500 years.

The current Indian Government has been making such transformational policies since 2014. Perhaps the most important of these is Digital Transformation of India.

Digital India (DI) is a campaign launched by India's government to promote the technological advancements of India. The campaign aims to ensure that every Indian citizen has the basic availability of electronic devices like a mobile phone and to provide high-speed internet access in all rural areas of the nation.

The campaign was launched by PM Modi on 1st July 2015, and the motto of this campaign is **“power to empower”**. The ultimate vision is to convert India into a digitally empowered nation and a knowledge economy.

American businesses are struck by how much more digital India has become and how effectively our government has been practising digital delivery.





UPI is now an acceptable method of payment in countries of the European Union, UK, UAE, Malaysia, Singapore, Oman besides our neighboring countries like Nepal and Bhutan.

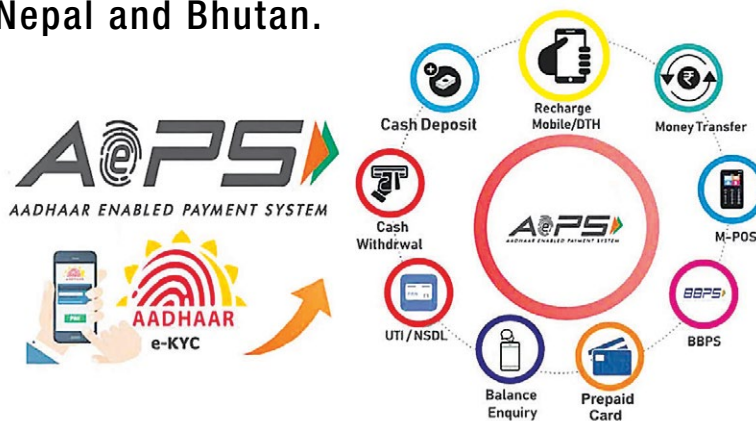
These DI initiatives include Aadhaar Enabled Payment System (AEPS), “My Gov” online platform, NREGA- Soft etc.

The Unified Payments Interface (UPI), is a part of DI. It has made digital payments in India ubiquitous enabling us to make a payment as small as even ₹1 to anyone of our choice, anywhere in India, instantly 24X7 on all 365 days. As of May 2021, the platform has over 10 crore monthly active users in India. The proportion of UPI transactions in total volume



of digital transactions grew from 23% in 2018–19 to 55% in 2020–21 with an average value of ₹1,849 per transaction. Digital transactions worth ₹8.31 lakh crore were made via the platform in January 2022. In FY 2021–22, the value of transactions crossed USD 1 trillion.

After the release of Payments Vision 2025 document, RBI has been pushing for the internationalization of UPI in countries using US Dollar, Pound Sterling and the Euro under bilateral treaties. UPI is now an acceptable method of payment in many countries like UK, countries of the European Union, UAE, Malaysia, Singapore, Oman besides our neighboring countries like Nepal and Bhutan.





Prince becomes Prime Minister



Khalid Bin Salman

Saudi Arabia's Crown Prince Mohammed bin Salman has been appointed Prime Minister by a royal decree.

The heir to the throne held by King Salman, already supervises the main executive bodies of the state on a daily basis. Known as MbS, he was the defence minister earlier and has been the de facto ruler of Saudi Arabia. His former position in the ministry is taken up by his younger brother, Khalid bin Salman, who was the Deputy Defence Minister.

In April 2016, Prince Mohammed had introduced Vision 2030, which is aimed at making the world's largest oil exporter an investment powerhouse and a hub that connects three continents.



Abdulaziz Bin Salman

The initiative seeks to diversify and transform its economy and to end its dependency on oil. It also aims to create an e-government system by 2030. The King's third son, Prince Abdulaziz bin Salman remains Energy Minister.





Shri Sampath D

INDIA



INDIA improves standing in Global Innovation Index

"Innovation is the buzzword across India. Proud of our innovators. We've come a long way and want to scale even newer heights." - PM Modi.

GII captures the innovation ecosystem performance of 132 economies and tracks the most recent global innovation trends.

In a remarkable breakthrough India climbed six notches to the 40th position in the **Global Innovation Index (GII) 2022** on account of steady improvement in several parameters, says a report by the Geneva-based World Intellectual Property Organization (WIPO). It may be worthwhile to note that India was at 46th position in 2021 and at 81st rank in 2015.

GII captures the innovation ecosystem performance of 132 economies and tracks the most recent global innovation trends.

Parameters for computing the index, include 'Institutions', 'human capital and research', 'infrastructure', 'market sophistication', business sophistication', 'knowledge and technology outputs'.

Key findings

- India is the 3rd largest ecosystem with home to over 100 unicorns.
- In 2021, 40% of global real time digital transactions were in India.
- One of the main reasons for India's rise is on account of increase in Information and Communication Technology (ICT), service exports etc.

It is seen that a large number of countries use the GII to assess and improve their innovation ecosystems and use the index as a reference in economic plans and/or policies.





Paabo's monumental work has opened a new pathway, brought to limelight exciting new scientific evidence of the relatedness of human evolutionary past.

NOBEL PRIZE

for medicine 2022 PALEO GENOMICS and its significance

The Nobel prize for medicine for the year 2022 has been awarded to Svante Paabo, a Swedish geneticist. He is the Director of Max Planck Institute of Evolutionary Biology in Leipzig, Germany.

He pioneered the field of paleo genomics (the study of ancient Hominins) by extracting their DNA. His monumental work has opened a new pathway, brought to limelight exciting new scientific evidence of the relatedness of human evolutionary past. While the exploding field of genetics, gene

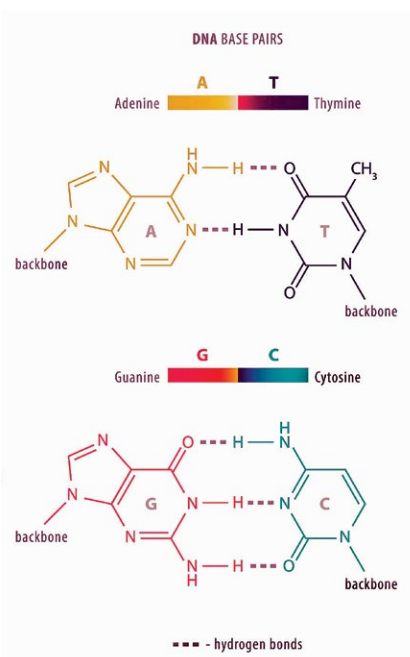
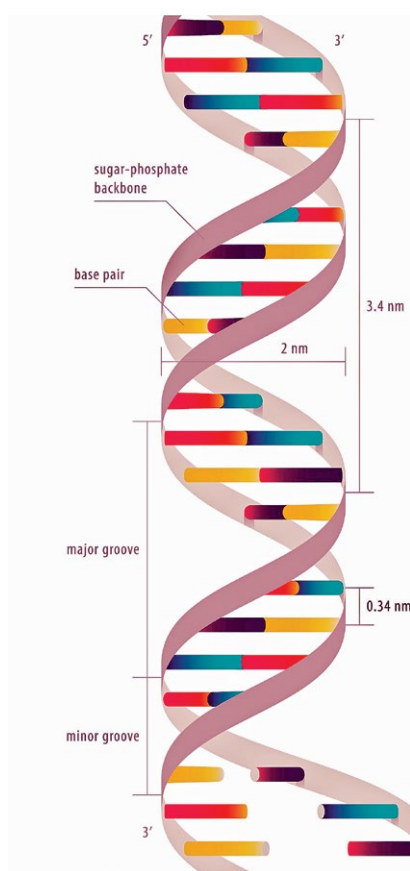
sequencing has helped geneticist like Svante Paabo unravel new insights on human evolution, we should revisit the ideas of the man who thought of it.

Darwin and evolution

Darwin, the celebrated English naturalist of 19th century is credited with developing the theory of "Evolution by Natural Selection". His was a time when DNA, the blueprint of all life was not discovered. Darwin methodically observed the geographical distribution, morphology and



Double Helix



embryology of selected fauna and flora to develop his theory. His was a theory, concept, outrageous and intriguing like any other, like continental drift theory or the theory of relativity.

When scientists talk about a theory, they don't mean a dreamy unrealistic speculation, but an explanatory statement that fits the available evidence. Darwin used great imagination, powerful arguments in times of unshakeable faith in intelligent design.

The gist of his theory is that small, random, heritable differences amongst individuals result in different chances of survival and reproductive success. The useful variations tend to be perpetuated.

Confluence of scientific disciplines

Today the advancement in chemistry, physics, molecular biology, genetics is rapid and well interconnected. It perhaps wasn't so in Darwin's time. The study of human evolution centuries ago was based on excavation, study of bones, teeth, artefacts, cave drawing etc., which is what palaeontology is all about.

The discovery of DNA, its double helix structure and gene sequencing techniques have heralded a unique pathway for the study of human evolution - genomics.

Paleo genomics

Paleo genomics is a field of science that uses the reconstruction of genetic material, information of extinct species to study evolution. Paabo fused these three scientific disciplines palaeontology, genomics and evolution.

It is logical that we learn about documented history of human evolution before we appreciate

the monumental work of Paabo on genetic proof of human relatedness.

Human evolution

The earliest human is believed to have originated in East Africa. Later they seemed to have moved in small groups until they populated parts of Europe and Asia. From 2 million years to nearly 70,000 years ago the earth was home to nearly 6 different kinds of humans and they seem to have lived in different parts at the same time.

Neanderthals were in Europe and Western Asia. The more eastern regions of Asia were populated by *Homo erectus*, *Homo soloensis* in Indonesia, certain dwarf like humans called *Homo floresiensis* in Flores, a small island near Indonesia; *Homo denisova* in Siberia and finally us *Homo sapiens*. At different times in our history these humans had interacted with each other and bred. Though natural selection had favoured the survival of specific humans in specific areas best adapted to the climate and food availability, there is proof to theorize that they met, fought and bred.

Swante Paabo's work in Paleo genomics: In 1990 as newly appointed Prof at Munich University he sequenced DNA extracts from Neanderthals. Later with his sophisticated knowhow and techniques he sequenced mitochondrial DNA from a 40000-year-old finger bone and sequenced the entire Neanderthal DNA in 2010. That was admirable for it was only in 2003 the human genome was sequenced. He concentrated on sequencing mitochondrial DNA because of its wide availability.

Significance of Paabo's work

He demonstrated that ancient





Svante Paabo pioneered the field of paleo genomics (the study of ancient Hominins by extracting their DNA.

Other Nobel Winners 2022

Physics - **Alain Aspect, John F. Clauser** and **Anton Zeilinger** for experiments with entangled photons and pioneering quantum information science.

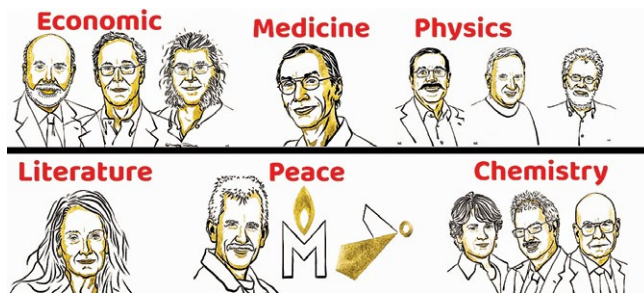
Chemistry - **Carolyn R. Bertozzi, Morten Meldal** and **Barry Sharpless** for development of click chemistry.

Economics - **Ben S. Bernanke, Douglas W. Diamond, Philip H. Dybvig** for research on banks and financial crisis.

Peace - **Ales Viktaravich Bialiatski** from Belarus,

the Russian human rights organisation **Memorial** and the Ukrainian human rights organisation **Center for Civil Liberties**. The Peace Prize laureates represent civil society in their home countries. Together they demonstrate the significance of civil society for peace and democracy.

Literature - **Annie Ernaux** for the courage and clinical activity with which she uncovers roots, entanglements and collective restraint of personal memory.



DNA can be extracted, analysed, compared with other primates and humans.

He showed that Europeans and Asians carry anywhere between 1% and 4% of Neanderthal DNA, conferring genomic proof of human ancestry and migration. Very recently he sequenced DNA from a 40,000-year-old finger bone excavated from a Siberian cave. Analysis revealed that a new human species *Human denisova* existed. 6% of human genomes in parts of south east Asia is of Denisovan ancestry. Paleo genomics, pioneered by Paabo provides an independent and powerful tool to test the theories of human evolution and migration. Genome analysis of different species of humans who lived in different periods in the past have revealed that Neanderthals

may have harboured a set of genes that is linked to the development of Auto immune disease.

Hence current populations who have inherited Neanderthal genes in some proportion may run the risk of developing auto immune diseases. A study by Paabo and Hugo Zeberg opines increased risk of severe respiratory failure following Covid 19 infection in sets of populations who harbour genes inherited from Neanderthals, especially south Asians.

Paabo's work in Paleo genomics reiterates that technology feeds on itself. In future gene flow analysis will become a powerful tool in predicting the vulnerability of individuals, populations to various kinds of diseases.





NICOLE MANN

First native
American woman in Space

Nicole "Duke" Victoria Aunapu Mann (born 27th June 1977) created history as the first indigenous woman to go to space. With the launch of Dragon Endurance spacecraft built by Space X from Florida's Kennedy Space Center, Mann has paved the way and inspired future generations of astronauts from diverse backgrounds.



The American test pilot and NASA astronaut is a graduate of the US Naval Academy, Stanford University and the US Naval Test Pilot School. She received a Master of Science in Mechanical Engineering from Stanford University.

