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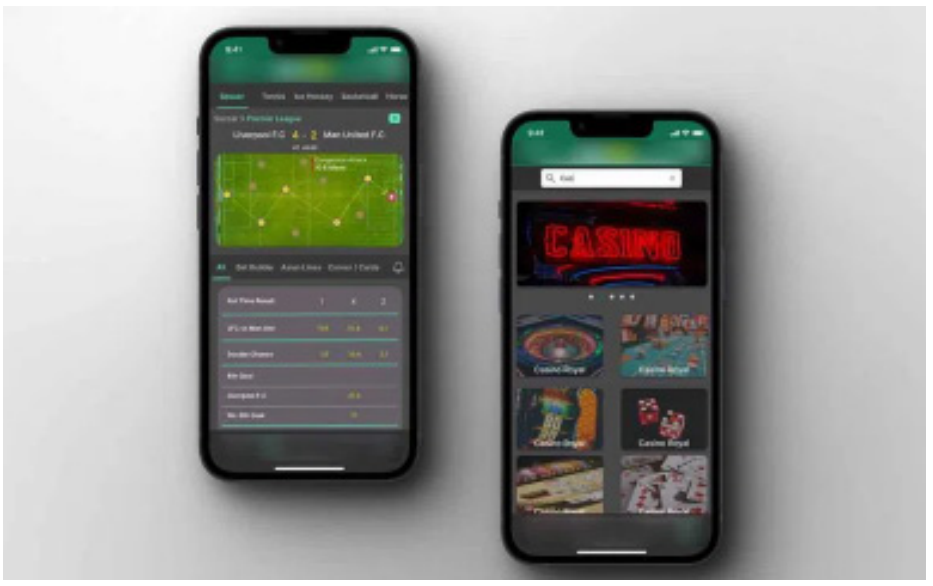
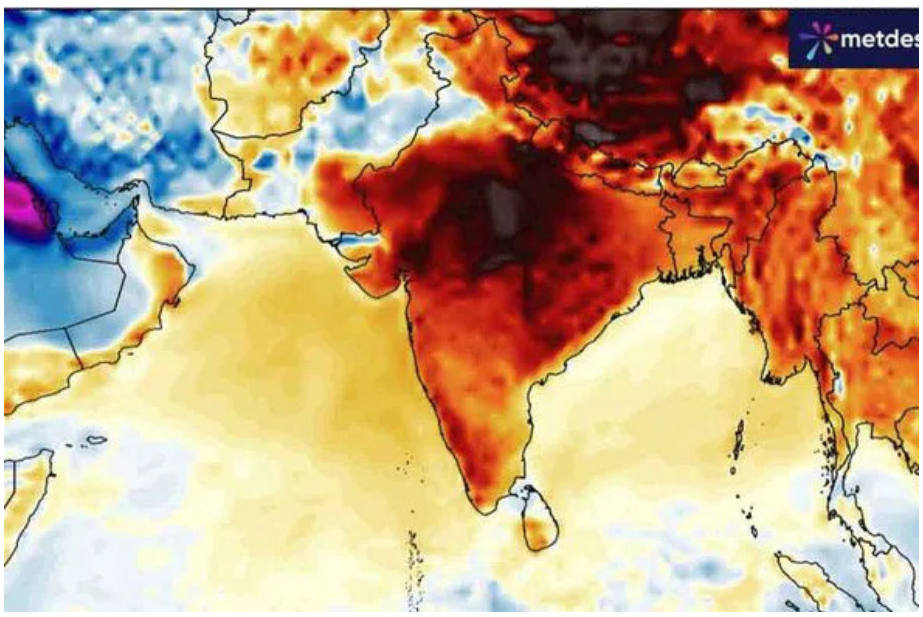
# Social media influencers create negative impact with online betting, game app promotions

Hyderabad: Some influencers on YouTube and Instagram are misleading people by promoting online betting apps through their social media accounts. With many youngsters ending their lives after losing money to online betting and games in recent time, concerns are being raised on such unhealthy practice.Recently, a YouTuber who posted videos promoting a betting app was arrested by the Andhra Pradesh police. The Telangana government has already banned online betting and gaming. Although this is the only incident that has recently come to light, several hundreds of people continue promoting betting and fake job offers and investment advertisements.Influencers are gaining popularity by increasing their followers on social media with interviews and funny videos. So far, it was good, but some people who are eager to make money are promoting betting apps and websites.In some instances, they post clips of newly released movies and web series containing adult content as bait. To watch the entire video, the followers are instructed to click on the link in the bio. If you click on it, you will be directed to a Telegram group. Sometimes malware and data-collecting apps created by cybercriminals are downloaded on phones.Recently, the Telangana Cyber Security Bureau had busted a job fraud racket where job aspirants who fell trap to such false job propaganda ended up getting trapped by cybercrime crooks in Cambodia.The Ministry of Information and Broadcasting has issued a warning to endorsers and social media influencers against the promotion of offshore online betting and gambling platforms.The advisory explicitly instructs social media influencers and celebrities to avoid promoting or advertising these offshore platforms, including surrogate advertisements.The advisory leverages Section 79 of the IT Act, 2000, emphasizing the legal obligation of intermediaries to remove or disable access to unlawful content promptly.Meanwhile, the state government has already banned online betting and gaming. Anyone playing or encouraging online games can be booked. It is prohibited to promote betting online and on social media platforms.Failure to adhere to these guidelines may trigger proceedings under the Consumer Protection Act, 2019. This could include the removal or disabling of social media posts or accounts and further penal action under applicable statutes.The police are found to be taking action against those responsible only when there is controversy or the video becomes viral on social media.Senior IPS officer and TGSRTC Managing Director VC Sajjanar raised concerns about the harmful impact of online betting apps, stating that they were ruining many lives.“Social media influencers are requested to refrain from promoting these platforms for personal gain. Innocent people are falling victim to the online betting epidemic due to videos shared by influencers claiming that users can become millionaires overnight. These individuals are destroying their bright futures,” he said.




# Telangana braces for hotter than usual March




Hyderabad: The month of March could be unusually hotter than previous years with temperatures consistently touching 40 degree Celsius and heat wave like conditions prevailing. Such conditions are expected not only in parts of Telangana but across the country, reports based on inputs from Indian Meteorological Department (IMD), New Delhi, have suggested.“We are anticipating warmer conditions this March. Preliminary weather conditions across the country are indicating above normal temperatures. A clear picture will emerge in a day or two. However, one thing is clear, conditions will remain warmer in Telangana also,” says Head Meteorologist, IMD, Hyderabad, Dr K Nagaratna.

Based on the forecast, temperatures in Telangana are expected to rise by March 2. While heat in the State had relented by at least 2 degree Celsius to 3 degree Celsius in the last week of February, other regions in the country were not that lucky. Much before March, there were indications that heat waves had already started in a few regions of the country.A few days ago, the IMD, New Delhi had released a heat wave alert in parts of coastal Karnataka (Konkan) and Kerala where the maximum daytime temperatures had touched 40 degree Celsius. In fact, parts of coastal Maharashtra including Mumbai and regions of Goa experienced heat wave conditions between February 25 and 26

Environmentalist and climate tracker, Peter Dynes who has a popular X handle @PGdynes) had posted about the hot conditions prevalent across India, even before the onset of March.“Heat waves are hitting India early, with a 38 degree C forecast already, and it is still February.

Climate change is driving an exponential rise in extreme heart exposure worldwide, Heat-related deaths of over 65s are up 85 percent from 2004, an incredible rise,” he posted.

# Cyberabad Commissioner Avinash Mohanty inaugurates police outpost at RGIA

Hyderabad: Cyberabad Police Commissioner Avinash Mohanty inaugurated a police outpost at the RGI Airport premises in Shamshabad on Saturday.The unveiling ceremony was attended by officials from GMR Hyderabad International Airport Ltd. (GHIAL), CISF, BCAS, Customs, FRRO, airline representatives, and other key stakeholders. Representatives from various international airlines also participated in the event.

