

NEWSPAPER HIGHLIGHT

Neurons, or nerve cells, in the brain connect by means of junctions known as synapses through which they transmit signals. Recent work by researchers at the National Centre of Biological Sciences, Bengaluru, has thrown light on what stimulates these synapses to form. There are two types of synapses – chemical and electrical. In chemical synapses, there is a space of about 20 nanometres between two neurons. As far as the electrical synapse goes, this is not the way it operates. In these synapses, the two neurons have a physical connection and the conversion of electrical to chemical need not occur, and they communicate directly. Electrical synapses are like a physical wire, communication is faster but they are also fewer in number.

Scientists say there would be no oxygen on Earth were it not for sunlight: the key component in photosynthesis. Now researchers from University of Southern Denmark have discovered that oxygen is also produced without sunlight, possibly deep below the ocean surface. Researchers have discovered that some of the invisible microorganisms living in water columns produce oxygen in an unexpected way. Ocean living microbe *Nitrosopumilus maritimus* and its cousins, called ammonia oxidising archaea play an important role in the nitrogen cycle. For this, they need oxygen. So it has been a longstanding puzzle why they are also very abundant in waters where there is no oxygen. The researchers found that these microorganisms make their own oxygen.

Astronomers have imaged the explosive death of a red super giant star, watching it sizzle for 130 days after which it formed a supernova. The star is located in NGC 5731, a galaxy about 120 million light years away from Earth. This discovery was published in The Astrophysical Journal.

Bacterial biofilms have been found to form complex patterns. Scientists writing in Cell discovered this feature, observed earlier only in higher plants and animals. This suggests cell patterning during development is more ancient than known. Biofilms pervade a range of areas – medicine to food industry.

When elderly people exercise, their

COLLAPSE OF MAYA CIVILISATION

1.A new study has unveiled the mystery behind Maya civilisation's sudden fall from glory. The new study has revealed that the long suspected theory that drought pushed Maya people towards starvation is not correct. **It says that the Maya civilisation may have had access to nearly 500 edible plants, many of which were highly resistant to drought. The new study made a list of 497 indigenous food plants of the Maya lowlands.**

2.These plants have been identified through paleoethnobotany. [Paleoethnobotany is a branch of science dealing with behavioural and ecological interactions between past humans and plants.] Next, they examined the drought tolerance of the 497 plants under 3 different scenarios: Short-, medium- and extreme-drought. They found that even in the most extreme drought situation, 59 species of edible plants would still have persisted.

3.The Maya people could have turned to chaya and cassava to meet their carbohydrates and protein needs. Still, the question of what drove the downfall of the Maya civilisation remains unanswered. This study think social and economic upheaval likely played a role.

4.Maya Civilisation-The Maya civilisation originated in the Yucatan Peninsula. This civilization was a Mesoamerican civilization developed by the Maya peoples. They are noted for its logosyllabic script as well as for its art, architecture, mathematics, calendar, and astronomical system. [Logosyllabic script is the most sophisticated and highly developed writing system in pre-Columbian Americas.]

5.**Known for its monumental architecture and an advanced understanding of mathematics and astronomy, it flourished between 600 and 800 AD. But then, suddenly, between 800 and 950 AD, many of the southern cities were abandoned.** This period is called the collapse of the Classic Maya civilisations.

DRAFT NATIONAL AEROSPORTS POLICY 2022

1.The Ministry of Civil Aviation releases draft 'National Air Sports Policy (NASP)' for public feedback. NASP 2022 covers sports like aerobatics, aeromodelling, amateur-built and experimental aircraft, ballooning, drones, gliding, hang gliding and paragliding; microlighting & paramotoring; skydiving & vintage aircraft.

2.**It seeks to leverage India's huge potential for air sports given its large geographical expanse, diverse topography and fair weather conditions.** The vision is to make India one of the top air sports nations by 2030. The mission is to provide a safe, affordable, accessible, enjoyable and sustainable air sports ecosystem in India.

3.Air Sports Federation of India (ASFI) will be established as the apex governing body. Associations for each air sport will handle day to day activities. These air sports associations shall be accountable to ASFI.

4.ASFI shall represent India at Fédération Aéronautique Internationale (FAI) and other global platforms related to air sports. [Headquartered in Lausanne, Switzerland, the FAI is the world governing body for air sports.]

QUITO ADJUSTMENT

1.In 2018, the Quito Adjustment is the adjustment made to the Montreal Protocol. It aims high to avoid 1°C of future warming. In this, the decision to strengthen enforcement mechanisms of this accord in response to an unexpected rise in global emissions of the banned chemical trichlorofluoromethane or CFC-11 was adopted.

2.Practical arrangements were made to implement the Kigali Amendment by approving technologies for destruction of substances controlled under the Protocol & adopting new data reporting requirements.

BINARY STAR

1.Binary stars are pair of stars in orbit around their common

brains produce more of a class of proteins that enhance their synapses. A study, published in Alzheimer's & Dementia, discovered this effect and found that it went beyond the hippocampus, the brain's seat of memory, to encompass other parts of the brain involved in cognition.

A team of climate scientists has reconstructed the conditions of the warm period, the Eemian interglacial (125,000 years ago), from sediment samples taken from the Humboldt Current System off Peru. They showed that warming could favour the existence of small, go by like fishes and cause larger fishes like the anchovy that are useful as food to vanish.

Maldives and China on Saturday signed key bilateral agreements during Chinese Foreign Minister Wang Yi's visit, on developing and maintaining infrastructure in the Indian Ocean archipelago, besides agreeing on a visa free travel arrangement for Maldivians intending to travel to China. Mr. Wang's visit will be watched closely by New Delhi, which has maintained frequent contact with the Solih government that openly pursues an 'India First' foreign policy.