Mann completed astronaut training in 2015 and became

the first female commander of a NASA Commercial Crew Program launch. As a Marine Colonel she has flown 47 combat missions in Iraq and Afghanistan. During her military career, she received two Air Medals, two Navy and Marine Corps Commendation Medals and two Navy and Marine Corps Achievement Medals.





India's first LITHIUM CELL manufacturing plant launched

DO YOU KNOW ?

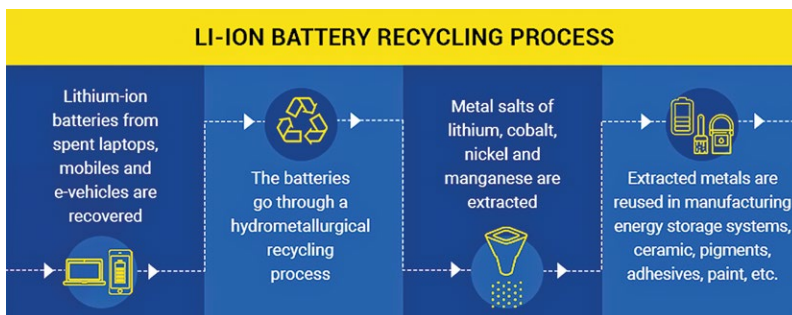
- ◆ Lithium (Li) batteries are more popular than lead acid or alkaline batteries because of features like light weight, rechargeability, higher energy density, fast charging, portability etc.
- ◆ Dr.Akira Yoshino, Japanese Nobel Laureate for Chemistry, developed and patented the first commercially viable lithium-ion battery.
- ◆ An ion is an atom or group of atoms with an electric charge. Cations are ions with positive charge, anions are ions with negative charge.

In a giant step towards Atmanirbhar Bharat, Chennai based Munoth Industries has set up India's first lithium-ion cell manufacturing facility at Tirupati, Andhra Pradesh. India currently imports lithium-ion batteries from China, South Korea, Vietnam and



Hongkong to meet its rising demand for Electronic Vehicles(EV), grid storage applications, consumer electronics (power banks, mobile phones, hearing devices etc.).

The new facility would cater to 60% of India's Li-ion requirements reducing import dependence. This will catapult the country as a major leader in emerging markets in the manufacturing sector.





First SCO Tourism and cultural Capital

Varanasi, Uttar Pradesh has been nominated as the first-ever SCO Tourism and Cultural Capital for the period 2022-2023 at the 22nd Meeting of Shanghai Cooperation Organization (SCO) Council of Heads of State in Samarkand, Uzbekistan. PM Modi participated in the Summit.

This underlines India's ancient civilizational links with the Member States of SCO, especially the Central Asian Republics.

To celebrate this recognition, a number of events are expected to be hosted in Varanasi during 2022-23, for which guests will be invited to participate from SCO Member States. These events are intended to attract Indologists, scholars, authors, musicians, artists, photo

journalists, travel bloggers etc.

SCO was founded in 2001 by the presidents of Russia, China, the Kyrgyz Republic, Kazakhstan, Tajikistan and Uzbekistan. Its 8-member states include India and Pakistan which became permanent members in 2017. SCO aims to promote tourism and human contact across different countries.

Over the years, it has emerged as one of the largest trans-regional international organisations. Uzbekistan handed over the rotating presidency of the grouping to India. Likewise, the members will rotate the title of Cultural and Tourism Capital among different states. The presidency will be decided by the city which becomes the capital of the cultural heritage.



India's first commercial broadband service launched

DO YOU KNOW ?

- **HCI** helps our security forces at Line of Actual Control (LAC) and border areas with HTS Technology.
- **Throughput** refers to the rate of successful message delivery over a communication channel.
- **Frequency Reuse** Technique for using a specified range of frequencies more than one in the same radio system so that the total capacity of the system is increased without increasing its allocated bandwidth.

Hughes Communications India (HCI) has collaborated with ISRO to launch India's first High throughput satellite (HTS) broadband internet service.

Highlights

- High speed broadband connectivity across India especially in remote areas.
- Meets needs of government, cellular companies, small and medium businesses etc.
- Supports Wi-Fi hotspots for public internet access and satellite internet for small companies.
- Addresses connectivity gaps, improves network performance.
- Enhances people's lives creating economic opportunities.

HTS is a communication satellite that provides more throughput than a conventional

communication satellite or fixed satellite service. **Higher throughput refers to higher data processing and transfer capabilities while using the same amount of orbital spectrum.** HTS uses frequency reuse and spot beam technology to focus on a limited area providing faster connectivity.

Orbital spectrum (Satellite spectrum) is a segment of radio spectrum that becomes available when satellites are placed into an orbit and is limited for every country.

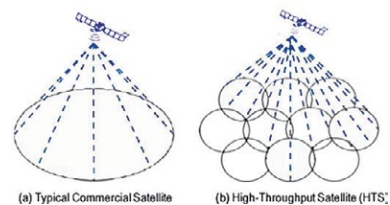


Fig (a) depicts typical regular commercial satellite, using single pointed beam.

Fig (b) depicts multiple beam HTS system.



NATIONAL LOGISTICS POLICY launched

The Indian logistics sector provides livelihood to more than 22 million people across the country.

The term logistics originated in the military, referring to the movement of equipment and supplies to different troops in the field. The Indian logistics sector provides livelihood to more than 22 million people across the country.

The National Logistics Policy was formulated by the Commerce and Industry Ministry and launched on 17th September 2022 to improve

India's trade competitiveness, create more jobs, improve India's performance in global rankings and pave the way for India to become a logistics hub.

The policy will help bring down the transportation, warehousing and inventory costs, which will consequently reduce the overall logistics cost down to around 8% of GDP in the next 5 years.

Digitalization of the logistics sector and the creation of unified portals will also bring the logistics sector together. The government stated that Unified Logistics Interface Platform (ULIP) will bring all the digital services related to the transportation sector into a single portal. This will free the exporters from a host of very long and cumbersome processes.





NAMIBIAN CHEETAHS

find a new home

The word “cheetah” is believed to have come from the Sanskrit word “chitraka”, which means the dotted one.

Eight cheetahs (five female and three male of southeast African origin), between the ages of four and six were released by PM Modi in a small quarantined enclosure within the Kuno National Park in Madhya Pradesh. These were gifted by the Government of Namibia.

The word “cheetah” is believed to have come from the Sanskrit word “chitraka”, which means the dotted one. It is said that cave paintings dating back to the Neolithic age depict the cheetah in Gujarat and Madhya Pradesh, suggesting that cheetahs were known to be in India from ancient times.

These big cats made the long journey in a chartered cargo flight which is part of an ambitious and hotly contested plan to reintroduce cheetahs into our country. Cheetahs were once widespread in India and became extinct in 1952 from hunting and on account of loss of habitat.

They remain the first and only predator to die out, since India’s independence in 1947. India hopes importing African cheetahs will aid efforts to conserve the country’s threatened and largely neglected grasslands. Cheetahs from Southern Africa have the maximum observed genetic diversity among extant



cheetah lineages, an important attribute for a founding population stock. Moreover, the Southern African cheetahs are found to be ancestral to all the other cheetah lineages including those found in Iran.

With less than 7,000 adult cheetahs left in the wild globally, they now inhabit less than 9% of their original range. Shrinking habitat, on account of increased human population and climate change, poses a huge threat. "India's grasslands and forests could offer "appropriate" homes for the big cat," said Laurie Marker, of the Cheetah Conservation Fund, an advocacy and research group assisting in bringing the cats to India.

"Cheetahs will help in the restoration of open forest and grassland ecosystems in India. This will also help conserve biodiversity and enhance soil moisture conservation, which will benefit the society at large," he added.

The reserve can hold 21 cheetahs and if territories and breed are established properly, they are likely to spread to other interconnected grasslands and forests which can house another dozen cheetahs. Initially, they will be kept in an electrified enclosed area to enable them get acclimatised to the local environment before being released into the open.

The Namibian felines have been fitted with tracking collars and will be monitored constantly by officials.

Presently India has the economic and scientific capability to ensure our natural heritage is restored. The extinction of Cheetah was mainly on account of over-hunting and this has been addressed with strict laws.





Smt Sandhya Nair



A historic milestone in HEALTHCARE

Cervical cancer starts in the cells of the cervix. Often referred to as the 'silent killer', it is a major threat faced by Indian women. It is associated with Human Papilloma Virus (HPV) infection. One of the proven ways to prevent cervical cancer is the HPV vaccine.

cost ranged from ₹2000 to ₹3500 for the two foreign-manufactured vaccines.

The new vaccine **CERVAVAC**, developed by the Pune-based Serum Institute of India in coordination with the Government of India's Department of Biotechnology (DBT) is to be priced in the range of ₹200 to ₹400.

The vaccine can save the lives of millions of women.

- ◆ **Cancer** is a disease in which cells in the body grow out of control.
- ◆ **The cervix** is the lower, narrow end of the uterus (womb).

HPV vaccine was out of reach for the majority of the Indian population as the

INDIAN SWIMMERS create history

Indian long distance swimmers **Elvis Ali Hazarika** (Assam) and **Rimo Saha** (West Bengal) created history by becoming the first relay team from India and Asia to cross the North Channel in Europe.

They were the first from their respective states to achieve this feat. Elvis was the oldest Indian to swim across the strait between north eastern Northern Ireland and south western Scotland. The duo swam a distance of about 42 km with Donaghadee as the starting point and Portaptick as the finishing point. They had to overcome the fickle weather, rough seas, tough currents and an abundance of jellyfish.

Smt Sandhya Nair



Hazarika's other feats

- Swam across the Dighlapuri when he was four years old.
- At five he swam across the Joysagar Lake at Sivasagar.
- The first Assamese swimmer to cross
 - 80 km Catalina Channel.
 - 29 km English Channel.
 - Dharmantar Jetty to Gateway of India.





300 workers sacked for moonlighting



DO YOU KNOW

- ◆ **Provident fund acts as an emergency corpus when an individual requires emergency funds.**
- ◆ **An employee pays 12% of his / her basic salary to the fund. The employer must contribute an amount equal to 10% or 12% of the employee's basic salary towards EPF.**

In September 2022, Wipro, one of India's largest IT and consultancy companies laid off 300 employees after they were found moonlighting for their competitors.

Moonlighting is the process of taking up a second full time job or multiple other work assignments, while still being primarily an employee of a specific company. This is most often done without the knowledge of the primary employer and, since people usually look out for work assignments in the same field, it involves working with the company's direct competitors.

Moonlighting became a serious topic of debate during the COVID-19 pandemic when several employees, primarily from IT firms took up multiple fulltime jobs, resulting in a rise in dual-employment.

Several questions have been raised about the ethics of the practice and whether it should be tolerated. Most employers have clauses in their contract which prevent employees from working at another company while being employed full time.

How was it found out?

Employee Provident Fund (EPF) contributions under different companies for the same person revealed the truth. EPF has to be deposited regularly and usually; its violations are taken as a serious offence.

Aadhar, PAN numbers are taken by banks to open salary account, deposit PF; are required by companies to do back ground check. It is impossible for employees to create two identities both financially and demographically.





INDIAN RAILWAYS forges ahead

RITS - the advanced level of train tracking will ensure that passengers get up-to-date information in a timely manner.

Restructuring the Indian Railways

The Railways Ministry announced that an administrative, institutional and legislative change in train operation laws has been drafted.

A comprehensive restructuring of Indian Railways has been on since December 2021 with the merging of eight different railway services into one single Indian Railway Management Service (IRMS).

This restructuring will ensure that different employees who were once under other railway services will now be streamlined and integrated at zonal, regional and divisional levels. Railways minister Mr. Piyush Goyal has also pushed ahead on implementing a merit-based system for promotion of employees for posts of railway manager or general manager.

Train Tracking

Another way IR is moving forward is through its partnership with ISRO in the deployment of **Real-Time Train Information System (RITS)**. This will be used

to provide accurate train tracking with frequent updates.

This advanced level of tracking will ensure that passengers get up to date information in a timely manner. This will also ensure that trains are trackable during adverse weather conditions.

Currently over 6500 locomotives have already been equipped with advanced GPS tracking systems and this number is expected to grow exponentially in the coming years.

Green ratings

IR has undertaken green ratings of railway establishments including stations. Certification covers measures such as:

- Energy conservation
- Use of renewable energy
- Reducing greenhouse gas emissions
- Water conservation
- Effective waste management
- Providing green cover

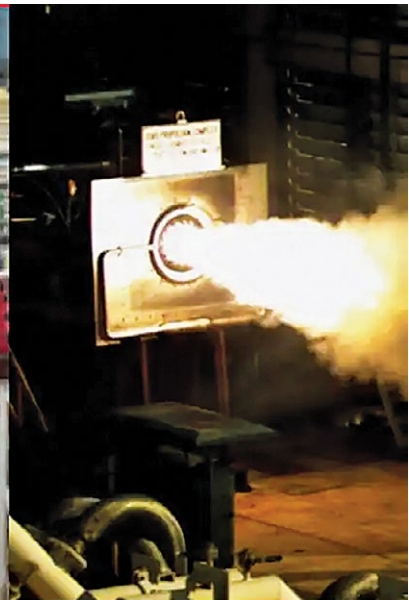
The ratings would be done by external agency selected through a tendering process.



Hybrid Motor for new Propulsion system

DO YOU KNOW ?