# Art and science illuminate the same subtle proportions in tree branches

Do artists and scientists see the same thing in the shape of trees? As a scientist who studies branching patterns in living things, I'm starting to think so.Piet Mondrian was an early 20th-century abstract artist and art theorist obsessed with simplicity and essence of form. Even people who have never heard of Mondrian will likely recognize his iconic irregular grids of rectangles.When I saw Mondrian's 1911 "Gray Tree," I immediately recognized something about trees that I had struggled to describe. By removing all but the most essential elements in an abstract painting, Mondrian demonstrated something I was attempting to explain using physics and fractal geometry.My field of research is mathematical biology. My colleagues and I try to explain how treelike structures such as veins and arteries, lungs and leaves fine-tune their physical form to efficiently deliver blood, air, water and nutrients.Fundamental research in the biology of branching helps cure cardiovascular diseases and cancer, design materials that can heal themselves and predict how trees will respond to a changing climate. Branching also shows up in ant foraging patterns, slime molds and cities.The treeless treeFrom 1890 to 1912, Mondrian painted dozens of trees. He started with full-color, realistic trees in context: trees in a farmyard or a dappled lane. Gradually he removed leaves, depth, color and eventually even branching from his tree paintings. "Gray Tree" uses only curved lines of various thickness superimposed on top of one another at seemingly random angles. Yet the image is unmistakably a tree.How did Mondrian convey the sense of a tree with so little? The science of trees may offer some clues.The science of branching

One goal of mathematical biology is to synthesize what scientists know about the vast diversity of living systems – where there seems to be an exception to every rule – into clear, general principles, ideally with few exceptions. One such general principle is that evolution fine-tunes treelike structures in living things to make metabolism and respiration as efficient as possible.The body carefully controls the thickness of vessels as they branch, because deviation from the most efficient diameter wastes energy and causes disease, such as atherosclerosis.In many cases, such as human blood vessels, the body exerts much tighter control over diameter than length. So while veins and arteries might take circuitous routes to accommodate the vagaries of organs and anatomy, their diameter usually stays within 10% of the optimum. The same principle appears in tree branches as well.The precise calibration of branch diameter leads to a hallmark of fractal shapes called scale invariance. A scale invariance is a property that holds true regardless of the size of an object or part of an object you're looking at. Scale invariance occurs in trees because trunks, limbs and twigs all branch in similar ways and for similar reasons.The scale invariance in branch diameter dictates how much smaller a limb should be as it branches and how much investment a tree makes in a few thick branches versus many thin ones. Trees have evolved scale invariance to transport water, reach light and resist gravity and wind load as efficiently as possible given physical limits.This science of trees inspired my colleague and me to measure the scaling of tree branch diameter in art.The art of treesAmong my favorite images is a carving of a tree from a late-medieval mosque in India. Its exaltation of trees reminds me of Tolkien's Tree of Gondor and the human capacity to appreciate the simple beauty of living things.But I also find mathematical inspiration in the Islamic Golden Age, a time when art, architecture, math and physics thrived. Medieval Islamic architects even decorated buildings with infinitely nonrepeating tiling patterns that were not understood by Western mathematics until the 20th century.The stylized tree carvings of the Sidi Saiyyed mosque also follow the precise system of proportions dictated by the scale invariance of real trees. This level of precision of branch diameter takes an attentive eye and a careful plan – much better than I could freehand.Indeed, wherever our team looked at trees in great artwork, such as Klimt's "Tree of Life" or Matsumura Goshun's "Cherry Blossoms," we also found precise scale invariance in the diameter of branches.

"Grey Tree" also realistically captures the natural variation in branch diameters, even when the painting gives the viewer little else to go on. Without realistic scaling, would this painting even be a tree?As if to prove the point, Mondrian made a subsequent painting the following year, also with a gray background, curved lines and the same overall composition and dimensions. Even the position of some of the lines are the same.But, in "Blooming Apple Tree" (1912), all the lines are the same thickness. The scaling is gone, and with it, the tree. Before reading the title, most viewers would not guess that this is a painting of a tree. Yet Mondrian's sketches reveal that "Blooming Apple Tree" and "Gray Tree" are the very same tree.The two paintings contain few elements that might signal a tree – a concentration of lines near the center, lines that could be branches or a central trunk and lines that could indicate the ground or a horizon.Yet only "Gray Tree" has scale-invariant branch diameters. When Mondrian removes the scale invariance in "Blooming Apple Tree," viewers just as easily see fish, scales, dancers, water or simply nonrepresentational shapes, whereas the tree in "Gray Tree" is unmistakable.

Photo synthesisMondrian's tree paintings and scientific theory highlight the importance of the thickness of tree branches. Consilience is when different lines of evidence and reasoning reach the same conclusions. Art and math both explore abstract descriptions of the world, and so seeing great art and science pick out the same essential features of trees is satisfying beyond what art or science could accomplish aloneJust as great literature such as "The Overstory" and "The Botany of Desire" show us how trees influence our lives in ways we often don't notice, the art and science of trees show how humans are finely attuned to what's important to trees. I think this resonance is one reason people find fractals and natural landscapes so pleasing and reassuring.All these lines of thinking give us new ways to appreciate trees.Mitchell Newberry is a computational biologist and complex systems scientist whose research spans population dynamics, the evolution of language and culture, the maintenance of diversity in ecosystems, and vascular morphology, while contributing to the nuts and bolts of software and statistics. This article is republished from The Conversation.

# 'Anti-vaxxers existed before, but never led governments'

A new wave of anti-vaxxers around the world means that children may soon start dying of measles, polio, and other diseases that we thought were behind us, Dr Drew Weissman, the 2023 Nobel Laureate in Medicine, told HT in an interview. The head of the Weissman Lab at the Perelman School of Medicine at the University of Pennsylvania, Dr Weissman and his then colleague Katalin Kariko discovered a foundational tweak to RNA, which became the basis for successful mRNA platform -- a breakthrough that paved the way for the first Covid-19 vaccine in 2020. While speaking about his work and the future of research at a time when the US is pulling out as a major funder, he lamented that though there were always anti-vaccine people around, they weren't leading governments until now. Edited excerpts:

How hopeful were you of achieving the kind of results you managed when you started work on RNA biology?We spent 25 years without funding, because we knew that someday it will be a useful vaccine and therapeutic. We were confident it would be useful if we could work out all of the problems.

Please explain your research, and how was it to see your research resulting in Pfizer and Moderna's anti-Covid vaccines?About 10 years ago, when we started doing clinical trials, we knew modified RNA was headed in the right direction. But when Covid hit, it was great to see RNA coming to the rescue.At a basic level, people need to understand RNA is kind of a middleman; our DNA has the codes for every protein that allows our cells and our bodies to live. The way a body makes a protein is it takes an mRNA that makes a copy of one of those codes in the DNA and then it shuttles that code into the outside of the cell where a machine called the ribosome reads the code and makes the protein. When you give a vaccine, you give the code for the spike protein of Corona virus or any other vaccine antigen, and then the cell makes the protein.

What are your ongoing projects?Two sickle cell anaemia gene therapies were approved in the United States, which are going to cost about $3.2 million dollars per person, and involve taking bone marrow cells out of the body and infecting them with the virus, giving the person chemotherapy, and giving these cells back. They require very fancy and sophisticated laboratory facilities, making it only available in places such as the US and Europe, and not in places like sub-Saharan Africa.What we do is target the lipid nano particles to the cell of interest and deliver the enzyme that fixes the DNA in the RNA. All we have to do to fix the gene is to give somebody a shot. No chemotherapy, no fancy lab facility. It's likely going to cost much less and can be given anywhere. We have programmes that are making HIV vaccines and cures; for autoimmune diseases that look at new ways of treating autoimmune diseases more effectively; and among other vaccines, there are cancer, malaria, tuberculosis, and dengue that we're working on. There are also therapies for heart problems; and developing treatment for brain diseases— Alzheimer's, Parkinson's etc.What's the scope of RNA-based technology going forward?We have gene therapy programmes where we deliver enzymes that can correct incorrect DNA sequences and fix genetic deficiencies like sickle cell or cystic fibrosis etc. We can deliver therapeutic proteins -- so if somebody is having a stroke, we can deliver an anti-inflammatory protein to turn down the inflammation in the brain.Do you have collaborations in India?I am working with two different Indian companies to help develop mRNA research. We helped them establish their labs, build GMP production, and also got a couple of collaborations including on an infectious disease vaccine. There are also a couple of gene therapy programmes with Indian groups.After how some parts of the world reacted to Covid, do you see infectious diseases making a comeback?