U.S. Trade Representative Katherine Tai on Friday expressed strong U.S. support for Lithuania and the European Union in the face of "economic coercion" from China.

In a partial relief for 1,086 employees of General Motors India who had been laid off in July 2021, the Industrial Court in Pune has directed the Indian unit of the American auto major to pay 50% of the monthly salary to each employee till final disposal of the case. "I hold that the complainant [General Motors Employees Union] has made out prima facie case of unfair labour practice," the court's presiding officer said in an interim ruling. "In these circumstances, if interim relief of partial wages is not granted, then employees will suffer irreparable loss and there will be hardship to them," the court observed.

The Directorate General of GST Intelligence (DGGI) issued 158 show-cause notices for tax evasion, amounting to ₹9,359 crore in the six years to FY21, but does not maintain a record of the outcome of those cases, a reply to an RTI query has revealed.

Several high profile Ethiopian Opposition figures were tasting freedom after the government granted a surprise amnesty for prominent political detainees, including Tigrayan party leaders. The government said the move was

centre of gravity. A high proportion, perhaps one-half, of all stars in the Milky Way Galaxy are binaries or members of more complex multiple systems.

2.The brighter star is officially classified as the primary star, while the dimmer of the two is the secondary (classified as A and B respectively). In cases where the stars are of equal brightness, the designation given by the discoverer is respected. Our Sun is a solitary star. Although binary stars are sometimes called double stars, the latter refers to any two stars that are close together in the sky. Thus, double stars include true binaries as well as stars that look close together when viewed from Earth but which are actually quite far apart.

3.Classification-Wide Binaries are stars that have orbits that keep them spread apart from one another. These stars evolve separately, with very little impact from their companions. They may have once contained a third star, which booted the distant companion outward while eventually having been ejected themselves. Close Binaries evolve nearby, able to transfer their mass from one to the other.

4.The primaries of some close binaries consume the material from their companion, sometimes exerting a gravitational force strong enough to pull the smaller star in completely. Visual Binaries - Two stars with a wide enough separation that both can be viewed through a telescope, or even with a pair of binoculars.

EMERGENCY CREDIT LINE GUARANTEE SCHEME(ECLGS)

1.According to the SBI Research report on ECLGS: The scheme has saved 13.5 lakh firms from going bankrupt and consequently 1.5 crore jobs. In absolute terms, MSME loan accounts worth Rs 1.8 lakh crore were saved. Almost 93.7 per cent of such accounts are in the micro and small category. Amongst the states, Gujarat has been the biggest beneficiary, followed by Maharashtra, Tamil Nadu and Uttar Pradesh.

2.About the scheme: **The scheme was launched as part of the Aatmanirbhar Bharat Abhiyan package announced in May 2020 to mitigate the distress caused by coronavirus-induced lockdown, by providing credit to different sectors, especially Micro, Small and Medium Enterprises (MSMEs).** 100% guarantee coverage is being provided by the National Credit Guarantee Trustee Company, whereas Banks and Non Banking Financial Companies (NBFCs) provide loans. The credit will be provided in the form of a Guaranteed Emergency Credit Line (GECL) facility. No Guarantee Fee shall be charged by NCGTC from the Member Lending Institutions (MLIs) under the Scheme. Interest rates under the Scheme shall be capped at 9.25% for banks and FIs, and at 14% for NBFCs.

3.Eligibility: In August 2020, the scheme was extended to Mudra borrowers and Individual loans for business purposes. On Nov 20, the scheme was extended through ECLGS 2.0 for 26 sectors identified by the Kamath Committee and for the Health Care sector up to Mar 21, for entities with outstanding credit of above Rs.50 crore and not exceeding Rs.500 crore.

4.Benefits of the scheme: **The scheme is expected to provide credit to the sector at a low cost, thereby enabling MSMEs to meet their operational liabilities and restart their businesses.** By supporting MSMEs to continue functioning during the current unprecedented situation, the Scheme is also expected to have a positive impact on the economy and support its revival.

CHEETAH REINTRODUCTION PROJECT

1.The Government is preparing to translocate the first batch of eight from South Africa and Namibia to Kuno National Park in Madhya Pradesh soon after the situation linked to the current third wave of Covid-19 becomes normal, and total 50 in various parks over a period of five years.

2.In this regard, the Union Minister for Environment, Forests and Climate Change has launched the 'Action Plan for Introduction of Cheetah in India' under which 50 of these big cats will be introduced in the next five years. The action plan was launched at the 19th meeting of the National Tiger Conservation Authority (NTCA).

3.Reintroduction' of a species means releasing it in an area where it is capable of surviving. Reintroductions of large carnivores have increasingly been recognised as a strategy to conserve threatened species and restore ecosystem functions. The cheetah is the only large carnivore that has been extirpated, mainly by over-hunting in India in historical times.

designed to promote “national dialogue” and follows a dramatic shift in fortunes in the brutal 14 month war between forces loyal to Prime Minister Abiy Ahmed and the rebel Tigray People’s Liberation Front (TPLF).

India now has the economic ability to consider restoring its lost natural heritage for ethical as well as ecological reasons.

4.The cheetah, *Acinonyx jubatus*, is one of the oldest of the big cat species, with ancestors that can be traced back more than five million years to the Miocene era. The cheetah is also the world’s fastest land mammal. It is listed as vulnerable in IUCN red listed species. The country’s last spotted feline died in Chhattisgarh in 1947. Later, the cheetah — which is the fastest land animal — was declared extinct in India in 1952. The Asiatic cheetah is classified as a “critically endangered” species by the IUCN Red List, and is believed to survive only in Iran.