- ◆ **Propulsion Technology** is responsible for generating thrust to push an object forward.
- ◆ Force is exerted on the engine by accelerating a working fluid or a gas.
- ◆ **Oxidiser** is an important ingredient that releases oxygen to aid combustion of a fuel. As there is no readily available oxygen in space, rockets need to carry oxidisers.



A significant progress was made towards the development of a new propulsion system for upcoming launch vehicles when the Indian Space Research Organization (ISRO) successfully tested a hybrid motor at ISRO Propulsion Complex (IPRC) at Mahendragiri, Tamil Nadu.

Using **Hydroxyl-terminated polybutadiene (HTPB)** as fuel and **Liquid Oxygen (LOX)** as the oxidiser, the 30 kN hybrid motor test exhibited ignition and sustained combustion for the intended

duration of 15 seconds. "The motor performance was satisfactory", an ISRO statement said.

Unlike solid-solid or liquid-liquid combinations, a hybrid motor uses solid fuel and liquid oxidiser. The liquids help in throttling and the control over the flow rate of LOX allows the re-start capability. According to ISRO, both HTPB and LOX are environmentally friendly, but LOX is safer to handle.

Supported by Liquid Propulsion Systems Center (LPSC), the motor is said to be stackable and scalable.





The bill also addresses the collection of non-personal data and the benefits it can provide to entrepreneurs and young businesses.

Presented to the Joint Parliamentary Committee in 2019, the government's **Personal Data Protection Bill (PDPB)** was designed to regulate access to personal data by corporate entities through online services. However, since certain revisions were deemed necessary the bill was withdrawn. The following changes were then implemented to ensure that it would be passed.

Ease of doing business

The PDPB must ensure ease of doing business. While international standards of data collection have been acknowledged in the bill, changes have been made because the Indian market is gigantic, growing and has different interests than western markets. Therefore, data protection must be strategically applied so that business is not denied useful non-personal data that will help them grow as convenient alternatives for global competitors.

Non-Personal Data

The bill also addresses the collection of non-personal data and the benefits it can provide to entrepreneurs and young businesses.

Non personal data, is data that does not provide or contain details belonging to a single individual. The bill encourages companies to share NPD they have collected so that they can be used to create and alter evidence-based policies.

Accountability of social media

The other significant point of discussion is that of social media and their accountability. This means that social media companies will need to make their content moderation policy public. If they expect to be treated as intermediaries and not punished for what their users publish on their profile, then they must not act as publishers and censor particular users for not unspecified rules.

This along with data protection and laws punishing cybercrime, false news publication and harmful literature are all topics that are expected to be addressed in the revised version of the bill.

Ensuring that the revised bill protects the data of individuals while not compromising on national interests will be the prime directive in pursuing any changes.



Smt Sumathi Ramakrishnan



PM CARES

Prime Minister's Citizen Assistance and Relief in Emergency Situations Fund



TRUSTEES AND ADVISORY BOARD

The donation to PM CARES fund is exempted from Income Tax under Section 80(G).

Prime Minister's Citizen Assistance and Relief in Emergency Situations Fund is a public charitable trust set up by the Centre in 2020 primarily to tackle the pandemic crisis.

- All citizens including individuals, corporates and organizations can contribute to this fund.
- The donation to PM CARES fund is exempted from Income Tax under Section 80(G).
- One can donate via bank transfer, UPI, debit and credit Cards and internet banking.

Objectives

- To provide support, relief or financial assistance during any kind of emergency, calamity or distress, either man-made or natural.
- Contribute to the creation or upgradation of healthcare or pharmaceutical facilities, other necessary infrastructure and funding for relevant research.

Office bearers

Chairman: Prime Minister

Ex-officio Trustees:

Minister of Defence

Minister of Home Affairs

Minister of Finance

The Chairperson of the Board of Trustees is assisted by three trustees who shall always be eminent persons in the field of research, health, science, social work, law, public administration and philanthropy.

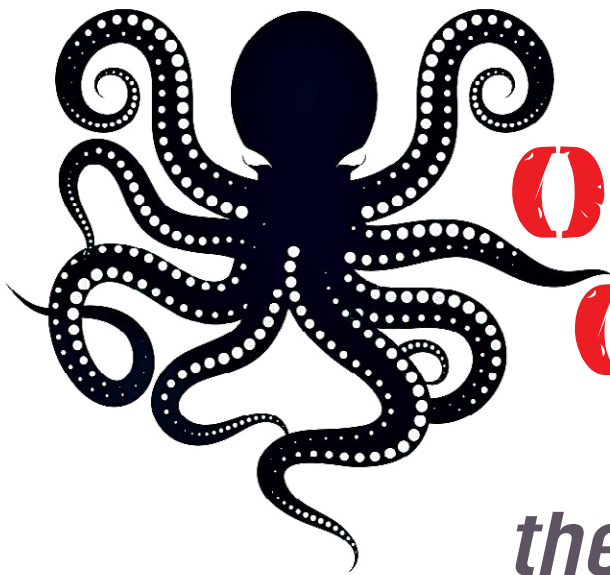
Newly appointed trustees

Ratan Naval Tata (industrialist). He was the chairman of Tata Group. (1990 to 2012).

K.T.Thomas (former Supreme Court judge) is known for his decisions on Indian socio-political matters.

Kariya Munda (politician) Former Deputy Speaker of the 15th Lok Sabha and former minister in the Government of India.





OPERATION OCTOPUS

*to counter
the hydra of terror*

The Student's Islamic Movement of India (SIMI) was a radical Islamic outfit started in 1977. Its declared goal was to liberate India into a Darul Islam (Land Of Islam) by force and violence.

On 28th September 2022 the Indian Government banned the radical Islamic outfit Popular Front of India (PFI) and its 8 affiliates, under the UAPA for a period of five years. One of the affiliates is the Campus Front of India involved in the Hijab protests.

The support of political parties for this ban across the spectrum indicated that the threat from this organization is real and much beyond what common people can imagine. This is the 42nd organization to be banned in India. Some of the others are the LTTE, LeT, ISIS, International Sikh Youth Federation and ULFA.

The need for this arose much earlier, in fact more than a decade ago. As early as 2010 the then Kerala Chief Minister V.S.Achuthanandan had said that PFI is a radical organization trying to change the demography of Kerala. Oommen Chandy of the Congress had also taken a tough stance against the PFI when he was the Chief Minister of Kerala.

Even the IUML has supported the ban.

SIMI to PFI

The Student's Islamic Movement of India (SIMI) was a radical Islamic outfit started in 1977. Its declared goal was to liberate India into a Darul Islam (Land Of Islam) by force and violence. It was banned in 2001 for the first time. This had crippled the organization as no overground work could be undertaken.

PFI was formed in 2006 by merging National Development Front of Kerala, Karnataka forum for Dignity and the Manitha Neethi Pasarai of Tamil Nadu. The PFI is in fact an off-shoot of the SIMI and its leadership and cadre base is drawn from SIMI.

Unlike SIMI, PFI outwardly professed that it believed in the religious plurality of India and at least on paper did not restrict its activities to the cause of religion and Muslims alone.



PFI had indulged in many killings of people who are not in sync with their ideology, in Kerala, Karnataka and Tamil Nadu.

However, starting from the savage attack on Prof.T.J.Joseph (luckily he survived the attack) in Kerala in 2010 the PFI had indulged in many killings of people who are not in sync with their ideology, in Kerala, Karnataka and Tamil Nadu.

According to the Government it also has links with terror outfits like the ISIS and the Jamatul Mujahideen Bangladesh and some of its cadre have also joined the ISIS. It has also instigated and participated in agitations against the CAA, misuse of UAPA and was also involved in the latest Hijab controversy.

It had presence in 22 states and a membership of about half a million. Its growth can be attributed to its strategy of radicalizing the community by promoting a sense of insecurity. It was also alleged to be involved in terror funding.

The ban order states that the activities of PFI and its affiliates are prejudicial to the integrity and

sovereignty of the country and have the potential to disturb public peace and communal harmony.

Though both the main political parties in Kerala were for the ban it has taken enormous time for the central government to proscribe the outfit. While the seriousness on the part of the Government is not in doubt, this is a sad commentary on the entire process.

Especially the backup material needed by the government to defend its action in the courts is huge and the homework for that has to be meticulous and foolproof. It would be interesting to note that the Delhi High Tribunal lifted the ban on SIMI in 2008 as it felt that the material submitted by the Home ministry was insufficient.

The saving grace was that the Supreme Court stayed the order the next day and the ban continues.

Operation Octopus

PFI was in the radar of the Government for over a decade now. The operation against the PFI, carried out in end September 2022 that preceded the ban was called Operation Octopus.

It was planned and executed with secrecy and surgical precision. On 19th September the officials of the Home Ministry held a meeting with the officials of the National Investigating Agency (NIA), Enforcement Directorate (ED) and the Intelligence Bureau (IB) and decided on the Midnight operation to be carried out on 22nd September 2022.

The operation commenced past midnight on the 21st and lasted till about 5 am the next day. The officials of NIA and ED along with the local police raided 93 locations spread over 10 states and one Union Territory.



106 different types of landmines, over 360 cartridges, 500 m of codex wire, ammonium nitrate, arrow bombs and various types of explosives found in the anti-Naxal operation 'Octopus'.



The NIA termed this investigative process as the “largest ever till date” in which 200 NIA personnel were involved.



DO YOU KNOW ?

The Hydra was a serpent-like water monster with nine heads. It was bred to kill Hercules. It was Hercules’ responsibility to slay the beast during his twelve Labors for King Eurystheus.

The raids were conducted in the residences of its leaders and cadre suspected to be involved in terror funding, conducting training camps and radicalizing the people. Six control rooms were established and the operation was monitored by the Home ministry and IB officials. 106 people of the PFI and allied organizations were arrested in all, out of which 60 belonged to the southern states.

The top leadership of PFI was taken into custody. It was done in the wee hours to minimize the resistance, if any, and to reduce the resource mobilization potential of PFI to counter this. The NIA termed this investigative process as the “largest ever till date” in which 200 NIA personnel were involved. Over 150 mobile phones, 50 laptops and a lot of incriminating material were seized.

Again on 27th September 2022 NIA launched its second round of raids-Operation Octopus 2.0 in 8 states and arrested about 170 people.

The Ban and After

Operation Octopus was a feather in the cap of the central home ministry and the agencies and it is expected that they will be able to face any legal challenge that PFI or its associates may pose. The ban facilitates criminalizing the membership of PFI and its affiliates, forfeiture of its properties and empowers GOI to prohibit the use of funds.

However serious thought has to be given by the stakeholders on making the process more sensitive to the needs of the nation in fighting



terror more effectively. Bureaucratic and judicial delays gift a lot of time to such subversive organizations and could cause havoc to the nation’s security.

One decade to impose a ban on a radical outfit is too long and the organizations would have infiltrated the body politic beyond imagination. Like the Hydra in the Greek mythology such organizations have a potential to come back in other forms.

The democratic process in India currently seems to be friendly to such evolution as we do not have effective counters. **Eternal vigilance is the price of democracy and the governments at the Centre and states have to be vigilant to prevent such organizations from mushrooming and expanding.** Whether Operation Octopus will prove to be the Hercules to the Hydra of terror remains to be seen.





National Action Plan for Toys 2020 was introduced to boost the Indian toy industry including traditional handicrafts and handmade toys.

India has a centuries-old legacy of artisanal games and toys. However, today the games and toys industry need to be reevaluated through a modern and climate-conscious lens.

Swachh Toycathon is a competition being undertaken by Ministry of Housing and Urban Affairs under Swachh Bharat Mission-Urban (SBM-u 2.0) with the aim of 'Rethinking Indian toy industry'. The knowledge partner for the initiative is the Centre for Creative Learning, IIT Gandhinagar.

Significance

1. The competition focuses on bringing forth innovation in toy designs using dry waste.
2. It will focus on effective and potential designs that can be replicated at a larger scale and toys that comply with minimum safety standards.

National Action Plan for Toys 2020

1. National Action Plan for Toys 2020 was introduced to boost the Indian toy industry including traditional handicrafts and handmade toys.
2. The plan has the objective of establishing India as a global Toy hub.
3. The Department for Promotion of Industry and Internal Trade along with 14 Ministries of Central Government is currently implementing several aspects of the National Action Plan for Toys.





Indigenous Aviation Fuel 'Avgas 100 LL'



Hardeep Singh Puri
Civil Aviation Minister

Union Minister for Petroleum and Natural Gas, Hardeep Singh announced on 26th September, the launch of AVGAS 100 LL, an indigenously produced aviation fuel, developed as part of the government's Atmanirbhar Bharath Initiative.

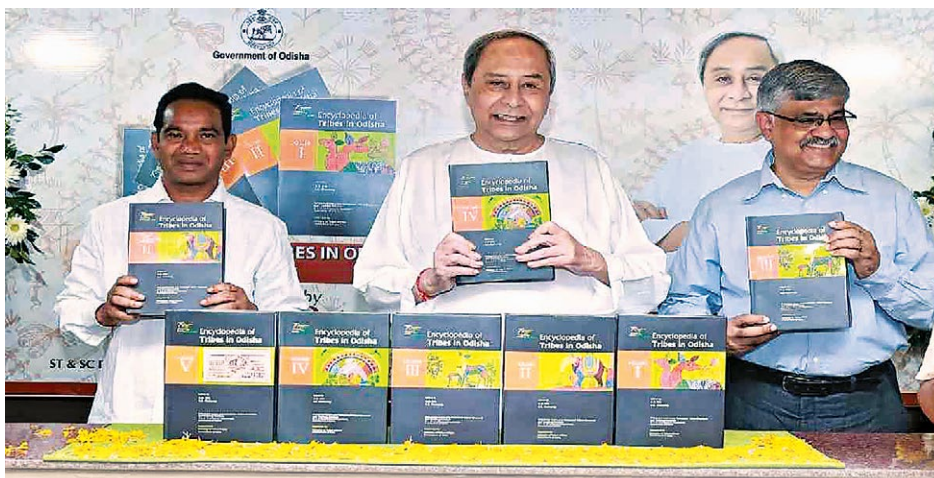
Developed by the Indian Oil Corporation at their refinery in Vadodara, Gujarat, AVGAS 100 LL is meant to serve as fuel for piston engine aircrafts and

unmanned aerial vehicles. The fuel has been tested and certified by the Directorate General of Civil Aviation. It is reported to have met the product specifications with higher quality standards, compared to imported aviation fuel.