# 28th Annual Day Celebration at Gokaraju Rangaraju Engineering College Showcases Student Achievements and Future Opportunities


Hyderabad:Gokaraju Rangaraju Engineering College celebrated its 28th Annual Day with grandeur, recognizing the accomplishments of its students and highlighting the importance of skill development in today's competitive landscape. The event featured esteemed chief guests, Prof. Sriram Venkatesh, Secretary of the Telangana Council of Higher Education, and Mrs. Sirisha, Senior Manager from Logic Pursuit.During his address, Prof. Sriram Venkatesh stressed the need for students to enhance their skill sets to align with market requirements, thereby enabling them to seize excellent career opportunities. He also elaborated on the Telangana government's initiatives for student skill development, including the recently launched BFSI minor course and its significance for students' futures. He encouraged attendees to commit to hard work for their personal growth, their families' welfare, and the advancement of the nation.Mrs. Sirisha echoed these sentiments, urging students to set ambitious goals to reach new heights in their lives while contributing positively to national progress as responsible citizens. As part of the festivities, merit certificates were awarded to outstanding students from each year in recognition of their academic achievements. Additionally, three exceptionally talented students received certificates of appreciation and cash awards presented by Chief Manager Shri DSN Raju of the Bank of Baroda.The successful event was attended by several distinguished guests, including the college director Jandyala Narayana Murthy, principal Praveen Juggé, and CSE department head Dr. Shankarababu, all of whom contributed to the celebration of excellence at Gokaraju Rangaraju Engineering College.

# Punjab National Bank organized the AGRI Outreach Programme

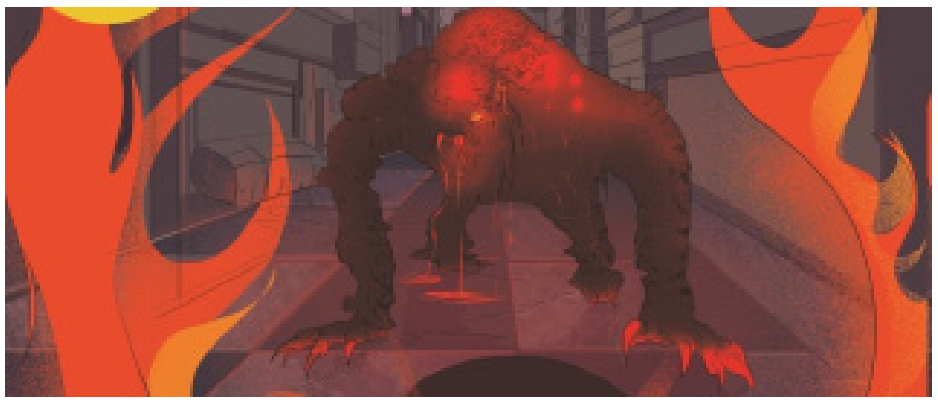

Punjab National Bank, Hyderabad organized an Agriculture Outreach Programme on 01.03.2025 at National Institute for Micro, Small and Medium Enterprises (NI-MSME), Yusufguda, Hyderabad with the objective to promote agricultural development, employment generation, support to rural economy, Self Help Groups (SHGs) and financial inclusion. The Agriculture Outreach Programme was inaugurated by Shri Bibhu Prasad Mohapatra, Executive Director of the Bank, Shri Monojit Majumdar, General Manager, Head Office, Shri Shrikant Sharma, Director, NIMS and Shri Deepak Kumar Srivastava, Zonal Manager (General Manager), Hyderabad Zone along with Shri Sanjay Mane, Dy. Zonal Manager, Shri Arvind Kalra, Circle Head, Hyderabad & Shri Sujeet Kumar Jha, Circle Head Secunderabad. More than 95 beneficiaries of Self-Help Groups (SHG) were given principal sanction letters worth ?42.15 crores and Agri leads of ?167 crores have been received in this outreach programme. Special Guest of the programme, Smt. Divya Devarajan, IAS, CEO, Society for Elimination of Rural Poverty, Telangana State congratulated PNB for this programme dedicated to agricultural entrepreneurship. She also encouraged the women of Self-Help Groups present on the occasion. The Executive Director of the bank, Shri Bibhu Prasad Mohapatra, in his presidential address said that the main objective of this outreach programme is to empower farmers and entrepreneurs associated with the agriculture system through financial assistance. The slogan of this outreach program is -'Enhancing Agriculture: Paving the way for progress and development.' General Manager of the Head Office, Mr. Monojit Majumdar said that the main objective of this outreach program is reaching out to the customers which is core of the banking service and to give information about our various schemes being made available for farmers and agriculture entrepreneurs. Hyderabad Zonal Head Shri Deepak Kumar Srivastava said that the agriculture sector plays an important role in our economy.

Agriculture and its associated sectors are the main means of livelihood for most of the population of India, especially for the people of rural areas. PNB's Hyderabad zone is dedicated to contributing to overall rural development by enriching the agricultural sector through our service. I am confident that this outreach program will boost to support and promote agriculture and Agri-entrepreneurship through credit support. The Outreach programme organized by PNB will give further impetus to the Agri growth. In this outreach programme more than 30 stalls of various Agri products have been exhibited for exhibiters and a session 'To Know PNB Agriculture scheme' was also organized.

# Author Indrapramit Das tells the story of beasts that have come to take revenge on the human world

I look out the window of the taxi and I see a great beast, more human than hound or cat, awful and unexpected to my reality-tempered eye, and it is mounting another one on the side of the road, a jarring evolution of the sight of stray dogs copulating frantically alongside passing traffic. The taxi driver slows, and so does time. There is nothing frantic in the coupling of these beings. It is bestial and magical at the same time, like watching two tigers fighting in the wild. Their fur blazes in the dusky light, streaked with smoky stripes rippling over muscle. There are no people near them. Perhaps, they fled indoors. The beast and its kneeling mate turn to look at me. Their eyes are radiant in the reflected light of the fire burning on the footpath. Tires curl into tarry snakes in the dancing blaze. In the kindling, I see the familiar lines of a body, a corpse wrapped in a saffron shawl of flames and blackened to cinder. The car lurches as the taxi driver speeds up, and I look at the pair as they recede, refusing to vanish despite the wind in my eyes and hair. They keep looking at me. Somewhere, a siren's blue bleat rises, the city's surprised reply to this affront.In time there are no impossibilities, though on closer inspection they become banalities. Our phones flash with images of hybrid beasts, chimeras that appear and then vanish as if they were never there. In my city, as in others, one is burned by a mob.

