

KSG: NEWSPAPER CRUX

28TH AUGUST 2022

NEWSPAPER HIGHLIGHT

In his Nobel lecture, Sir Alexander Fleming, who was awarded the Prize for the discovery of penicillin, had a profound warning. "The time may come when penicillin can be bought by anyone in the shops," he said. "Then, there is the danger that the ignorant man may easily underdose himself and by exposing his microbes to non-lethal quantities of the drug make them resistant." Within a century of his prophecy, the time has come. Our reckless use of antibiotics, including penicillin, has given rise to bacteria, viruses, fungi and parasites that have become resistant to commonly used antimicrobials. What is more concerning is that these microbes are evolving faster than we can invent drugs to tackle them. Our stash of antimicrobials is drying up while more drug resistant 'superbugs' are evolving and taking over the world.

The accepted view of Mars is red rocks and craters as far as the eye can see. That's much what scientists expected when the rover Perseverance landed in the Jezero Crater, a spot chosen partly for the crater's history as a lake and as part of a rich river system. But what the rover found once on the ground was startling. Rather than the expected sedimentary rocks — washed in by rivers and accumulated on the lake bottom — many of the rocks are volcanic in nature. Specifically, they are composed of large grains of olivine, which are green in colour.

Of the nearly 3,000 species of mosquito, a handful are choosy and will only target people for their blood. Some of these, for instance, *Aedes Aegypti*, *Anopheles* and *Culex* are well known as vectors for diseases such as dengue, malaria and West Nile fever. How these species are specifically able to detect humans — and often from as many as 50 metres away — has intrigued scientists.

Every cell that makes up an organism contains a copy of its genome. This genome is packaged in special ways with the help of a structure known as the nuclear matrix. The nuclear matrix gives an organisation and architecture to the nucleus. Now, using a novel method, a group of researchers from CSIR-Centre for Cellular and Molecular Biology, Hyderabad (CCMB) and Tata Institute for Genetics and Society, Bengaluru (TIGS), have established a way of studying the nuclear matrix

CRITICAL INFRASTRUCTURE

- 1.The Department for Promotion of Industry and Internal Trade (DPIIT) reviews 40 critical Infrastructure Projects across India. Critical infrastructure is the body of systems, networks and assets that are so essential that their continued operation is required to ensure the security of a given nation, its economy, and public's health and/or safety.
- 2.National Critical Information Infrastructure Protection Centre- In 2014, this Centre was created by the Government of India under the Section 70A of the Information Technology Act, 2000. It is designated as the National Nodal Agency in respect of Critical Information Infrastructure Protection.
- 3.Vision - To facilitate safe, secure and resilient Information Infrastructure for Critical Sectors of the Nation. National Critical Information Infrastructure Protection Centre has identified the following as 'Critical Sectors'. Power & Energy Banking, Financial Services & Insurance. Telecom. Transport. Government Strategic & Public Enterprises.

CSA6 GENE

- 1.The newly identified gene '**CSA6**' from the fungus *Candida albicans* could be clue to treat the fungal infection '**Candidiasis**' in immuno-compromised patients. **Candidiasis is a fungal infection that may affect ICU patients, cancer patients, and those on immunosuppressive therapy.**
- 2.A set of six chromosome stability (CSA) genes have been identified to be most important for maintaining genome integrity of the *C. albicans*. While five of these CSA genes are known to be important for cell division in other species, the sixth CSA gene, named CSA6 encoded for a protein that is essential for viability in *C. albicans*.
- 3.The CSA6 gene is a critical regulator of cell cycle progression wherein both over expression and deletion of Csa6 can lead to the reduced growth of *C. albicans* cells. This gene is the novel regulator of chromosome stability. Small molecule modulators that alter expression levels of the Csa6 gene offer potential avenues for treatment with no side effects in humans.

AFRICAN RHINOCEROS

- 1.A report compiled by the IUCN, Species Survival Commission (SSC), African and Asian Rhino specialist groups and TRAFFIC noted that Rhino poaching rates in Africa declined from 3.9% (2018) to 2.3% (2021). There are two African rhino species, Black Rhino and White Rhino. They have both increased in number in recent years thanks to successful conservation efforts, especially in South Africa.
- 2.The most notable difference between white and black rhinos is their lips. While the Black rhinos have hooked upper lip, the White Rhino has a square lip. Threat - Huge surge in poaching to meet demand for illegal rhino horn. **White Rhino-White rhinos (*Ceratotherium simum*) are the second largest land mammal after the elephant.**
- 3.White rhinos are also known as the square-lipped rhinoceros due to their square (not pointed) upper lip. Two genetically different subspecies exist, the northern and southern white rhino and are found in two different regions in Africa.
- 4.Habitat - Long and short grass savanna areas in grasslands. Black Rhino Black rhinos (*Diceros bicornis*) are the smaller of the two African Rhinos. Black rhinos are browsers rather than grazers. They have two horns, and occasionally a third, small posterior horn. Habitat - Semi-Desert Savannah, Woodlands, Forests, Wetlands.

PUTTASWAMY AND THE FADING PROMISE OF A RIGHT

- 1.Marking five years since a nine-judge Bench of the Supreme Court of India delivered a crucial judgment in the case of Justice K.S. Puttaswamy (retd.) vs Union of India. Justice K.S. Puttaswamy (retd.) vs Union of India case(2017): It formally recognised the right to privacy as being a fundamental right stemming from the right to life and personal liberty, guaranteed under Article 21 of the Indian Constitution. While the right to

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of the fruit fly (*Drosophila melanogaster*) without removing the nucleus from the embryo. This allows comparative study of nuclear matrix in different cells within the embryo, giving a boost for fruit fly genetics.