The introduction of AVGAS 100 LL is expected to reduce the cost and serve the increasing demand that has overtaken India's aviation industry. With projections showing an increase in demand for aircrafts and pilots, **Flying Training Organisations (FTOs)** have already begun investing in AVGAS as an alternative to imported fuel, to increase the number of training hours they can provide their pilots, without a significant increase in cost.

There are plans to set up new facilities to target domestic need and potential foreign export of AVGAS.





INDIA'S FIRST TRIBAL ENCYCLOPAEDIA

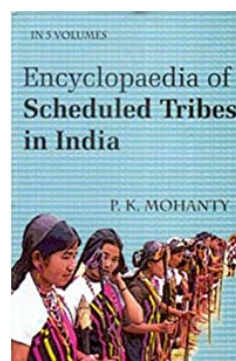
DO YOU KNOW

Established in 1955, the SCSTRTI, the premier and oldest Tribal Research Institute of the country, has studied various aspects of tribes and published informative research articles uninterruptedly in its 61-year-old research journal 'ADIVASI'.



Odisha is home to the third largest tribal population of India. It has 62 tribes including 13 particularly vulnerable groups. The age-old culture and way of living of these tribal communities are changing fast and their cultural identity is disintegrating.

Therefore a systematic documentation is an urgent necessity. Scheduled Castes and Scheduled Tribes Research and Training Institute (SCSTRTI) and Odisha State Tribal Museum published the encyclopaedia that documents the unique traditions



and culture of Odisha. It was unveiled by state chief minister Navin Patnaik on 26th September 2022.

Content

1. Five edited volumes.
2. 418 research articles on the tribals.
3. 3800 papers contributed by its own research personnel.
4. Articles by research scholars and eminent anthropologists.

Significance

1. It is to appraise the old and new, the past and the present cultural description of the tribal community.
2. It is a fine repository of ethnographic knowledge and an excellent exposition of unaltered, specific and varied tribal cultures.





JALDOOT APP

launched

Gram Rojgar Sahyak can use the app to measure the water level of selected wells in a village across the country twice a year.

The level of groundwater is still in a critical situation in India. India has been trying to monitor the water levels for a long time. The measurements include watershed development, afforestation, water body development and renovation, rainwater harvesting etc. Jaldoot App was launched in order to monitor the water levels.

Gram Rojgar Sahyak can use the app to measure the water level of selected wells in a village across the country twice a year, before the monsoon (from 1st to 31st May) and after the monsoon (from 1st October to 31st October).

Adequate number of measurement locations of two

or three need to be chosen as representative of the groundwater level in every village.

The app will aid panchayats with robust information, that can be later used for better planning of works and can be utilized for distinct kinds of research and other purposes.

Every time, **Jaldoots** (officials) measuring the water levels should also upload the geo-tagged photos via the app. Both online and offline usage are supported. **Therefore, even without internet access, water levels can be recorded.** Recorded data is then stored on a mobile device and when that device enters an area with connectivity, it is synchronised with a central server.

Ancient Temple and Mural Inscriptions found



The Jabalpur Circle of the Archaeological Survey of India discovered remains of ancient temples at the **Bandhavgarh Tiger reserve** in Madhya Pradesh.

Located about 500 km from Bhopal, Bandhavgarh is home to the majestic big cats. This is the first time ASI has explored Bandhavgarh since the 1938 exploration by archaeologist N P Chakravarti.

Some of the findings

- A sculpture of Varaha.
- 26 temples of the Kalachuri period (9th century CE to 11th century CE).
- 26 caves (2nd to 5th century CE mostly Buddhist in nature) in which chaitya-shaped doors and cells containing stone

beds were a feature.

- Two *Shaiva maths*
- Two stupas
- 24 Brahmi inscriptions (2nd to 5th century CE) mention cities like Mathura and Kaushambi, Pavata (Parvata), Vejabharada and Sepatanaairikaa. The kings they mention include Maharaja Shri Bhimsena, Maharaja Pothasiri and Maharaja Bhattadeva. Some of the inscriptions are also in Nagari and Shankhalipi scripts.
- 46 sculptures.
- 20 scattered remains.
- 19 water structures (2nd -15th CE).
- Coins belonging to the Mughal era and Sharqi dynasty of Jaunpur Sultanate.

METRO CORRIDOR in Gujarat

The 21-km corridor project having 17-stations between Thaltej and Vastral became operational after the inauguration.

On 30th September 2022 PM Modi inaugurated Phase-1 of the Ahmedabad Metro rail project between Thaltej and Vastral. "With the changing times, it is necessary to continuously modernize our cities with the changing needs.

The system of transport in the city should be modern and should have seamless connectivity where one mode supports the other." he said.

four stations and the metro rail tickets will cost between ₹5 and ₹ 15. The travel time between these two routes is 40 minutes.

The minimum stoppage time at each metro station will be 30 seconds and with the increase in demand, the frequency of the Ahmedabad Metro will be increased to 5 minutes.

Phase-2 of the project, will be fully elevated connecting Gandhinagar and Ahmedabad.



The 21km corridor project having 17-stations between Thaltej and Vastral became operational after the inauguration. According to **Gujarat Metro Rail Corporation (GMRC)**, this route comprises a 6.6 km subterranean stretch with

It will have two corridors - a 22.8-km stretch from Motera Stadium to Mahatma Mandir having 20 stations and a 5.4-km route from Gujarat National Law University to GIFT City having 2 stations.

World's largest

SOLAR HYBRID POWER PLANT

Bifacial modules

produce solar power from both sides of the panel. Traditional opaque-back sheeted panels are **monofacial**.

A single-axis solar tracking system

uses a tilted PV panel mount and one electric motor to move the panel on an approximate trajectory relative to the Sun's position. The rotation axis can be horizontal, vertical or oblique.

Adani Green Energy Ltd (AGEL) has commissioned the world's largest wind-solar power plant of 600 MW capacity in Jaisalmer, Rajasthan.

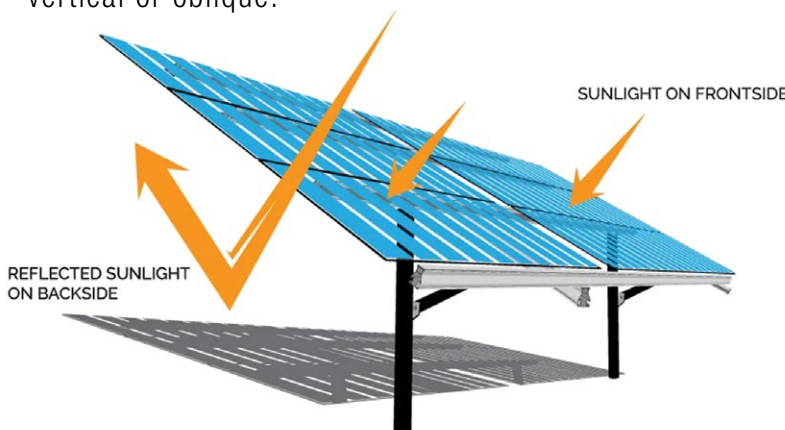
The project, which consists of 600 MW solar and 150 MW wind plants, will not only reduce renewable energy power intermittency, but will also assist the country in making the best use of its transmission network. To increase power production, the solar project in this hybrid set up makes use of bifacial solar modules and horizontal single axis tracker technology.

At the commencement of the plant AGEL has a total operational generation capacity of 6.7 GW. This includes an operational hydropower generation capacity of 1 GW, the largest in the world. AGEL's total renewable portfolio goes up to 20.4 GW to reach its vision of 45 GW capacity by 2030.

AGEL is an Indian renewable energy company headquartered in Ahmedabad, Gujarat and owned by Indian conglomerate Adani Group. The plant has a 25-year power purchase agreement with Solar Energy Corporation of India at ₹ 2.69 per kwh.

Additional Chief Secretary Subodh Agrawal said Rajasthan is currently the leading state across the country in renewable energy with generation of 1877 MW of additional solar power in the month of March 2022.

He claimed that Rajasthan already stands first in the field of solar energy. Now, the state leads in overall renewable energy - wind power, bio-power and solar power.





is a success!

On the first day of testing more than 200 grocery stores and restaurants across 16 PIN code locations in Bengaluru were onboarded to the platform.

Open Network for Digital Commerce (ONDC), an ambitious project by the Government of India to create an open-source e-commerce platform that prioritises indigenous small-scale businesses was rolled out for public testing on 1st October 2022 in Bengaluru.

The platform is meant to serve as an alternative to Amazon where customers are able to log in and perform their online purchases.

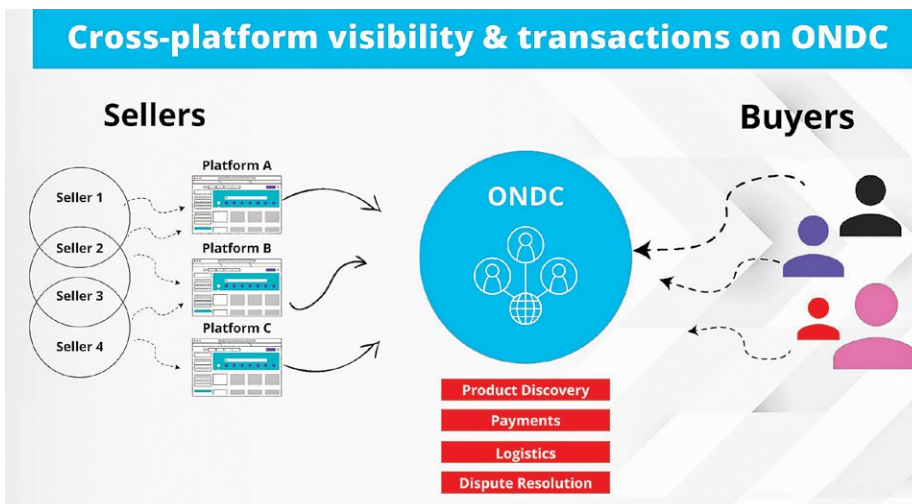
On the first day of testing more than 200 grocery stores and restaurants across 16 PIN code locations in Bengaluru were onboarded to the platform.

Residents were able to order goods through applications such as Paytm, MyStore and Spice Money. Once the orders were placed, they were then delivered by either Dunzo or Loadshare networks, the former focusing on bulk food orders and the latter on grocery deliveries.

An investigation by Reuters revealed that Indian subsidiary of Amazon provided preferential treatments to companies on its platform, thereby excluding many small businesses in India.

The success of the ONDC's first day of testing gives some hope that it will go on to democratise the e-commerce sector, away from the duo-poly of Amazon and Flipkart.

Cross-platform visibility & transactions on ONDC



With the successful beta-testing providing much needed feedback and insight on how the application needs to be improved before its pan-India rollout, ONDC is expected to create sustainable long term business partnerships while also protecting family-owned business across India by bringing them into the digital age.





A200 DRONE receives certification

A200 drones can be used to monitor crop growth, assess damage in areas during natural disasters and also be used by Remote Pilot Training Organisations to help individuals earn their drone pilot certification.

Asteria Aerospace (AA), a robotics and AI company has received India's first micro category drone type certification. Founded in 2012 and known for their custom drone production for specific government and private sector applications, AA developed the A200 Drone for mapping applications.

The Directorate General of Civil Aviation (DGCA) classifies and categorises drones based on their weight. Micro-drones weigh from 250 grams to 2 kilograms.

A200 specialises in surveying

and mapping for agriculture, construction and mining industries. Equipped with high resolution camera systems and GPS, these can be used to accurately map land areas in difficult-to-reach terrains.

The drones have also seen application in the government's **Survey of Villages and Mapping with Improvised Technology in Village Areas (SVAMITVA)** scheme, where they have been used to digitise and establish property and land ownership in rural parts of the country.

A200 is a performance-driven multi-rotor drone with advanced features such as automated take-off and landing, single pilot operation, tool-less assembly and flight time of up to 40 minutes. They can be used to monitor crop growth, assess damage in areas during natural disasters and also be used by Remote Pilot Training Organisations to help individuals earn their drone pilot certification.

This certification is a big win for India's technology and artificial intelligence sector and proof of the success of **Atmanirbhar** scheme.





MODHERA

India's first solar powered village

Modhera in the Mehsana district, known for the Sun temple on the banks of the Pushpavati River, is one of the finest examples of temple architecture in Gujarat. It was built in the reign of Solanki ruler **Bhimadeva-I (1022-1066 CE)**. The place has been mentioned as Bhaskara(Sun) region in *Skandapuranam*.