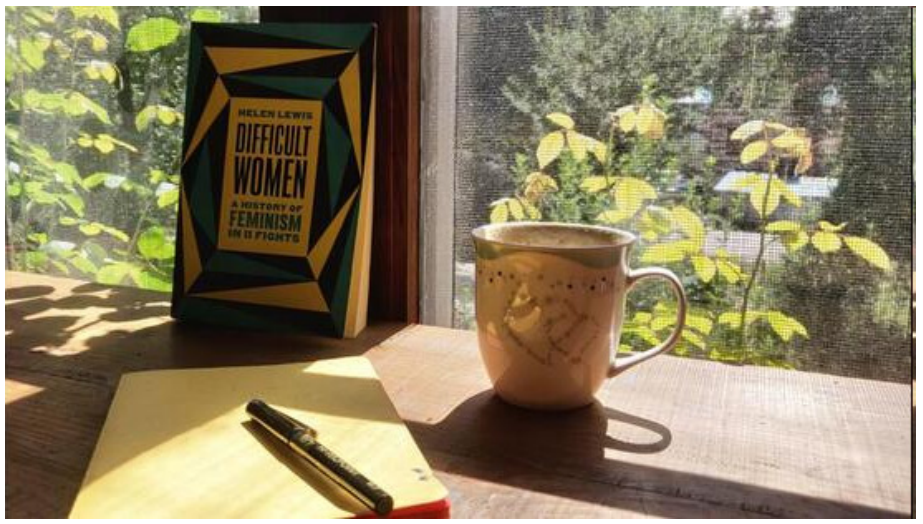
The body turns out to be human, blunt teeth embedded like gemstones in the char. These tiger-men (no one calls them tiger-women, though they have no gender but what we give them) and Hanumans and elephant-headed beings, we are told, are the result of experimental generative AI holograms developed by the Chinese, worn by Bangladeshi immigrants to sow discord and terror in India. The man burned to death by mob was a miscreant, a terrorist.When I asked the taxi driver what he saw, he said he saw two asuras fighting. I thought they looked like they were making love. He said they must have come from the drowned land of the Sundarbans, hungry for vengeance after the mangrove forests vanished in the rising waters of our avarice and apathy. In his dazed look there was fear, monsters bounding through our city streets, claws and fangs dancing in sunlight to shed rivers of blood. Yet this seemed a more beautiful explanation than what I saw later on our social feeds, of holograms and gaslight.I wonder if those chimeras in their animal union were undergoing a ritual of mourning, next to that burning body. Was it one of them, before magic burned away in that daylight like alcohol, emitting the blue flame of terrible reason, reducing their impossible kin to mere human. Were they shapeshifters desperate to enchant the dying world?Among the videos, there is one from the Himalayas, where once lay snow on the summer slopes of the naked mountains. It shows a towering fur-clad figure loping across a hillside. Indian soldiers shoot at it. Border drones hunt it, but it vanishes into the rocky grey as if made of mist. In the villages gathered around their artificial glaciers, they call it a yeti. They think it a good omen, and pray for a good winter and the snow's return, and with it water to parch the droughts.From my flat in Smart Zone 7, I can see the towers of a server city on the other side of a canal, squatting on what was once a green sheet of farmland. Highrises with no occupants but unthinking artificial intelligences, familiar for the higher powers, swarming the air and settling in our devices to eat our data and vomit it into easily categorized and surveilled information for their masters. On news channels, they narrate the news, their faces slurring into ghostliness and their language often nonsensical, though it hardly matters. On socials, they transform into troll armies to attack antinationals. In movies, they reanimate dead stars of eras gone, their muscles gleaming godly as they destroy India's enemies. All around the server city are slums, filled with the life that the towers cannot hold. I wonder at the heat the server cities radiate, wonder if they can truly conjure chimeras into the true world, not the digital one, now.At night, I walk to the run-off canal around the city of AIs in their towers. On the other side, people in the slum are dancing, the warm air threaded with



drums. In the light of their solar lanterns, I see two dancers painted in red, orange, black, their bodies close. In flesh they have become the chimeras that we're told are holograms in our rule-based world. They are as beasts in the shadow of those digital towers. I, too, am a beast, enchanted by the dance, dancing under the stars and the uncaring drones.Indrapramit Das (aka Indra Das) is the Shirley Jackson, British Fantasy & Lambda Literary Award-winning cross-genre author of (Penguin India/Del Rey) and The Last Dragoners of Bowbazar (Subterranean Press)

# Why Handwriting (Still) Works

I sit by an aeroplane window, surrounded by stacks of handwritten transcripts, each written in its distinctive style - loopy, scrawled, precise. Eight hours stretch ahead, free from the distractions of the internet, as I grade these papers—ticking off well-crafted arguments, adding smiley faces for humour, and scribbling comments in the margins. By the time we land in Mumbai, I've connected with each student in a way that digital submissions never allowed.Cut to a year ago when I was drowning in 140 digital submissions on Google Docs - each one a standard times roman. This time, I decided to do things differently: I asked my students to handwrite their assignments. The students were taken aback when I arrived with a stack of blank printer paper and distributed the sheets. Many scrambled to find pens. Yet, they embraced the task with good humour, turning in their work over the next few days.This handwritten exercise brought unexpected other benefits. Without digital copy-pasting, it became harder for students to submit large swathes of AI-generated text. They were writing more authentically, in their own distinctive voices. Returning the graded papers became a chance to connect in person one-on-one with my students, offering brief comments or quick exchanges that seemed to mean more to them than digital comments.The debate over whether to write by hand, type on a computer, or use a phone has long occupied the literary world. Joan Didion famously wrote her first drafts in notebooks, calling handwriting "a physical process that cements language in your mind." Zadie Smith spoke about writing portions of White Teeth by hand, explaining that "the speed of typing creates the illusion of flow, while handwriting forces more deliberate word choices. In Writing Down the Bones, Natalie Goldberg says "when I am writing something emotional, I must write it the first time directly with hand on paper. Handwriting is more connected to the movement of the heart."Their responses are reflected in what neuroscientists have discovered. A 2020 study in Frontiers in Psychology found that handwriting activates regions of the brain associated with learning and creativity in ways typing doesn't. "When we write by




hand, we're forced to be more economical and strategic with our use of language, crafting notes in our own words. To do that, we have to listen more closely, think about the information, and essentially distil others' words and thoughts through our own neurological filtration system and onto the page" says Ryder Carroll in The Bullet Journal Method, a brilliant book that blends writing by hand with digital tools.

I wasn't always a promoter of the pen. Like most people in my generation, I was happy to leave handwriting behind. Gliding from garamond to geometric sans serif, I experimented with text and typeface. If it didn't read good enough, there was always backspace. And best of all, was Ctrl+C, the magic key - no more copying by hand.Sometimes, I'd read interviews with authors who said they wrote their first drafts in longhand and wonder why they clung to such an old-fashioned method.Then five years ago The Artist's Way by Julia Cameron came into my life. I was feeling low, in a creative trough, anxious about turning into an empty nester as our three girls left home. Write by hand, said Julia Cameron. A big part of her 12-week creative program is the Morning Pages, a journal which must be written by hand. It sounded pedantic and pernickety to me. But if I was doing the program, I might as well do it right. So off I went to Vinod Stationery in Juhu Market, bought a blank notebook and three gel pens (blue, black, and green), and began my handwriting journey.It wasn't easy. My fingers ached on the first day, and forming legible lines required effort. But over time, something shifted. My writing became more relaxed, my thoughts flowed more freely. On a computer, I'd obsessively edit as I typed, deleting and rewriting lines before they had a chance to breathe. Handwriting forced me to slow down. Because I didn't like the untidiness of scratched out sentences, I let my lines be. I stopped worrying about perfection and let my ideas unfold naturally. Now, years later, my handwriting has grown stronger, and my hands no longer ache.Yet, handwriting is not for everyone. Technology can be just as liberating. Last year we were moved to hear author V .V Ganeshananthan speaking to our book club about losing the use of her hands while writing Brotherless Night ; she managed to complete this Women's Prize winning novel by using voice recognition software.Yet writing my daily pages has reminded me of the value of handwriting. From ancient parchments to handwritten journals and letters and inscriptions, there's something deeply personal about the physical act of writing, something that digital text can't replicate.

# ‘We have lived with macaques for very long periods of time and have co-evolved with them’

When primatologist Anindya Sinha first came to Bengaluru in the early 1990s, he couldn’t help but notice the number of bonnet macaques in the city. “They were not just in Cubbon Park or Lal Bagh, but also on the city walls and the terraces of houses,” he says at a recent talk at Science Gallery, Bengaluru. “But, of course, we knew that times were changing and their existence was doomed,” he says.According to Sinha, a professor at the National Institute of Advanced Sciences (NIAS) in Bengaluru, as the city transitioned from the Garden City of yore to the Silicon Valley of India that it is today and lost its gardens as well as the relatively relaxed pace of life that had once defined it, many other non-human inhabitants of the city began to leave. One such “legitimate citizen of the city” was the bonnet macaque, a species of monkey native to peninsular India.

“What subsequently developed was not only negativity about the macaque, but also these other ideas and conceptions that came in, about aesthetics, for example,” he says in this talk titled Changing Ecologies, Transforming Lives: Complex Coexistence of Human and Non-Human Primates in Our Cities. “If Bengaluru was to be a beautiful city, it shouldn’t have monkeys just as it shouldn’t have dogs. I find that personally very difficult to accept because what it is clearly saying is that we are speciesists,” says Sinha, whose lecture offered insights into the profound relationship Indians have shared with nonhuman species, including macaques, why this co-existence is under threat and how these macaques have learnt how to survive in human-altered landscapes, often resorting to pilfering, begging or forging new friendships to adapt to an urbanised world.“We fight being racists, we fight being sexist. But I don’t think we have any qualms about announcing loudly that only we will stay in the city, not the macaques or dogs.”