The most powerful rocket ever built will soon launch, carrying the Orion capsule that NASA hopes will soon transport astronauts back to the Moon. If all goes as planned, NASA's Space Launch System (SLS) will launch on August 29, fly around the Moon. The rocket will return to Earth 42 days later, the farthest that any spacecraft has ever travelled.

DNA extracted from ancient human teeth indicates that herpes simplex virus 1 (HSV-1) — the cold-sore virus — was first seen in what is now Europe around 5,000 years ago. Changing cultural practices during the Bronze Age — including the emergence of romantic kissing — could have factored into HSV-1's meteoric rise.

More than two years after patients have been reported to suffer from Long COVID, the U.S. has unveiled a research plan to understand, prevent, and treat the broad range of persistent and sometimes debilitating disease symptoms. Long COVID is now known to affect 5% to 30% of people globally after initial SARS-CoV-2 infection.

For a very long time, non-nutritive sweeteners have been promised to deliver all the sweetness of sugar with none of the calories. They are believed to have no ill effect on the human body. But researchers have found that sugar substitutes are not inert. In fact, some can alter human consumers' microbiomes in a way that can change their blood sugar levels.

Monkeypox cases in some U.S. cities appear to be declining, but experts are cautiously optimistic the outbreak may have peaked in places hit hardest by the virus in the country. The WHO, earlier on Thursday, said monkeypox cases reported globally declined by 21% last week, after a monthlong trend of rising infections, but noted that U.S. cases continued to rise.

Farewell ceremonies for retired judges usually have the country's top law officers wish them on behalf of the government a "healthy and peaceful" retirement. Now the government seems bent on fulfilling the wish. On Friday, the Centre

privacy is intrinsic to an individual's ability to exercise bodily autonomy, it is still not an "absolute right".

2. Issues still persist—Data security breaches which result in the loss and theft of personal, sensitive data have not reduced in terms of measurable frequency or their impact. Procurement of personal information: Any person or business within and outside India can procure personal information. Usage of data by companies: Data is used most often by some legitimate advertising agencies, unscrupulous telemarketing firms, and cybercriminals.

3. Use of Pegasus spyware on Indian nationals: Alleged use of the Pegasus spyware in India. Access to VPN services: The recent interventions by the Government which aim to restrict Indian nationals from subscribing to and accessing VPN services. The Personal Data Protection Bill, 2021: despite how flawed it may have been, was withdrawn earlier this month after an unnecessarily long period of stagnation.

INDIA VOTES AGAINST RUSSIA IN UNSC

1. India for the first time voted against Russia during a "procedural vote" at the UNSC on Ukraine, as the 15-member powerful UN body invited the Ukrainian.

2. Key Highlights: Procedural vote: In response to Russia's request, a procedural vote was held in which out of 15 members of UNSC, 13 voted in favour of allowing Zelensky to address the council while Russia voted against it and China decided to abstain. Abstain from signing the document: India did not sign a document at the UN premises against Russia that was sponsored by the West and had the backing of about 60 countries.

3. **Joint anti-Russian statement: It was supported by only 58 United Nations member states or less than a third of the organization's 193 members. India was not a party to this joint statement.** Filtration operation: The US voiced concern about Russia's "filtration operation", which involves the systematic and forced deportation of Ukrainian civilians to remote areas of the Russian Federation.

4. India's Stand on Russia-Ukraine Crisis: Neutral stand: India has maintained a neutral stand against Russia amid the ongoing military operations in Ukraine. Diplomacy and dialogue: India has repeatedly reiterated its stand against the Russian and Ukrainian sides to return to the path of diplomacy and dialogue.

INNOVATIVE SOLUTION AGAINST URBAN HEAT ISLAND/HEAT WAVES

1. Urban areas are constantly feeling periods of extreme heat, leading to the development of urban heat islands (areas in the cities that are even hotter than their surrounding areas) 'Cooling Singapore' (2017 project) to build a computer model, or digital urban climate twin, of Singapore. This has helped policymakers take corrective micro-level alterations for heat resilience. e.g. use of district-level cooling rather than inefficient individual air conditioning condensers.

2. Wind Garden in Madrid (Spain): It is a spiral structure made of mosses and ferns, which catches the cool breeze above tree tops and draws them down to cool gardens and streets, acting like a giant air conditioner. It could lower the surrounding temperature by 4 degrees C.

3. 'Cool roofs' feature bright coatings to reflect more sunlight and absorb less heat.

4. 'Sponge cities' (China): It has transformed hard surfaces, such as roads and pavements, into permeable surfaces that can absorb, seep, purify and store water and thus also lower surrounding temperatures.

GENDER PARITY ACCELERATOR

1. As per the Global gender gap report 2022, at the current rate of change, it would take 151 years to close the global economic gender gap.

2. **The gender economic/pay gap is the average difference between the remuneration for men and women who are working. Working: Gender Parity Accelerator of World Economic Forum enables countries to exchange insights and experiences as well as give 3-year timelines for CEOs and**

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amended the Supreme Court Judges Rules the second time in a week to provide chauffeurs and domestic help for retired Chief Justices of India and Supreme Court judges for their entire lifetime. Retired CJIs would also get secretarial assistants. The staff would be paid the salary and allowances of regular employees of the Supreme Court.

government ministers to close the economic gender gap in their respective countries.

3.Result: E.g. The Accelerator has helped enhance the quality of work for 7% of salaried employees in Chile's private sector (more than 1.3 lakh women).