Gujarat government and the Centre have initiated a programme “Solarisation of Modhera Sun Temple and Town”. A ground-mounted solar power plant and 1300 rooftop solar systems on top of the residential and government buildings have been installed. It has a 6MW grid with a 15MWH battery energy storage system which enables solar energy to be available 24/7. Here everything runs on solar power; effort is on to run buses, vehicles on solar power.

Highlights

- Residents would save 60 to 100% on their electricity bills.
- PM's resolution of producing 50% of energy requirements through renewable energy by 2030 would be attained.

DO YOU KNOW ?

- **Modhera Sun Temple** is a UNESCO World Heritage Site.
- **Skandapuranam** is one of the oldest manuscripts likely to exist in the 8th century C.E.
- **International Solar Alliance** is an initiative by India and France; more than 100 countries are a part of it. It aims to increase the deployment of solar energy technologies in member countries.





INDIA'S FIRST SLENDER LORIS SANCTUARY



DO YOU KNOW ?

- The slender loris feeds on insects and pests known to destroy agricultural crops, thereby helping the farmers.
- It is nocturnal and spends most of its life on tree branches.

The Tamil Nadu government has notified the opening of the **Kadavur Slender Loris Sanctuary**, the first of its kind in India in Karur and Dindigul districts. A slender loris is a primate predominantly found in the eastern and western ghats and in Sri Lanka. Identified as a critically endangered species by the IUCN and the Wildlife Protection Act (1972), this animal is seriously threatened by poaching, deforestation and urbanisation.

With an area of 11,806 hectares spread over Vedsandhur, Dindigul east and Natham taluks, this sanctuary has about 14,000 slender lorises and involves the commitment of several forest officers who tend to sick, distressed or injured slender lorises.

GOA introduces Kum Kavya R

HYBRID-HIGHSPEED FERRIES

One of India's most famous tourist destinations is Goa. With more than 7 million tourists visiting the Union Territory every year, it is a hub of activity.



To boost environmentally friendly transportation facilities, the government has introduced solar-electric hybrid high speed ferries.

Launched on 13th October by Shipping and Waterways Minister Sarbananda Sonowal, these state-of-the-art ferries were funded by the Inland Waterways Authority of India. Despite the ₹9.6 crore cost of the project, the future savings are immense as these ferries are meant to be replacements to traditional ferries, thereby removing fuel costs and also the impact on the environment. The ferries also have a carrying capacity of 60 passengers, higher than the traditional petrol-operated ferries currently in use.





New **MOBILE PHONE** **MANUFACTURING FACILITY** near **Chennai**



On 30th September, Tamil Nadu Chief Minister MK Stalin inaugurated Pegatron Technology's smartphone factory at Mahindra World City in Chengalpattu. Set up by the government's Production Linked Incentive (PLI) Scheme for electronics, the Taiwanese company has invested over ₹1000 crore in this project and is expected to create

more than 12,000 jobs. The factory will be the third, alongside Foxconn and Wistron, set up in India for the production of Apple iPhones.

During the ceremony, Union Minister of State for Electronics & Information Technology and Skill Development & Entrepreneurship Rajeev Chandrasekhar commented that the investment by Pegatron is a symbol of partnership between the Union and State governments. He added, "This partnership is to help India achieve the target of USD300 billion in electronics manufacturing, from the current USD75 billion."

With a creation of over 40,000 jobs in the electronics manufacturing sector and over 6000 crores in investment, the PLI scheme has great success in Tamil Nadu. CM Stalin also remarked about the 20% contribution to India's electronic production that Tamil Nadu makes through companies like Salcomp, Dell, Bosch, Samsung, Foxconn, Tata Electronics and so on.





MENTAL HEALTHCARE SERVICES LAUNCHED

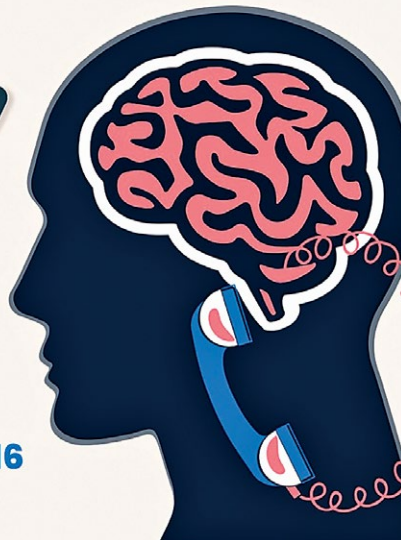
Tele-MANAS

Quality mental healthcare services are assured for all!



For assistance, please call on helpline numbers

**14416 or
1800-891-4416**



Interactive Voice Response System (IVRS) is an automated phone system technology which allows incoming callers to

- access information via a voice response system of pre-recorded messages.
- utilize menu options via touch tone keypad selection or speech recognition to have their call routed to specific departments or specialists.

Indian government launched Tele-MANAS (Mental health Assistance and Networking Across States) on the occasion of World Mental Health Day. It was launched virtually by Karnataka Governor Thawar Chand Gehlot. Mental health crisis in the wake of the pandemic has been acknowledged with this free tele-mental health services round the clock, particularly for people in remote or under-served areas.



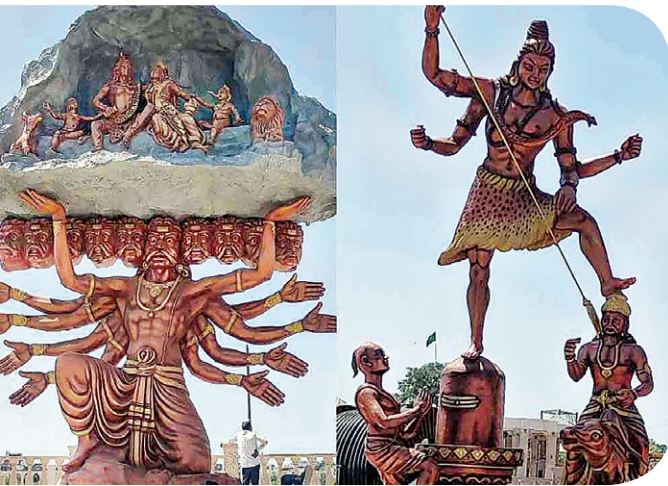
The network of 23 tele-mental health centres has International Institute of Information Technology-Bangalore (IIITB) providing technology support and National Health Systems Resource Centre (NHRSC) providing the technical support.

The service can be accessed by calling the helpline number 14416 and 1-800-91-4416. The call first reaches an IVRS and is then transferred to a trained counsellor in their area. If needed, they will be connected online to clinical psychologists, psychiatric social workers, a psychiatric nurse or a psychiatrist.



Mahakal Lok

corridor inaugurated



PM Modi inaugurated the Mahakal Lok corridor built at the Mahakaleshwar temple on 11th October 2022. This marks the first phase of the ₹856 crore project.

The Mahakaleshwar temple in Madhya Pradesh's Ujjain is one of the 12 Jyotirlingas in India. The development is aimed at decongesting the entire Ujjain area with special emphasis on conservation and restoration of heritage structures. The temple precincts will be expanded nearly seven times by the end of the project.

The first phase will help in enriching the experience of pilgrims by providing world class amenities. This 900-meter-long Mahakal Path is one of the largest in the country. It spans around the Rudrasagar Lake which has also been revived simultaneously.

The path contains two majestic gateways - Nandi Dwar and Pinaki Dwar near the starting point of the corridor leading to the temple and offers aesthetic views along the way.

The path has 108 pillars which show the Ananda Tandava swarupa (dance form) and the life of Lord Shiva. The mural wall along the corridor presents Shiva Purana stories such as the act of creation, the birth of Ganesha, story of Sati and Daksha among many others.

The footfall of the temple is currently around 1.5 crores per annum. It is expected to double after this inauguration.



Col Shashidhar M V (Retd)



GENERAL ANIL CHAUHAN

Chief Of Defence Staff

CDS also functions as Secretary, Department of Military Affairs and needs to discharge many critical roles between the defence services and bureaucracy by rising above service loyalties in achieving overall synergy at the apex level.

On 28th September 2022, the much-awaited announcement of the appointment of Lieutenant General (retired) Anil Chauhan as Chief of Defence Staff (CDS) was made by the GOI. It is perhaps the first time that a retired Armed Forces officer has been appointed to such a high office.

That a process of a deep selection has been followed by the GOI by tweaking recruitment rules by allowing a retired Lt General or equivalent rank for consideration to this coveted post only conveys that suitability and professional excellence far outweighs age and seniority when it comes to selection of a nation's CDS.

The office of CDS (also functions as Secretary, Department of Military Affairs) needs to discharge many critical roles between the defence services and bureaucracy by rising above service loyalties in achieving overall synergy at the apex level besides reining in redundancies by maximising reforms, capability building with a lean and integrated warfighting machinery within the budgetary constraints and resources.

Brief highlights of General Anil Chauhan PVSM, UYSM, AVSM, SM, VSM impressive career profile spanning nearly 40 years include

- An alumnus of the National Defence Academy,





Post his retirement from active military service, the General served as a Military Advisor to the National Security Council Secretariat (NSCS).

- Khadakwasla, he was later commissioned into the Sixth Battalion, the Eleventh Gorkha Rifles in Jun 1981 from IMA, Dehradun.
- Professional exposure with HQ IMTRAT, Bhutan and as UN Military Observer to Angola. Successful command of an Infantry Battalion along the LoC in J&K, a Mountain Brigade in Manipur, an Infantry Division in the Kashmir Valley and a Corps in the North East.
- Was the Director General of Military Operations (2019) during the Balakot Air Strike and Operation Sunrise, a joint

Indo – Myanmar counter insurgency offensive.

- Was General Officer Commanding-in-Chief, Eastern Command (Kolkatta) (2019 – 2021).
- Post his retirement from active military service, the General served as a Military Advisor to the National Security Council Secretariat (NSCS) (Oct 2021- Sep 2022).

Incidentally the writer had the great fortune of serving with General Chauhan in Badami Bagh Cantt (Srinagar) when he was the Chief of staff of the prestigious CHINAR CORPS from 2015-17.





Col Shashidhar M V (Retd)



Light Combat Helicopter inducted into Indian Air Force

TIMELINES

- **2006** - GOI sanctions LCH project with HAL tasked to develop it.
- **2010 (Feb)** - Prototype of LCH completes first Technology Demonstrator(TD) test.
- **2010 (Mar)** - First successful flight test.
- **2012** - TD - 2 prototype successfully passed the cold weather trials in high altitude.
- **2013 & 2014**—TD-3 & TD-4 successfully tests other flight requirements.
- **2017**- Initial operational clearance for IAF.
- **2019** - Initial operational clearance for Army.
- **2020**- LCH ready for production.
- **2022**- Cabinet Committee on Security (CCS) approves procurement of indigenously developed 15 LCHs at a cost of ₹3887 crores.

Kargil War in 1999 highlighted the need for a homegrown lightweight assault helicopter capable of operating in very hot deserts and in very cold high altitude conditions besides in counter-insurgency scenarios to full-scale battle conditions. Presently the French-origin legacy helicopters (Chetak and Cheetah) are the mainstay with Army, Lancer an armed version of Cheetah besides the Russian origin Mi-17 and its variants Mi-17 IV and Mi-17 V5 are operated by IAF.

What is a Light Combat Helicopter (LCH)?

The LCH is the only attack helicopter in the world which can land and take off at an altitude of 5,000 meters with a considerable load of weapons and fuel (powered by two





JUN 2001	MAR 2010	2015	JUL 2016	NOV 2016	AUG 2017	SEP-OCT 2022
Debut in model form at Paris Air Show	First prototype (Technology Demonstrator 1) makes maiden flight	Hot and cold weather trials conclude	Performance trials conclude	India's Defence Acquisition Council approves procurement of 15 LCHs: 10 (air force) and 5 (army)	Official production inauguration	Limited series production LCHs inducted by the army and air force

French-origin Shakti engines). A combat superior aircraft with a lower radar signature, it has a significantly crash-proof structure and landing gear with a pressurised cabin offering protection from Nuclear, Biological and Chemical (NBC) contingencies in battlefield scenarios. It is also equipped with a countermeasure dispensing system that protects it from enemy radars or infrared seekers of enemy missiles.

Induction of Prachanda and Future Roadmap

The first fleet comprising of four LCHs (Prachanda) developed

by HAL was formally inducted into the IAF inventory at Jodhpur on 3rd Oct 2022 in the presence of Raksha Mantri, the CDS and Air Chief Marshal.

Tactical and Combat Features

- ▶ Maximum take-off weight of 5.8 tonnes, maximum speed of 268 kmph, range of 550 km, endurance of over three hours and service ceiling- the maximum density altitude to which it can fly being 6.5 km.
- ▶ Gunship with air to air missiles, 20 mm turret guns, rockets and other weapon platforms with armoured protection it features a narrow fuselage and tandem (one behind the other) configuration for pilot and co-pilot). The co-pilot is also the

Weapon Systems Operator (WSO).

- ▶ Ability to perform roles of Combat Search and Rescue (CSAR), Destruction of Enemy Air Defence (DEAD), Counter Insurgency (CI) operations against slow-moving aircraft and Remotely Piloted Aircraft (RPAs), high altitude bunker busting operations, counter insurgency operations in jungle and urban environments and support to ground forces.
- ▶ Advanced aviation technology coupled with stealth systems and crash worthiness for better survivability in combat roles catering to emerging needs for the next 3 to 4 decades.

The manufacturing of LCH by HAL will give a further push to the **Atmanirbhar Bharat** initiative and boost the indigenisation of defence production and the defence industry in the country.