The kinship that Indians have traditionally had with non-human species has been an integral aspect of our culture, he says, adding that this aspect of our attitude towards other forms of life still exists in many parts of the country. “I will stick out my neck and say that the closeness that humans feel towards non-humans in India far out-surpasses any other community anywhere in the world,” he says, attributing this to two specific reasons.“The first is that our philosophy looks at all other species in a continuum with ourselves. This is in marked contrast with the West, where either because of Judeo-Christian faith or generations of philosophers, the human and the non-human were very starkly separated,” he says. The second reason, in his opinion, is religion, with “many of our deities, many of the vehicles of our gods and goddesses being non-human. That gave them pride of place in our communities and belief systems,” he says.To make his case, he uses the example of the fishing folk of Charotar in Gujarat, who have lived in relative harmony alongside the mugger or marsh crocodile for centuries. “This is a remarkable friendship. There have been very few attacks, about four or five in the last 40 years, with almost no deaths,” says Sinha, showing the audience a photograph taken at Charotar depicting one such friendship — between Ramubhai, a fisherman and Raju, a marsh crocodile. “The relationship is so close that Ramubhai can call out to Raju, and Raju responds to him,” he says.This attitude, unfortunately, is fast disappearing, says Sinha. “I do not understand why this spirit, this philosophy of being with other beings, does not pervade our modern thinking of other beings,” he says. “Maybe we have lost much of the idyllic kind of world that we imagine where we could co-exist without stress, strain and conflict.”

The macaques who love humansMacaques are a genus of old-world primates consisting of around 24 species spread across the world, 12 of which are found in India, including the Assam macaque, the Rhesus macaque, the southern pig-tailed macaque, the white-cheeked macaque and the lion-tailed macaque. “They have the largest range of non-human primates, to the extent that there is one species that lives in Northern Africa, but all the other species extend from Afghanistan in the west to Japan in the east,” says Sinha. In his opinion, what is most remarkable about them is that they are flexible in their social and individual ecologies and behaviour. “As a result, they have been extremely successful evolutionarily.”Of these, there are two species — the North Indian Rhesus macaque and the South Indian bonnet macaque — that are especially interesting because they have a “remarkable ability to adapt to almost any kind of ecology, both natural and human-made.” Additionally, both these species as well as the Nicobar long-tailed macaque, tend to move towards human habitation, says Sinha. “In some sense, crudely speaking, if you give these macaques a choice between living in a forest and living with people, they prefer to live with people,” he says.According to him, the ability of macaques to adapt to urban dwellings is not new — they have been doing so for centuries. Sinha brings up a poem featuring a monkey on a jackfruit tree who “mistakes for fruit... the eye... on the thronged drumheads,” and explains, “This was originally a poem in Tamil by a poet called Mutamociyar,” he says, pointing out that the poet wrote this poem about 2000 years ago. This indicates that “we have lived with macaques for very long periods of time and have co-evolved with them.”And yet, the relationship between human beings and macaques is also often fraught with tension, with many early biologists even referring to these macaque species as “weed macaques” since they “are very prolific, they multiply in large numbers and are even called pests, just as weeds are.” Sinha, however, does not see the macaques this way. “In our research group, we decided very consciously to do away with that term because of the kind of value system this term had,” he says. “We call them anthropophilic macaques since they love people, or the prolific macaques since they multiply at very high rates,” he says.“Once a macaque has tasted human food, her life has changed forever,” says Sinha.One offshoot of this close relationship with human beings is that these interactions irretrievably change the macaques. “Once a macaque has tasted human food, her life has changed forever,” says Sinha, expanding on some of the behaviours that have resulted from this.In Bandipur National Park, for instance, where tourists have been interacting with these animals by throwing food to them, juvenile bonnet macaques have developed new modalities of communicating with people who carry foods in their hand, he says, showing a photograph of a young monkey with its arm stretched out, almost in a begging gesture. “It consists of four behaviours,” he explains.” These juvenile monkeys end up tracking people who have food in their hands and orient themselves so that they are making eye contact with these people.”“While they are doing this, they give a coo-coo call, and finally, when eye contact is made with a human, the macaque puts out its hand,” he says. “This is remarkable because they don’t do it with other macaques; they do it only with people. The interesting reason for that is there is no food-sharing amongst these macaques, but people are willing to share food with them. “It is a very human appeal,” says Sinha, adding that this entire set of behaviours is completely newand “never before seen in any wild monkeys.”“When people provide food to these females, that bond is tested because the competition for the food becomes so high,” says Sinha.“When people provide food to these females, that bond is tested because the competition for the food becomes so high,” says Sinha. | Photo Credit: RAJEEV BHATTHuman presence in Bandipur is also gravely impacting the integrity of macaque social groups. Like most primates as well as mammals like elephants, lions and hyenas, macaques are female-bonded, forming very close relationships with others in their group, which typically consists of a few adult males, many females and all their offspring. “When people provide food to these females, that bond is tested because the competition for the food becomes so high,” says Sinha, whose team is now seeing group fission with females often leaving these large multi-male, multi-female groups to bring down social tensions.“You end up with small groups of females with a single male. In the last three decades, many of the groups in Bandipur and Mudumalai, especially those around the highway, have developed a new form of social organisation — a single adult male and these small groups of females — and they don’t do very well,” he says.Doomed city dwellers

In his talk, Sinha also discusses how changing ecological circumstances are causing many of these animals to move from forests to highways to villages and cities. “Their forests are being removed, they have no way to go back, and so they adapt to different kinds of human habitations,” says Sinha. Macaques, he adds, have a high degree of what he calls phenotypic flexibility, the “ability to quickly adapt to changing conditions, so you are not left in a difficult situation,” he says.This phenotypic flexibility makes it easier for them, as compared to many other animals, to adapt to urban ecosystems. For instance, “they may not have their trees, canopies and branches, but they use this mass of electric cables and wires to move across the city,” he says, sharing a video of a macaque stealing a woman’s glasses and refusing to return it unless given food bought from a nearby vendor. “Clearly, this is a barter system, which they have learnt to negotiate,” he says. “And don’t forget that shopkeepers also benefit.”While macaques may have learnt to adapt to urban spaces, the people who inhabit these same spaces aren’t always happy to have them there. “Across virtually every city, we have gotten into negative relationships with macaques,” he says. The problem, in his opinion, is very complex, affecting both humans and animals. “Where you stand on it will depend on where your empathies lie and how you think the problem can be solved,” he says.However, it is important to remember that macaques, world-over, are struggling to survive, with research showing that many of them are disappearing from across their traditional distribution ranges, “primarily due to anthropogenic factors and their own maladaptive responses to such influences. Their lives are not becoming easier, and in fact, they are doomed,” says Sinha, who believes that more detailed ecological behavioural studies of wild, urban and semi-urban macaques are essential. “We are in urgent need of management strategies for the species in protected areas with tourist-primate interactions and in urban areas with very severe human-primate conflict,” he says. “Otherwise, there is very little or no hope for the survival of macaques.”

When primatologist Anindya Sinha first came to Bengaluru in the early 1990s, he couldn’t help but notice the number of bonnet macaques in the city.