Col Shashidhar M V (Retd)



LCH Squadron deployed in North-East

**The Army
now has
three Aviation
Brigades at
Leh, Missamari
and Jodhpur
respectively.**

The Indian Army's aerial fire power along the Line of Actual Control (LAC) with China will get an indigenous boost after receiving its first dedicated attack helicopter.

The Army Aviation Corps received three LCHs in Bengaluru from HAL and its first squadron of light combat helicopters will be deployed in Missamari station (Assam) by the end of October 2022.

The fourth and fifth LCH are to be received by end of Oct 2022 & Nov 2022. Earlier, the Aviation Corps raised a new squadron for

the LCHs in Bengaluru in July this year. The new Aviation Squadron will be operationalised under the Army's Missamari Aviation Brigade (another new raising) in the middle of tense military stand-off with China in eastern Ladakh and increasing tensions across LAC.

The Army now has three Aviation Brigades at Leh, Missamari and Jodhpur respectively. It operates around 145 indigenous Advanced Light Helicopters (ALH), 75 of which are the Rudra weaponised variants. Another 25 DHRUV MK-III are on order and will be inducted within next two years.

The Missamari Aviation Corps will comprise three squadrons of ALHs, Cheetah (Helos) and Heron drones along with the weaponised version of the ALH, called Rudra.

The Army eventually plans to deploy 70 LCHs for various combat role in the mountains both in Ladakh and North East regions.





Beware of Digital Banking Frauds

Authentication for financial transactions through UPI/other services:

- Fingerprint authentication for login/ Login PIN
- User ID/password
- UPI PIN
- OTP

Grandpa, Shraavan and Gita were at the **Talk on digital banking frauds** by Mr. Raman, the secretary of Housing Society.

“Good morning, friends. Let’s start with a quick quiz on digital banking. Ten quick questions. Anybody can put up their hand and answer.” Grandpa’s voice silenced the audience.

The children in the audience answered the quiz at lightning speed. The adults clapped in awe.

Grandpa smiled. “Do you see how the younger generation is updated with the latest technology platforms and methods of digital banking? We have so much to learn from them.”

Raising her hand, Mrs. Gupta, “I don’t know any of the terms or

digital banking methods mentioned in the quiz. I am scared of the risks involved. What if I make mistakes? What if someone cheats me?”

Grandpa nodded. “Digital banking is new to many of us, but we can learn to transact in a safe and secure manner to avoid risks. Before we talk about the precautions, we’ll give you a quick demonstration on how to use various mobile banking options.”

He had connected his mobile to the television screen. Shraavan and Gita demonstrated the step-by-step process of funds transfer and payments through UPI and other services.

Grandpa explained. “You see that there are different levels of authentication, verification for putting through these transactions.





The RBI and banks have been releasing several advertisements, notices and messages to caution us against different types of frauds.

Can you see what the safeguards are?

Mr. Gupta answered. “Fingerprint authentication for login, Login PIN, user ID, UPI PIN, OTP.”

Grandpa smiled. “Yes. We need to be careful not to share any of this sensitive information with outsiders. **However, fraudsters have become smarter and they have been using various methods to lure, induce or scare banking customers into sharing their card numbers, passwords, PIN and OTP.**

The RBI and banks have been releasing several advertisements, notices and messages to caution us against different types of frauds.

The Banking Ombudsman department in Mumbai has shared a series of cartoon stories called “Raju and the 40 thieves” to explain the different types of frauds in digital banking that we should be aware of and protect ourselves against. This cartoon book is available on the internet and the children here have all read it. In this forum, we’ll discuss some of the major frauds in digital banking.”

Card activation fraud

Grandpa narrated: “Mr. Krishnan, my friend, got a phone call supposedly from a bank for activation of his debit card. It so happened that he had got a new debit card from SBI; so he believed the caller. The caller asked him to share his debit card number, CVV number, card expiry date and then the OTP. Luckily, I was at his house and prevented him from sharing the OTP. Otherwise, he would’ve lost ₹20,000.”

An elderly gentleman raised his hand. “My name is Srinivas. I lost ₹5000 two months ago due

to a similar fraud. My ATM card wasn’t working and I had lodged a complaint with the bank. I had raised my voice at that time and boasted so much about myself to the bank manager. Someone must have heard me. When I got a call the next day, the caller was so friendly and apologetic about my card not working that I believed her and shared my card and pin number details. Instantly, I was alerted by a message for debit of ₹5000. I could prevent further loss as I immediately called up the bank helpline to block the card.”

Grandpa answered. “Thanks for sharing this, Mr. Srinivas. The main technique the fraudsters use is **helping us solve our problems**-in this case, activate our card or bank account.” So, whatever our problem, we should call the official call center number of the bank or visit the bank branch. **We should not give any personal details when we receive a call from unknown numbers.**”

KYC fraud

Grandpa continued. “The second tactic used by fraudsters is to scare us that our bank account will get blocked if we do not update our KYC details immediately. They push the customers to act fast so that we don’t have time to think.”

“Collecting account number, card and OTP details over phone is called Vishing fraud” – Shravan showed off his knowledge.

“If you receive such a call, do not share any information. Instead, call your bank’s official customer care number to check KYC status.”

“In your quiz you talked about catching fish? What is it?” Mrs. Gupta asked.

Phishing Fraud: Grandpa smiled. “That is Phishing fraud, not



The lure of a gift, a reward or a refund is very tempting. Please note that you should never click on any link to update your bank details.

fishing.” Here the fraudsters send an email or SMS or whatsapp with a link asking us to update our details. If we click on the link and update our personal details on an unknown website, our data will be captured by fraudsters to withdraw money from our bank account. The technique used is offering customers a reward or refund and asking us to update our bank details to get the money.

Rewards and Refunds fraud

Mr. Gupta stood up. “I got an email from supposedly an Income

tax officer stating that I was eligible for a tax refund and I need to update my bank details in the link. Grandpa explained to me that it was a phishing email. I reported the email to the bank. Thank God.”

Grandpa nodded. “Yes. The lure of a gift, a reward or a refund is very tempting. **Please note that you should never click on any link to update your bank details.**”

Mrs. Gupta raised her hand. “I think I am more confident now.”

Grandpa smiled. “Good. We will meet again next week to discuss some more frauds.”

Quick Quiz on Digital Banking

1. What is NEFT? Is it done online or offline?
2. What is RTGS? What is the difference between NEFT and RTGS?
3. The shopkeeper displays a QR code. How do you make payment for your purchase through QR code?
4. What is phishing?
5. What is Vishing?
6. Name some mobile payment apps.
7. How do you authenticate a UPI transaction on your mobile?
8. How do you make payments from one bank account to another using your mobile?
9. How do you safeguard against ATM card frauds?
10. How do you safeguard against internet banking frauds?

Answers

1. National Electronic Funds Transfer. It is a payment mechanism for transfer of funds from one bank to another facilitated by RBI. It can be done online through internet banking and also offline by visiting the branch and submitting a transaction request.
2. Real Time Gross Settlement – Payment mechanism facilitated by RBI where funds are settled for each individual transaction so that the beneficiary gets instant credit. In NEFT, settlement is done in batches so it might take around 2 hours for the beneficiary to get credit. The second major difference is that NEFT transaction can be done for a minimum of rupee 1 where as RTGS is for large value transactions. Minimum transaction value is 2 lakhs.
3. Scan the QR code from your mobile payment app or UPI app to make the payment.
4. Phishing is an email fraud where the fraudsters send an email with a link asking customers to update their bank details, user id and password.
5. Vishing is a fraud through phone, where the caller induces people to share their bank account, card and PIN details.
6. BHIM UPI, Googlepay, PayTM.
7. Login to the UPI app through finger print authentication or password. Transaction verification through UPI Pin.
8. IMPS – Immediate Mobile Payment System facilitated by National Payment Corporation of India.
9. Keep your card safe. Do not give it to anyone. Do not share the card number, PIN, CVV number, expiry date with anyone.
10. Do not share internet banking user id and password with anyone. Do not click on any links received through email asking for the above information. Do not use public WIFI for financial transactions.





TAXATION LAW

in India

Taxation impacts every citizen of our country and thus it is necessary to have an understanding of the tax system and structure in our country.

Tax refers to a compulsory levy by a state on the citizens who are eligible or subject to the levy. Tax can be classified as direct or indirect tax. Direct taxes are non-transferable taxes to be paid directly by the taxpayer to the government whereas indirect taxes are taxes where the liability of the tax can be shifted to others.

Taxation impacts every citizen of our country and thus, it is necessary to have an understanding of the tax system and structure in our country. In India, the major direct tax is income tax, governed by the Income Tax Act, 1961 and the major indirect tax is the Goods and Services Tax (GST), governed by the Central Goods and Services Tax Act, 2017.

Income tax is one primary source of revenue for the government and is used to cover government expenditure including education, defence and infrastructure. Thus, revenue from tax is one of the tools

through which the state's economic goals can be reached. Now let us look into the basic provisions of the Income Tax Act, 1961.

INCOME TAX ACT, 1961

(i) Overview: This came into force in 1961 and has undergone several amendments since then. The Central Board of Direct Taxes (CBDT), which is the authority administering direct tax, also comes out with regulations, notices, clarifications and circulars from time to time. The Act covers multiple types of income and sources of income.

(ii) Key terms: This Act contains provisions regarding the chargeability and eligibility of tax, the basis of tax, the calculation, time period etc. Any person who is chargeable under the Act is known as an 'assessee.' The assessee is chargeable for the income pertaining to the 'previous year,' which refers to the year preceding the 'assessment year.'



DO YOU KNOW ?

In the context of taxation, the 'year' mentioned is not to be understood as the calendar year which runs from January 1st to December 31st. It is the financial year spanning from April 1st to March 31st (of the next year).

(iii) Residence: 'Residential status' is a major consideration which decides the extent to which an assessee is taxable, and there are different categories of residents such as (a) resident ordinarily resident, (b) resident not ordinarily resident and (c) non-resident.

For example, an assessee who was a resident ordinarily resident in the previous year, will be taxable for the entire income earned in the previous year, irrespective of the place where it was earned (provided he is taxable for the income under this Act).

(iv) Income: Further, the Act lays down 'heads of income' under

which the assessee is chargeable. These include income from salary, house property, profits and gains from business or profession, capital gains and other sources. Each of these heads contains several categories under its scope.

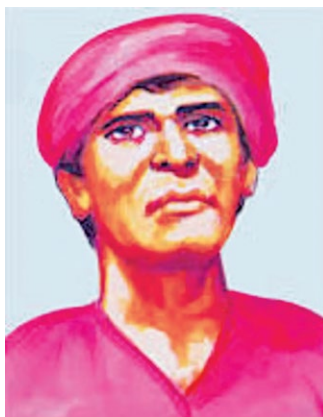
(v) Deductions: The Act contains several categories of receipts and expenditures which can be deducted from the taxable amount.

These are known as 'deductions' or 'exemptions.' Some examples are Standard Deduction, House Rent Allowances, Contribution to Provident Fund and certain kinds of interest received.



Kum Priyadarsshini S

Unsung Hero



BUDDHU BHAGAT

The clock struck four in the evening; Balu was gazing at the blank wall worriedly.

Dadu: What happened Balu? You look worried!

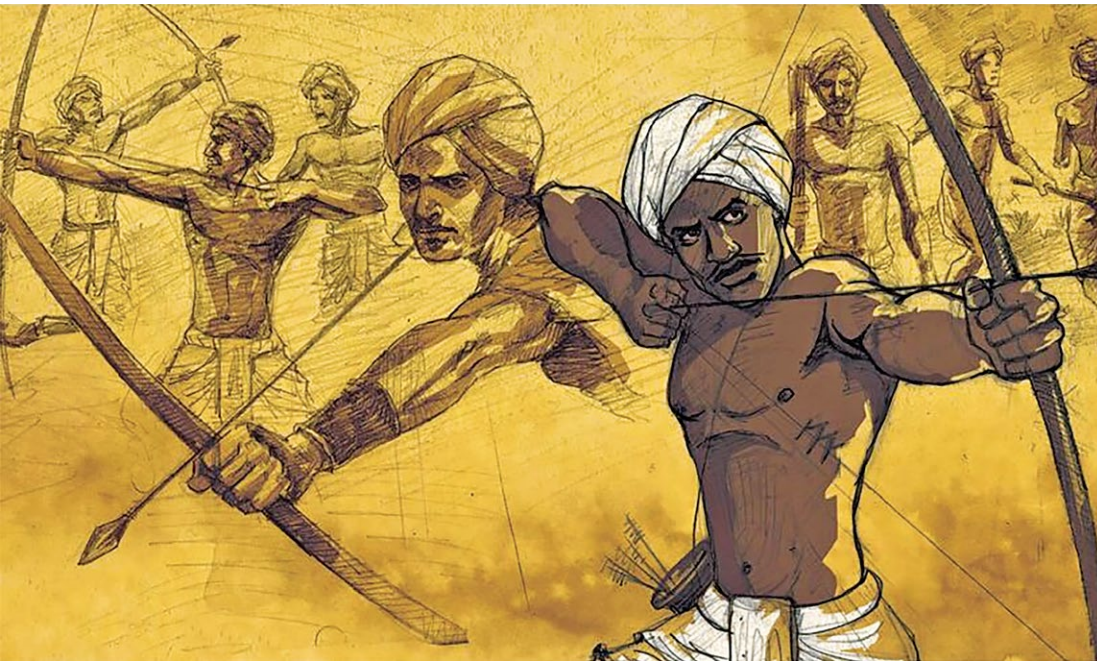
Balu: Dadu, next week we are celebrating Azadi ka Amrit Mahotsav at school. I must give a speech about an unsung hero of our freedom struggle.

Dadu: That sounds interesting... whom have you chosen?

Balu: Dadu, I'm clueless. Please help me out.

[A few hours later, Dadu tosses a newspaper on the table. Balu picks it up and notices a photo and reads...]





He relentlessly fought for independence till his death. Even his children attained martyrdom and became a symbol of patriotism. The story of Veer Buddha Bhagat is still alive in the folklore of Jharkhand.

Balu: Buddha Bhagat, who is he?

Dadu: He is one of those people whose legacy is less spoken about. He led a tribal revolt against the British Raj and also generated a sense of togetherness amongst his people.

Balu: Interesting! Go on, Dadu.

Dadu: Buddha Bhagat was born on 17th February 1792 in Silagain village, Jharkhand. He came from a farming family. Since his childhood, he had an intense dislike for the British and their rule over his territory. He wanted to involve himself in an armed struggle against them.

Balu: Dadu, then he must have been a skilled fighter and a horse rider!!

Dadu: Yes, he loved fencing and was a skilled archer. In 1832, he led the Larka rebellion and motivated the tribal people to fight against the British and zamindars. This completely shook the British authorities. The tribal army adopted guerrilla

warfare and used traditional weapons like axe, sword, bow and spear. The hit-and-run tactics of the Buddha soldiers inflicted heavy casualties among the British troops who were unaware of the terrain of the region.

Balu: [curiously] Then, what happened?

Dadu: Captain Impey served as the commander of the British forces then. The British called upon their forces to halt the spread of this rebellion.

They offered a prize of 1000 rupees to anyone who revealed Buddha's whereabouts. When British learned about his whereabouts, he decided to give up as the British would show no mercy and would exterminate the entire village.

Buddhu and his troops fought with their conventional weapons against the advanced weapons of the British. He relentlessly fought for the independence till his death. Even his children attained martyrdom and became a symbol of patriotism. The story of Veer Buddha Bhagat is still alive in the folklore of Jharkhand.

Balu [deeply moved]: So many unknown heroes have died for this great country!

Dadu: Yes, we owe these martyrs a debt of gratitude for giving us the freedom we are enjoying today.

Balu: Absolutely, Dadu. Jai Hind!



VIKRAMASHILA UNIVERSITY

In an age where students across the globe look up to universities like Harvard and Oxford for education, there was a time where they looked up to universities in India. Nalanda and Takshashila are the known ones. Added to this is another university which sprawled over more than 100 acres in the present day Bihar - the Vikramashila University.

It was founded by King Dharmapala of the Pala dynasty in the 8th century. His father Gopala was the founder of Odantapuri

University, another famous and reputed institution of that period. Vikramashila flourished for 4 centuries.

Situated on the bank of Ganga near Nalanda, this ancient university was home to a number of temples. It had a huge square monastery with a stupa in its centre, a library and cluster of votive stupas. There were six massive colleges, each with a large building in the centre. Vigyan Bhawan was the name given to the central structure. Six gates connected all the buildings.

Features

- One of the largest Buddhist universities.
- Housed more than 1000 students and 100 teachers.
- Produced eminent scholars who were invited by foreign countries. Most distinguished and eminent among all was Atisa Dipankara, the founder of Lamaism in Tibet.
- Subjects like theology, tantrism, vedas, philosophy, grammar, metaphysics, logic, astronomy etc. were taught here.

Organisation

Vikramashila had a clear hierarchy with five Buddhist Mahavihara running the university.

- Kulpati or Mahasthvir - University's highest authority chosen through election.
- 6 Dvārapāla or Dvārapandita - gate protectors or gate scholars.
- 6 Mahapandita - Great Scholars to manage the temples and the learning centre.
- 108 Pandita - Scholars.
- 160 Upādhyāya or Āchārya - Professors or Teachers.
- Adhyaksha - Abbot, head of the monks.
- Around 1000 Bhikshu - Resident monks.





GANGANI

Grand Canyon of Bengal



Location :

Garhbeta,
Paschim Medinipur

District: West Bengal

Best time to visit:

November to March

Soil type :

Laterite

Nearest Town :

Bishnupur

Even though we live in the age of technology, nothing can stop us in our tracks quite like the beauty of nature. One such sight is the Canyon of Gangani. The locals of the Gangani area believe it was the upheaval resulting from a fight between the demon Bakasura and the Pandava brother Bheema which dented the rocks, located in Garhbeta district. They provide the region's history over millions of years. Experts can get information about past climate changes, the flora and fauna that existed there and even potential future changes to the canyon by examining the exposed layers of rock in a canyon wall.

A canyon is a deep, narrow valley having steep sides, while a valley is a low area of land between hills or mountains, typically with a river or stream flowing through it.

The river Shilabati flows through this 70-foot gorge during the monsoons, but when it is dry, its true beauty is visible. The red clay walls have been naturally eroded into complex patterns that appear to be man-made in their accuracy. Recently, a staircase was carved out of the rock for easier access to the canyon's base and more exploration opportunities.

The lateritic surface weathered by the water channels and the wind over centuries, has eroded and is now home to a variety of formations, including sheer cliffs, earth pillars and caves that will bring to mind a few images from your geography textbooks. The colours of the formations range from red to yellowish brown depending on the state of erosion. At different hours of the day, especially during early morning and late afternoon, the rocks display colours, making it a picturesque landscape.



Sanskrit Scholar

Rutger Kortenhorst



Education enthusiasts in many countries across the world show interest in learning Sanskrit. Rutger Kortenhorst is one such educationist who has not stopped with learning Sanskrit, he is also teaching Sanskrit as a compulsory subject in his private school, John Scottus Senior School in Dublin, Ireland since its inception in 1986.

Rutger's journey with Sanskrit

- ▶ Read W.B. Yeats's (Irish Poet) translation of "The Ten principal Upanishads" when he was a college student.
- ▶ Studied **An introduction to Vedic Mathematics** written by Tirtha Sankaracharya. He noticed that there are 16 sutras written in Sanskrit to cover all Mathematics. Thus, he developed an interest in learning the ancient language.
- ▶ Became involved in Advaita Vedanta Philosophy in Ireland when he was 21 years old.
- ▶ A student and a voluntary teacher of Vedanta in Ireland for 39 years.
- ▶ Started focussing on spoken Sanskrit from 2005 and spent most summer holidays in India.
- ▶ As a guest of Dr Ramachandra Bhat in Veda Vijnana Gurukulam, Bengaluru (2006 & 2007) learnt Taittiriya Upanishad, Vyakarna, Vivekachudamani.
- ▶ Learnt spoken Sanskrit through Samskrita Bharati.(2008 – 2009).
- ▶ Was trained in a new method of teaching Sanskrit from Dr Narendra in Shri Aurobindo Ashram. He also published a short workbook to train students in Dublin under the guidance of Dr Narendra.

In one of his writings, Rutger says, "The first Bhagavad Gītā verse I ever learnt (17:15) was on the discipline of speech. This is copper-fastened into my memory forever. The sound of Sanskrit has a magical quality to warm the cockles of your heart every time."

This year, the government of India honoured him with the Padma Shri award for his dedicated work to propagate Sanskrit in Ireland. He was also bestowed with the ICCR (Indian Council of Cultural Relations) World Sanskrit Award 2020.



K V Narayani Teacher



K V Narayani walks 25 kilometres barefoot every day but nothing to stop her, neither rain nor shine, not even the changing syllabus.

KV Narayani, a teacher from Kasargod, a district in Kerala, has been taking tuition for the past 50 years to generations of children residing near her.

Fondly known as Narayani Teacher, she walks the streets of her district every day to multiple homes, where her students reside, to teach them as she believes “face-to-face” teaching is the most effective. Her day starts at 4:30 am, reaching her first student at 6:30 am and returns to her rented house in Cheruvathur only at dusk.

Aged 65, K V Narayani walks 25 kilometres barefoot every day with nothing stopping her, neither rain nor shine, not even the changing syllabus. The Covid Pandemic also was not a deterrent in the way of her imparting education to her students.

She is fluent in English, Hindi, Malayalam and Sanskrit; she has never attended college. She passed out of Class 10 in 1971. Her favourite subject was English.

In her unbroken career spanning 50 years, she has taught more than a 100 students. Walking barefoot is a practice she follows as part of her daily fasting in devotion to her deity.

With the money she earns from tuition, she supports herself and her bedridden husband. She hopes to buy and reside in her own home one day.

With years of experience, Narayani teacher receives glowing feedback from her students about her teaching and that they have always scored well in their exams.



NEEM

**A medicinal herb
from tip to toe**



Neem leaves ground into a paste can be applied for acne and skin allergies or infections. It is very effective in reducing the itching of skin.

Neem, native to our country is a magnificent tree with medicinal qualities endowed in all its parts. It is a deciduous tree which sheds its leaves in the winter. It has white fragrant flowers and oval shaped yellow fruits. It can grow in very dry climates and is resistant to drought.

All parts of the tree viz., fruit, seeds, leaves, stems and bark contain diverse substances with medicinal properties.

Leaf

The widely used part of the neem tree are the neem leaves. Neem leaf and its constituents



have been demonstrated to exhibit immunological, anti-inflammatory, anti-diabetic, antiulcer, antimalarial, antifungal, antibacterial, antiviral, antioxidant, antimutagenic and anti carcinogenic properties.

The leaves can be added to water for bathing and washing for disinfection. During viral

infections such as chickenpox and even during COVID-19, neem leaves have been found to be a very effective disinfectant with anti-viral properties.

Neem with turmeric in water can be a chemical-free sanitizer.

Neem leaves ground into a paste can be applied for acne and skin allergies or infections. It is very effective in reducing the itching of skin.

Flowers

Neem flowers are very effective for reducing blood pressure. They also act as an anti-diabetic herb. People with high BP or sugar levels can take neem flowers on alternate days in the form of rasam or powder.

Neem flower chutney powder with chillies can be taken with idly or dosa.



In south India, neem flowers are used for making rasam which is very good for health especially for preventing worms in children.



For Neem Flower Rasam



- ◆ Heat one tablespoon ghee in a pan and fry the neem flowers on low heat till they turn brown. Keep them aside.
- ◆ Now soak tamarind in 1 and 1/2 cups of warm water for 10 minutes. Extract the juice and discard the fibre.
- ◆ Take a medium size vessel and mix the tamarind juice, jaggery, tomato and salt in it.
- ◆ Add 1 and 1/2 cups of water into the mixture and let it cook for 10-15 minutes on low flame.
- ◆ Once the rasam froths up, add the fried neem flowers and turn the heat off immediately. Keep them aside.
- ◆ Use ghee to fry mustard seeds, asafoetida powder, dry chillies and curry leaves.
- ◆ When the mustard seeds crackle, add to the rasam mixture.

For Neem Flower Chutney Powder

- ◆ Dry roast, dried neem flower (1 cup), Urad Dal (1 cup), Dry Red Chillies – 18 to 20 (adjust as required), Bengal Gram Dal (1/2 cup), Toor Dal (1/2 cup), Asafoetida Powder (1 tsp) and Cumin Seeds (2 tbs) separately, until golden brown and remove.
- ◆ Allow them to cool.
- ◆ Combine them in a mixer.
- ◆ Add enough salt and grind to a coarse powder.
- ◆ Serve with idly or dosa.



Neem sticks are the most effective tooth brushes owing to their anti-bacterial properties.



Neem sticks

Neem sticks are the most effective brushes for brushing teeth owing to their anti-bacterial properties which prevents plaque and cavity formation. They can be used as such without any paste or powder.

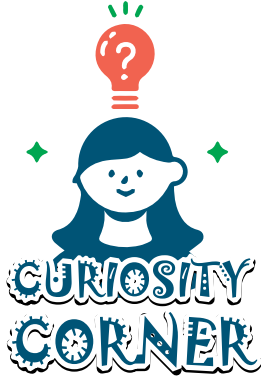


Neem oil

Neem oil is an effective insect, tick, lice and mosquito repellent.

There are many more medicinal values of this wonderful plant and one small chapter is not sufficient to cover them.





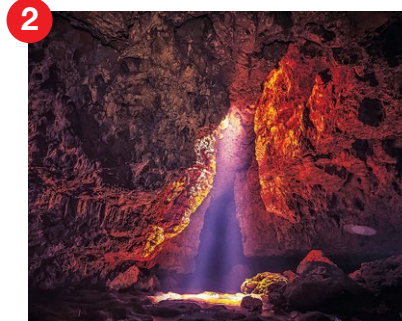
Fascinating Caves in India

Caves have always allured historians, scientists and tourists alike. Many Indian caves are recognized as UNESCO world heritage sites for their architectural and artistic splendour.

Find out these !



They are considered masterpieces of Buddhist religious art that have had a great influence in the development of art in India.



The longest natural cave in India.



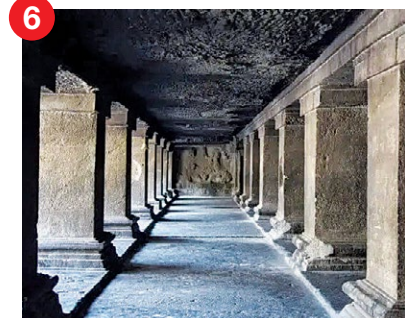
It is also known as Arivar Koli



It is believed that Buddha meditated here.