# Artificial Intelligence in healthcare: what lies ahead

The term Artificial Intelligence (AI) evokes both excitement and anxiety. But what does it mean for healthcare? The hype surrounding AI in healthcare seems like a breakthrough on par with the discovery of antibiotics or vaccines. Yet, the reality may not live up to these expectations — at least not in the near future. Healthcare has evolved over centuries, contributing to our understanding of health and disease. Today, with the rise of AI, we explore how this technology might shape the future of healthcare. To do this, it is crucial to understand some basic concepts of health and where AI might fit into this larger narrative. The biomedical concept of health, based on the germ theory of disease, transformed medicine by linking microorganisms to diseases and led to breakthroughs such as vaccines and antibiotics. However, it has limitations: the most significant being its failure to address non-infectious issues such as malnutrition, accidents, and mental illnesses. The ecological concept broadens the health perspective by considering environmental factors, such as food availability and air quality, emphasising the connection between health and the environment. The psychosocial concept includes social and psychological factors, highlighting how societal culture, beliefs, and socio-economic conditions influence societal issues such as gun violence, addiction, and mental health. The holistic concept integrates all models – physical, mental, emotional and social dimensions for a comprehensive approach to healthcare. Breakthroughs over the course of history Over the past 500 years, several breakthroughs have revolutionised how we understand and approach healthcare. James Lind's historic experiment showed that a citrus-rich diet could prevent scurvy, though the role of Vitamin C was not yet known. This marked evidence-based medicine. The discovery of vaccines by Edward Jenner introduced the concept of disease prevention. Anaesthetics made surgeries painless and made complex procedures possible. The discovery of antibiotics radically reduced infection mortality, and the microscope opened up a new world of microorganisms, reshaping our understanding of diseases. The birth of epidemiology during the cholera outbreak — before the identification of Vibrio cholerae — demonstrated the power of public health interventions. A common thread ties these breakthroughs: they did not just improve health services but also fundamentally changed how diseases were viewed, shifting from the reactive to the preventive, curative and scientific approaches. Now, as we face the growing impact of AI, can it, too, transform healthcare, reshaping not just what we do but how we understand and address health challenges? Where AI fits in AI, much like healthcare, is a broad concept. To understand AI's role in healthcare, it is crucial to clarify that AI is not a single, well-defined tool. It is a collective term that encompasses various technologies. These include large language models, diffusion models, deep learning, machine learning, natural language processing and robotics, each offering different tools that could potentially be applied in healthcare. Generative AI has shown promise in specific applications such as generating medical images, assisting drug design and aiding documentation. Still, its impact remains limited to creative tasks rather than revolutionising treatment or diagnosis. Predictive AI has attracted more attention by aiming to forecast health outcomes through pattern recognition in large datasets. However, its promise is yet to fully materialise, as predictive models require vast training data and can be biased. When we talk about AI in healthcare, much of the excitement revolves around predictive AI models that are supposed to predict disease outcomes, optimise treatment plans, and even forecast patient deterioration. However, predictive AI is not as advanced or reliable as it is often portrayed to be. Take, for example, the Google Flu Trends experiment, an early application of predictive AI in healthcare. By analysing search terms, Google tried to predict flu outbreaks faster than traditional reporting mechanisms. It failed. Similarly, sepsis prediction models have not performed as anticipated.

The problem of truth erosion A major concern with AI in healthcare is 'truth erosion', where reliance on AI risks diminishing critical thinking in medicine. This is worsened by commercial interests, with proprietary algorithms limiting independent scrutiny and contributing to a reproducibility crisis. AI models often work well in controlled settings but falter in real-world applications. Additionally, many models lack transparency, creating a 'black box' issue where predictions are made without clear reasoning. In medicine, explainability is crucial. If doctors can't understand or trust AI-generated predictions, this undermines confidence in the technology. Healthcare, by nature, is considered a public good. However, much of the AI development in healthcare is expensive and driven by private companies. In India, the healthcare system is already under considerable strain, and implementing costly AI tools might not be the most efficient use of resources. Investing in AI without first addressing fundamental health system gaps could be an expensive, pointless exercise.

AI in healthcare faces several limitations, particularly in predicting human behaviour. Health outcomes are heavily influenced by individual actions, such as medication adherence or lifestyle changes, which are difficult to forecast. Like the unpredictability of financial markets or weather patterns, human behaviour complicates AI's ability to predict health outcomes accurately. Diseases are complex – for instance, a common condition like diarrhoea has multiple causes — viruses, bacteria, or parasites, all of which require different treatments. Conditions such as diabetes and cancers arise from a multifactorial combination of genetic, environmental, and lifestyle factors, making them harder to predict and treat. In the future, AI may be able to better predict single-gene disorders – for instance, sickle cell anaemia – with advances in genomics, but most diseases are dynamic and involve an evolving interplay of biological, behavioural, and environmental elements. Predictive AI, which depends on large datasets to recognise patterns, struggles due to healthcare data's incomplete, biased, and

scattered nature. As diseases evolve and human behaviours shift, AI models risk becoming obsolete unless regularly updated with new information. To effectively integrate AI into healthcare, it is crucial to close this gap. AI developers need a deeper understanding of the healthcare system's complexity, while healthcare providers must be educated about how AI works, its limitations, and how best to use it. Currently, these two fields often function on parallel, poorly connected islands. AI in healthcare holds genuine promise for the future but has been overhyped in certain aspects, particularly in predictive healthcare. Unlike the crypto boom, AI is not a technology without substance. AI can help improve healthcare delivery in the future but will not revolutionise it. Its greatest strength may lie in augmenting human decision-making and improving efficiency. The key to AI's success in healthcare will be a balanced, informed approach that involves better education for healthcare providers, more interdisciplinary collaboration between tech developers and clinicians, and creating policies that ensure AI serves the public good. (Dr. C.Aravinda is an academic and public health physician. He wishes to acknowledge the book 'AI Snake Oil: What Artificial Intelligence Can Do, What it Can't and How to Tell the Difference' for contributing to his understanding of the subject.)

# The relics of Ratnagiri

On December 1 2024, a group of archaeologists, students, and labourers gathered at a mound in the southern part of the 18-acre Ratnagiri Buddhist heritage site in Odisha's Jajpur district to unearth the remnants of history that still lay hidden beneath the surface. The expectations were mixed, but there was no doubt that resuming excavations after six decades would shed new light on Buddhism's influence in the region.As the days passed, the rhythmic swings of pickaxes and the delicate strokes of brushes gradually revealed the relics. Every inch of the earth seemed to hold a trace of history. Still, no one in the group anticipated that on that wintry morning, they would discover a breathtaking piece of Buddhist heritage — an intact, massive Buddha head lying face down.Ratnagiri is no stranger to Buddha sculptures made of Khondalite stone. Dozens of such carvings have been unearthed in the area. But when experts measured the massive Buddha head, which took nearly two months to dig out completely, they found it to be 1.4 metres tall — the largest ever discovered in Odisha.The excavation at the site is likely to continue until the end of March, after which it will be impossible due to the harsh summer sun. Then, further analysis will be done to determine whether the centuries-old sculpture could be the largest Buddha head ever found in India.An excavated stone idol of Buddha inside the ancient Ratnagiri monastery.

"It [Buddha head] was magnificent. There were wrinkles on its neck. I was amazed at the level of expertise people had back then, carving such sharp and intricate features without modern tools. Besides the colossal head, we also found two other Buddha heads lying nearby," recalls Dibishada Brajasundar Garnayak, the Superintending Archaeologist of Puri Circle.The team subsequently found more stone-carved parts, including palms and fingers, which, along with the head, are believed to belong to a huge sculpture of Buddha in a meditating posture.

Hills of jewelsRatnagiri, which means 'Hills of jewels' in Odia, is located on a hillock in the Assia hill range in Jajpur and encircled by the rivers Brahmani, Kimiria, and Birupa and their tributaries. The village is situated around 100 km from Bhubaneswar and is part of the 'Diamond Triangle', a collection of three Buddhist sites — Ratnagiri, Udayagiri and Lalitgiri — located in a 10-km radius.Archaeologists believe this landscape was strategically chosen for Buddhist establishments. Its once-secluded nature made it ideal for spiritual and scholarly pursuits.Moreover, it is believed that the rulers of the time provided land to sustain the monastic settlements, ensuring the residents' livelihood and financial support for their rituals.According to the Archaeological Survey of India (ASI), the historical significance of Ratnagiri came to light in 1906 when Manmohan Chakravarti, the then Sub-Divisional Officer of Jajpur, first reported Buddhist relics from the heritage site.