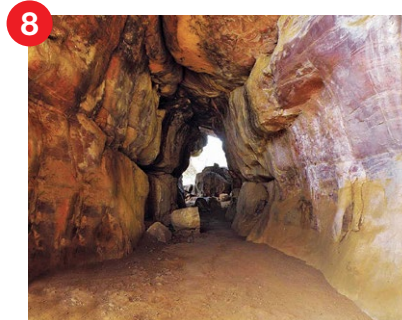
Claimed to be the second longest cave system in India.



Carved out of a single rock and architecturally flawless.



These caves date back to the Gupta Period around 350-550 CE

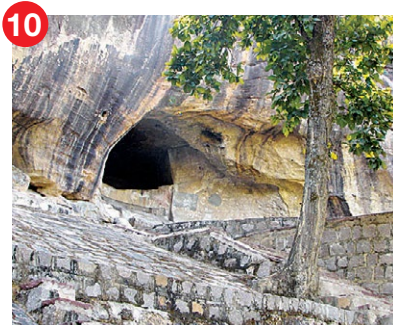


These caves display the earliest artworks of mankind.



According to Hindu puranas, this is the cave where Shiva explained the secret of life and eternity to his divine consort Parvati.





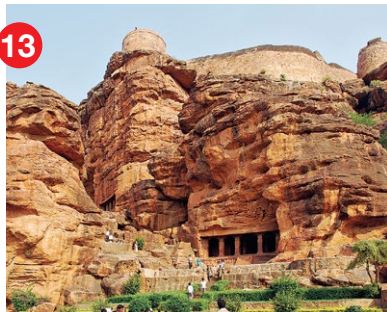
10 It is situated in the dense forests of Chhattisgarh.



11 It is located in the Kanger Valley National Park of Bastar



12 These caves are rock-cut. Dating back to the time of the Mauryan Empire.



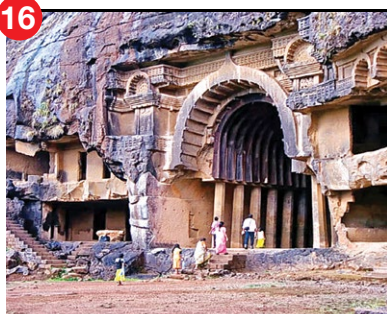
13 Made of red sandstone and one of the most exemplary examples of Indian rock-cut architecture.



14 Located in Tamil Nadu and is listed as a UNESCO World Heritage site.



15 A naturally formed Shiva Lingam here makes these caves venerable by the tribal people inhabiting the villages around the caves.



16 Located near the famous hill station of Lonavala in Maharashtra.



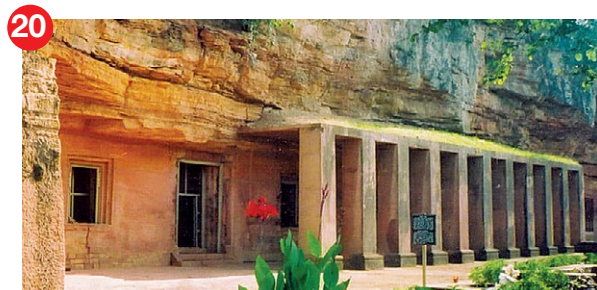
17 They are believed to be founded by King Rituparna in Treta Yuga.



18 The second largest natural caves in the Indian subcontinent.



19 These caves are carved out of hills.



20 It is believed that these caves were built by Buddhist monk Dataka in late 4th - 6th century CE.

Answers on page 65





G.N. Ramachandran

The forgotten Indian scientist

He developed the famous "Ramachandran plot" a blueprint for determining the structure of peptides and other bio molecules.

Scientists are special in their pursuit of new knowledge in laboratories. Patience, observation, intuition, respect for natural laws and unbridled optimism keep them going. Their inventions, discoveries and solutions are rarely in isolation. They are usually built on some earlier step and they in turn set the bar a little higher for the next of their kind to work and ponder on. While some achieve great success, accolades, some leave their marks quietly and some unfortunate greats are forgotten. Dr G.N Ramachandran (GNR) was one.

Dr G.N. Ramachandran (GNR) was an Indian physicist, an international authority on X-ray crystallography. He developed the famous "Ramachandran plot"

a blueprint for determining the structure of peptides and other bio molecules. GNR was born on 8th October to G.R Narayana Iyer, a professor of mathematics at Maharaja college in Ernakulam.

Education

GNR did BSc (Hons) physics from St. Joseph College, Trichy where he stood first. He joined IISc (Indian Institute of Science) Bengaluru and pursued electrical engineering. Nobel Laureate Sir C.V.Raman, the then director of IISc, noting his talent persuaded him to pursue physics. Later his examiner K.S.Krishnan, another giant of IISc, opined that GNR's MSc thesis deserves at least two doctorates. GNR received his DSc in just 3 years in the year 1947.



in the prestigious journal Nature after a long delay. The editor of the journal flouting all ethics had it sent to Crick (the discoverer of double helix structure of DNA). Crick quickly published a double helix model of collagen only to be proved wrong later.

GNR and Linus Pauling: Two-time Nobel winner Linus Pauling thundered about the amazing Triple Helix model when he visited Madras in 1968. That was when GNR proposed to him about the “Ramachandran Plot” for the possible structures of all bio molecules.

“GNR did not miss the Nobel Prize but the Nobel Prize missed a great scientist.”

He went on to Cavendish labs of Cambridge University where he received his second doctorate in just two years.

Lakshmanaswamy Mudaliyar , the then Vice Chancellor of Madras University invited Sir C.V Raman to start a department of experimental physics. Sir C.V.Raman in turn recommended GNR describing him thus “as good as me if not better”.

GNR and Triple Helix structure for collagen: Prof. Bernal visited Madras during 1952 and coaxed GNR to work on the structure of collagen. GNR and his scholar Gopinath Kartha proposed a Triple Helix structure model in just 2 years and had it published

Awards and Recognitions

Fellow of the Royal society of London, Ewald Award from the International Union of Crystallography came his way. But the Nobel prize eluded him due to unfair political lobbying.

Dr G.N Ramachandran the genius passed away on April 7th 2001 due to prolonged illness. A publication remarked,

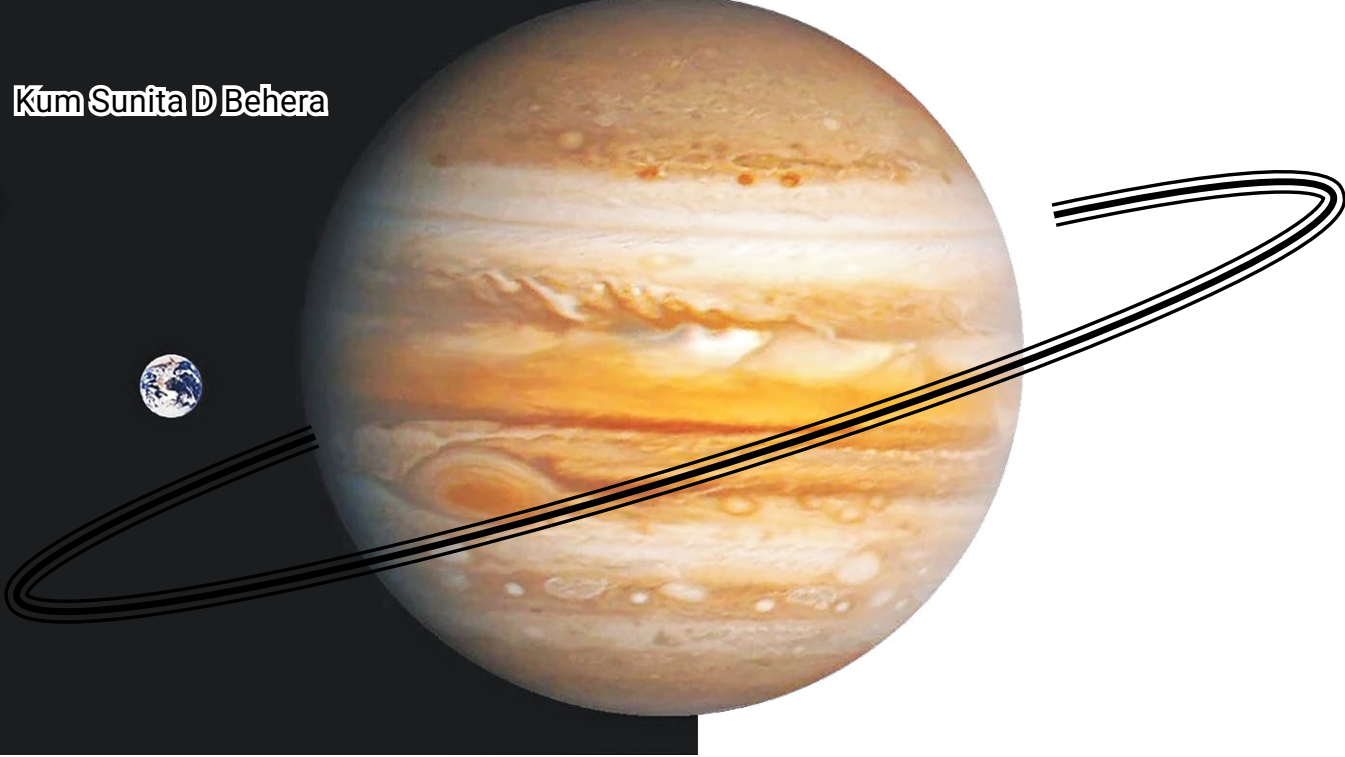
“GNR did not miss the Nobel Prize but the Nobel Prize missed a great scientist.”

How befitting!!

ANSWERS of page 62 & 63

- | | | |
|-------------------|--------------|-----------|
| 1. Ajanta Ellora | 8. Bhimbetka | 15. Borra |
| 2. Krem Liat Prah | 9. Amarnath | 16. Karla |
| 3. Sittanavasal | 10. Jogimara | 17. Patal |
| 4. Dugeswari | 11. Kutumsar | 18. Belum |
| 5. Krem Kotsati | 12. Barabar | 19. Tabo |
| 6. Pataleshwar | 13. Badami | 20. Bagh |
| 7. Udayagiri | 14. Varaha | |





Jupiter's closest approach to Earth in 59 years

The biggest planet in the Solar System, Jupiter, appeared closer than ever to Earth on 26th September 2022, its closest since 1963. This phenomenon called the "Opposition" is a yearly occurrence when Jupiter rises in the east at the same time as the Sun sets in the west putting the Sun, Earth, and Jupiter directly in line with each other.



This year's Opposition brought Jupiter closer to Earth by approx.

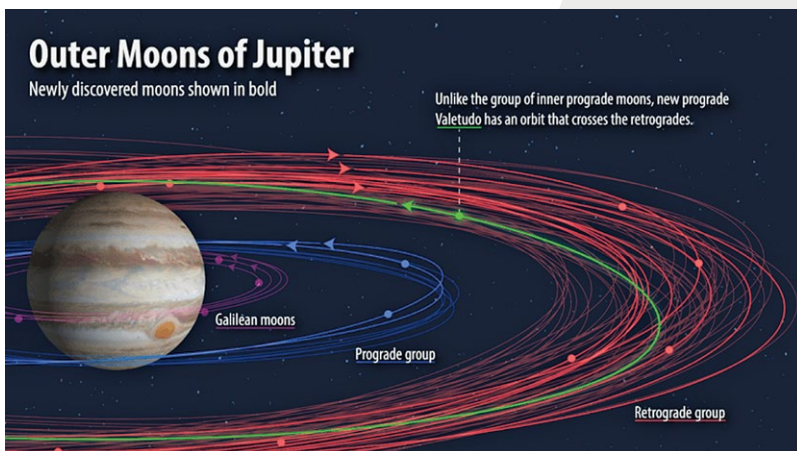
590 million km which might seem like a long distance but in comparison to the greatest distance of approx. 960 million km between the planets, it appears closer.

Next year's "Opposition" can be seen on 3rd November 2023.

Stargazers and enthusiastic planet watchers around the world were told to use large telescopes to view the massive gaseous planet up close, especially the iconic "Giant Red Spot," which is a giant storm bigger than the Earth, raging for hundreds of years.

While Jupiter has the shortest day in the solar system consisting of just 10 hours, it takes about 12 Earth Years to make a complete orbit around the Sun.

Of the dozens of moons surrounding the Planet, **Europa** is its most famous for the speculation and research surrounding the discovery of life on it.



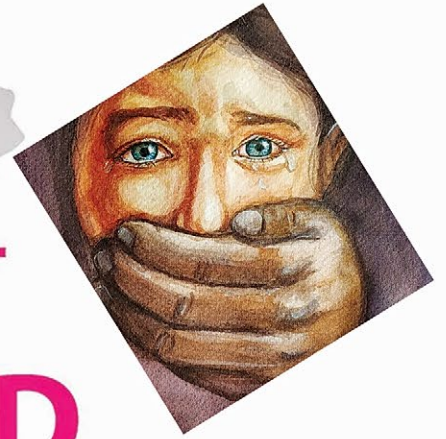


There is nothing more important in life than mental health. . . . Take good care of it.

Give attention and love to those who suffer from depression

**BE
KIND
TO
YOUR
MIND!**

“If you are broken, you do not have to stay broken.”



INTERNATIONAL DAY OF THE GIRL CHILD

————— OCTOBER 11 —————

*Little girls with dreams become
strong women with vision!*

.....
May this world become a safer
and happier place for a girl child
to live happily in!

.....
Give a girl the right shoes,
and she can conquer the world!