# The RTI is now the 'right to deny information'

The introduction of the Right to Information (RTI) Act was a move that generated great hope among citizens since it recognised them to be the rulers of the nation. It empowered them to seek information from the government, with dignity and respect. It looked as if the 'swaraj' that they had missed would be delivered to them. The Act codified their fundamental right to information and was one of the best transparency laws in the world. It appeared that it would curb corruption and arbitrariness, with citizens being the vigilance monitors of their government. But, it must be conceded, it has fallen far short of our expectations and the state of our democracy is not better.Within a few months, the government realised that this was a transfer of power from public servants to the citizens. In less than a year it moved to amend the law which would have weakened the RTI Act. But there were widespread protests by citizens across the nation. Sensing the mood of the nation, the government dropped the amendments.

The RTI Act had created Information Commissions as the final appellate authorities to implement the law. Most of the posts of 'information commissioner' were taken up by retired bureaucrats. After working for decades as senior bureaucrats, it was difficult for them to hand over power to citizens and recognise that they were the rightful owners of the government. No attempt was made to select people with a record in transparency. Many of them looked at these jobs as post-retirement sinecures and worked only for a few hours. While the national average of the disposal of cases by High Court judges is over 2,500 in a year, the national average of disposal of cases by the commissioners was less than this. Given the fact that the complexity of cases before commissions is far less than the cases before the High Courts, each commissioner should have been clearing at least over 5,000 cases in a year. While the law mandated a period of 30 days for the information to be provided and the same period for the first appellate authorities, it did not specify any time limit for the commissioners. Many commissions began to have pendency of over a year. The right to information was being converted into a right to history. Many ordinary citizens could not pursue the issue of what was now a denial of information. The penal provisions of the RTI Act were the teeth of the Act, but most information commissioners were reluctant to use them. The governments delayed appointing commissioners, which only increased the backlogs.

The clear message of various High Court judgments was that the exemptions listed under Section 8 of the RTI Act were restrictions on a citizen's fundamental right and had to be construed strictly as in the law. Parliament intended most information to be provided and crafted the exemptions carefully.The entire approach to a citizen's right to information changed in August 2011 when the Supreme Court of India held in Central Board of Secondary Education & Anr. vs Aditya Bandopadhyay & Ors, in paragraph 33: "Some High Courts have held that section 8 of RTI Act is in the nature of an exception to section 3 which empowers the citizens with the right to information, which is a derivative from the freedom of speech; and that therefore section 8 should be construed strictly, literally and narrowly. This may not be the correct approach."In paragraph 37 it made a comment without any evidence: "Indiscriminate and impractical demands or directions under RTI Act for disclosure of all and sundry information (unrelated to transparency and accountability in the functioning of public authorities and eradication of corruption) would be counterproductive as it will adversely affect the efficiency of the administration and result in the executive getting bogged down with the non-productive work of collecting and furnishing information. The Act should not be allowed to be misused or abused, to become a tool to obstruct the national development and integration, or to destroy the peace, tranquility and harmony among its citizens. Nor should it be converted into a tool of oppression or intimidation of honest officials striving to do their duty."A RTI applicant, Girish Ramchandra Deshpande, had sought copies of all memos, show cause notices and censure/punishment awarded to a public servant. A.B. Lute. He had also sought other details such as his movable and immovable properties and details of his investments, lending and borrowing from banks and other financial institutions.

This was denied claiming exemption under Section 8(1)(j). This section exempts "information which relates to personal information the disclosure of which has no relationship to any public activity or interest, or which would cause unwarranted invasion of the privacy of the individual unless the Central Public Information Officer ... is satisfied that the larger public interest justifies the disclosure of such information: Provided that the information, which cannot be denied to the Parliament or a State Legislature shall not be denied to any person."A simple reading shows that under this clause, 'personal' can be denied if it has apparently no relationship to any public activity or interest; or the disclosure of the said information would cause unwarranted invasion of the privacy of the individual.The Court did not rule on whether the information was an outcome of a public activity or if its disclosure would amount to an unwarranted invasion of the privacy of the individual. It denied the information by reading only the first seven words of the provision and saying it was 'personal information'. Most information can be linked to some person. Realising that it may be difficult for public information officers and other appellate authorities to decide on what constitutes privacy, Parliament gave a simple test in the proviso — that information which would not be denied to Parliament or legislature would not be denied to any person. This can only have one meaning. That anyone claiming that information would be denied to the citizen would make a subjective statement that he would deny the information to Parliament.It is well settled that literal interpretation should be given to a statute if the same does not lead to absurdity. In Nasiruddin and others vs Sita Ram Agarwal (2003) 2 SCC 577, the Court has stated: "37. The court's jurisdiction to interpret a statute can be invoked when the same is ambiguous... It cannot re-write or recast legislation. It is also necessary to determine that there exists a presumption that the legislature has not used any superfluous words. It is well settled that the real intention of the legislation must be gathered from the language used."Girish Ramchandra Deshpande amends the RTI Act and has been used as a precedent in six subsequent Court judgments and has become the gold standard to convert RTI into an RDI, or Right to Deny Information. The Digital Personal Data Protection Act takes a cue from this and amends


the RTI Act itself. There are other cases in which words in the law have not been accorded their usual meanings.To ensure that the RTI fulfils its original promise we should go by the original Act and not allow any distortions. Citizens and the media must take up the responsibility to discuss and defend it. Otherwise, we will have a dilution of our fundamental right under Article 19(1)(a) of the Constitution of India.

# Coimbatore's friendly elephant Chinna Thambi returns to home ground as a kumki

It is as though a festival is in progress on a patch of forest at the Periyanayakkanpalayam range. Scooters and cars are parked haphazardly along a stretch as families arrive in droves, children in tow. A young father leads his daughter through the crowd, while a mother walks briskly, hugging her baby to her chest. As dusk nears, more young men pour in on bikes to the forest at Varappalayam in the suburbs of Coimbatore. The gathering peers into the hills beyond in the receding light for a glimpse of their old friend, Chinna Thambi.The elephant and the people in the neighbourhood have a history over two decades. A regular visitor at Thadagam valley, Chinna Thambi, over the years, gained the trust and friendship of locals who showered it with love and treats of fruits. Among the elephant trio Periya Thambi and the late Vinayagan, it gradually started crop-raiding, a habit that ended its carefree days in the forest. The elephant was captured from the region in January 2019 and was eventually taken to the Varagaliar elephant camp at Anamalai Tiger Reserve (ATR), where it was tamed and trained to be a kumki. For the first time since its capture, the elephant has come home. This time, as a kumki to participate in an operation involving another younger, crop-raiding elephant.News of Chinna Thambi's arrival sent his fans into a tizzy, and some of them, like M Abraham Antony Raj, have been visiting it every other day. It was Abraham, an elephant lover who is also into wildlife and conservation photography, who named the elephant. He has been observing it for 18 years. "He can recognise me," says Abraham, as his voice chokes with emotion. "Elephants never forget."It is the golden hour at dusk when the forest glows, and Chinna Thambi, weighed down by a heavy iron chain at its feet, casually munches on grass. "That's a good boy; come on now, do your thing. Pose with your trunk on your tusk," calls out M Manickaraj from the crowd. An electrician from nearby Madathur, he has come to see the elephant. Chinna Thambi picks up powdery red soil at his feet and showers his back and feet with it, and Manickaraj says, "Dei thambi, it's time for your bath, eh?" For Manickaraj, like many others, the 34-year-old elephant is like a brother. As people around it watch, Chinna Thambi pauses to look at them, curiously. It remains that way for a long time, eyes locked on someone.

The elephant has two mahouts attending to it: C Murugan and S Kaliappan. Murugan, who is from Kozhikamudhi settlement at ATR, recalls the challenging initial months. "For one-and-a-half years, I would sleep next to him attending to his every need. I never went home during those days; I hardly got to meet my wife and two children," he says. His hard work paid off, with the elephant turning into a cool-headed kumki. "This is his 10th operation, and he was successful in all of them," he says.Abraham swears the elephant knows it is in its home ground. "But he cannot do anything about it since he now has to obey his mahout," he says. He feels bad for the tusker; that it has to be chained in the very forest it frolicked in, just a few years ago. Despite the crop damage it did, Chinna Thambi has a reputation for being a gentle elephant. "It did not damage any property nor attack human beings," points out D Venkatesh, Chief Conservator of Forests, Field Director, ATR.During the Forest Department's operation to tranquilise and capture the translocated Chinna Thambi at a field at Kannadipudur near Udumalpet on February 15, 2019.Venkatesh was the District Forest Officer during Chinna Thambi's capture in 2019. He studied its behaviour closely prior to the process, and recalls an interesting incident. "Chinna Thambi was with a female and a male juvenile who was around seven years old when we attempted to dart it [with tranquiliser]," he says. "It took us almost two hours to separate the mother and the young one from Chinna Thambi."This young elephant has now grown to be a crop raider too, and ironically, the adult male it was close to, has come to drive it back into the forest.

# Physicists propose tabletop experiment to test gravity's quantumness

General relativity and quantum mechanics are two highly successful theories. The former explains gravity and the latter teams up with special relativity to describe the other three forces of nature: electromagnetic, strong nuclear, and weak nuclear forces.However, scientists don't know how gravity fits into quantum mechanics. In fact, they have been proposing experiments that can test the quantumness of gravity. On October 29, 2024, one such proposal appeared in the journalPhysical Review Letters.With concepts like superposition, illustrated by the Schrödinger's cat thought experiment, and entanglement, quantum mechanics defies classical intuition. Quantum mechanics also allows seemingly absurd phenomena, e.g. the measurement of a quantum system (like a particle) can cause the system to instantaneously 'collapse' into one possible state that described the system before the measurement.In fact, if a system undergoes measurement-induced collapse, it's said to live by the rules of quantum mechanics. Classical systems like planets orbiting stars, cricket balls flying in the air, and cars on the road don't do this.

Ruling out alternativesMultiple experiments have found that both quantum mechanics and general relativity are legitimate theories of nature — yet they remain incompatible with each other. This has encouraged physicists to try and come up with a larger theory that can accommodate both. One strong contender is string theory, another is loop quantum gravity. Both of them predict deviations from quantum mechanics and general relativity either at the beginning of the universe or inside black holes, meaning they're nearly impossible to test."So far, experimental tests are extremely difficult — the situation looks very bleak — it is not clear if it can be done at all," Dipankar Home of Bose Institute, Kolkata, and one of the authors of the new paper, said.To check whether gravity is quantum mechanical, scientists need precise tests that rule out alternative possibilities.Unlike the classical Newtonian mechanics, where measuring a system doesn't alter it, quantum mechanics dictates that observing a system forces it into a definite state. This isn't a matter of how carefully a physicist is making the measurement. The measurement will always collapse the state. So measuring the state versus not measuring it creates a way to test whether the system is behaving according to the laws of Newtonian mechanics or quantum mechanics.As a first step, physicists said they needed an experiment where gravity helps an inherently quantum mechanical process happen. If gravity causes the state to collapse, it will be a sign that gravity behaves quantum mechanically.The new study suggested the following design: a test mass is in a superposition of two possible paths it can take. A probe mass will interact with it gravitationally to force it to choose one of the paths. Here, both masses are in a superposition of which paths they take. These two paths come close, resulting in different distances between the two pairs of paths. That is, for each path of the test mass, there are two possible paths the probe mass can take."Such simple, yet novel proposals … are very interesting to the community," said Sreenath K. Manikandan, a theoretical physicist at the Nordic Institute for Theoretical Physics, Sweden, who wasn't involved in the study.Testing weak gravityThe idea is also interesting because it proposes to test weak gravity. Say you're performing an experiment where you're looking for light. If the light is bright, you can find it just by looking at it. But if it is very dim, you need sophisticated light-detecting cameras. Similarly, ideas to look for quantum gravity have so far involved strong gravity, like that near black holes, whereas the new test proposes looking for weak gravity, like the force near a small object.

"Our contention is that fundamental quantum gravity features can persist in this limit," Home said.Igor Pikovski, a quantum gravity researcher at the Stevens Institute of Technology and Stockholm University, commended this: "The important lesson is that quantum gravity signatures might show themselves even … in tabletop set-ups and not just in science-fiction scenarios."But independent experts said the experiment is still challenging because the masses need to behave quantum mechanically.Quantum properties usually show up in a measurable way in systems that exist at a smaller than microscopic scale, like inside atoms, whereas gravity is easier to measure around larger objects, like a building.This is why Vivishek Sudhir of the Massachusetts Institute of Technology said, "Preparing a spatial quantum superposition of an object massive enough such that its gravitational force is also measurable is an enormous experimental challenge."Creating a superpositionBose et al. have proposed the use of masses weighing about one-trillionth of a gram while maintaining a separation of around one-tenth of a millimetre. Nanocrystals meet these criteria.Yet the team still estimates a decade for their experiment to be conducted. Thus far, "the largest objects that have been placed in two places at once are macromolecules. We will have to place a nanocrystal, which is a billion times larger, in two places at once," Sougato Bose, one of the coauthors of the study, said."Creating this superposition is by far the main challenge," Debarshi Das, another coauthor, added.To do so, the authors have proposed using a quantum property of the nanocrystals called spin. Simply speaking, the spin affects the nanocrystals' motion (and can be manipulated by an external magnetic field). The spin of each nanocrystal exists in a superposition of two states until it is measured. Since the state affects the nanocrystal's path, it also exists in a superposition of two paths until a measurement.

"Once prepared in such a state, the gravitational field produced by this configuration will need to be measured very rapidly," according to Sudhir. "This is because any spatial quantum superposition will be extremely fragile and will die quickly, [so] measurements have to be made before this happens."Bose also said the nanocrystals can collide with gas atoms and other objects and forces in their environment, which could destroy the superposition. "This could include things like the gravitational forces from seismic activity in the earth or perhaps even those due to clouds moving in the sky," Sudhir said.For these reasons, the experimental set-up will have to happen in a near-perfect vacuum and the masses' properties will have to be measured with extreme efficiency.Despite all these challenges, physicists are hopeful. The proposed test has a much shorter timeline than the centuries required for humankind to develop the technologies to test quantum gravity near black holes.Pikovski agreed the future is bright: "Just a few years ago, it was considered impossible to experimentally test quantum gravity even in principle."The experts also said that the test may reveal gravity isn't a classical force, and that overall they will have to keep an open mind: it may not necessarily mean gravity is quantum but that it could be a non-classical and non-quantum entity, something different altogether.

# A 'summer checklist' for Perumbakkam wetland

Perumbakkam wetland is beginning to develop a "tan". The bulrushes are beginning to shrink resembling ageing human skin drained of fat. These are nature's aide-memoire on what next to expect. It is a "gentle reminder" — using a phrase that makes nudges to action palatable in polite society — that the Perumbakkam wetland is an easy target for fires during summer. And it is time to start efforts to scuttle that possibility, checking factors that can be controlled. Summer heat can cause fires on dry vegetation, but there could be something else at work. Before proceeding further, here is what is at stake. At risk of repeating the evident, Perumbakkam wetland is not the sole preserve of waterbirds. Certain parts of it host ground-nesting birds, and these are the parts susceptible to fires, due to a cocktail of factors — brown vegetation during summer, the summer heat and burning cigarette stubs. These parts — particularly a kuccha road that marks the western border of the wetland — are hoofed by humans, and unknown to themselves, some of them carry in their hands an agency to start a fire.

The Perumbakkam wetland is swamped by intense developmental activity on three sides. On its northern side, lined by the Sholinganallur-to-Perumbakkam road, Metro Rail pillars are rearing up their head. In addition to Metro Rail work, there is activity pertaining to the Water Resources Department. On its southern side is a neighbourhood that is "mobilising" residents at a rapid pace. Housing projects abound on this side and frequently, a project becomes a collection of homes. There is constant work and work presupposes the presence of workers. On both sides — the northern and the southern — there is a noticeable presence of workers. Some of them live in temporary shacks arranged for them next to their worksites. Perumbakkam wetland is known for movement of people down a kuccha road on its western side, a good number of them belong to this workforce. Besides, on the other side of the kuccha road that is housing construction activity, leading to movement on the road.A careless cigarette butt thrown on the brown, dry vegetation before it has burnt out, can cause considerable mischief. From where the fire often started in recent years — particularly in the 2022 and 2024 fires — there is reason to believe it was the trigger and the intense summer heat did the rest.