ARBiT it happens here...

World Rainforest Day

The rainforests keep our planet alive. They're home to half the world's animal species; provide us with freshwater and are essential for keeping our climate stable. Yet every second, one and a half hectares is lost, while each year 78 million hectares of precious rainforest are destroyed. That's why World Rainforest Day has been created to take decisive action to combat deforestation, reduce the effects of climate change and protect our rainforests for future generations.

राष्ट्रदूत
WEDNESDAY
22 June 2022
A-B

#J'ADORE

Perfect Puddle Jumping

The fact that you and your little one have to actually leave the house on a rainy day is hard enough. Make the wet journey more tolerable by making sure your sweetie's feet are toasty and dry.

One of the fondest memories of childhood is jumping in muddy puddles during rainy days. So, we have listed some of the best rain boots for kids for a fun, splashy time. These boots are durable, of high-quality and prevent your child from slipping. They keep your child's feet dry and clean, and are easy to maintain. Easy to put on and take off these rain boots are also available in various colours and sizes to suit your needs. Take a look at our list to choose the right pair for your child.

Light Up Rain Boots

These dino-inspired rain boots are almost too cool for school. The fun pattern provides just as much of a statement as the typical yellow rain boot and your kiddo will love standing out amongst the pack. Did we mention these bad boys light up, too?

Crocs Kids' Handle It Rain Boot

Chances are your kid already has a pair or two of Crocs in their closet. They'll get the same lightweight durability found in those classic clogs here in this rain boot.

Hunter Rain Boots

There's a reason these rain boots are a favourite with parents. Basic but sturdy, the range of colours means you can find a pair that'll go with just about anything your kid wears.

Glitter Rain Boots

We seriously wish these came in adult sizes! These special kids' rain boots add a little sparkle to the gloomiest of days - and who wouldn't love that?

Mid Rain Boot

Tell me these aren't the cutest rain shoes you've ever seen. They're extremely easy to put on and take off thanks to the Velcro straps and yet they're still 100% waterproof. They're the perfect rain boot for unpredictable weather.

Waterproof Rubber Rain Boots

These colourful kids' rain boots are a simple, durable style that will leave your kid's feet comfortable and dry. They're 100% waterproof and come in tons of different patterns to match any personality.

Pink City's Historic Clock Towers Need To Be Saved! (...1)

#HERITAGE

Yadvendra Sharma
Arbit Correspondent

Inside, a winding old staircase leads to the third floor where the clock mechanism was placed. "The mechanism of the clock occupied the complete third floor of the tower, but it was in complete disarray. The clock had stopped functioning at some point in time," said Anjali adding, "most of the timekeeping mechanism, including the time train, the escapement and tool (to run the clock) were kept enclosed in a rugged box." The officer told her that some repairs have been made to the clock from time-to-time and yet the clock had not been working for months.

The southeastern face of the octagonally symmetrical Yaadgar ghanta ghar at Ajmeri gate.

If one were to rewind the clock two-three years, one would realise that Jaipur in this short period has been the witness to quite a few momentous occurrences. One could argue that in the last 100 years no generation had encountered so many epochal events, in such a short span of time, as the present ones – some of these moments were dark, like outbreak of Covid 19 followed by the announcement of lockdown – first amongst Indian states. The other moments were a cause of celebration and pride; like the announcement by UNESCO that the densely packed walled city of Jaipur is a world heritage site – amongst the few cites that can be called a 'living heritage', where people coexist within and around structures and buildings that were built over hundreds of years and are considered cultural/ architectural heritage sites.

Unexpected Visit

It was during these tumultuous time i.e. the beginning of 2020, when the pandemic has just struck the world, that Anjali Jain, a resident of Mumbai, working as the Chief Conservator with Maharaja Sawai Man Singh II Museum, at City Palace Jaipur, had to make an unexpected visit to the Jaipur Traffic Police's office at 'Yadgar, Ajmeri Gate', as her two wheeler had been impounded for wrong parking. It was during this fortuitous visit that Anjali had the chance to really see and soak in the architectural beauty of the clock tower, installed at Yadgar Traffic Police Station. She says that she had seen the clock tower many a time before on her daily visit to her office inside City Palace Museum, but she has never had the chance to lay her eyes of the structure and admire its architecture. "You can't blame yourself for not noticing it before... the structure is in dire need for some upkeep. One might see it every day and not think much of it," she adds.

But, perhaps due to the fact that Anjali is a professional conservator and is drawn to objects and structures of yore, she immediately developed a fascination and curiosity about the clock tower. "I requested a senior officer to let me have a closer look of the clock tower. I wanted to see when and who had built it... after much pursuance he reluctantly agreed to let me go inside. But only on the condition that a junior officer would accompany me," she says.

Inside, a winding old staircase leads to the third floor where the clock mechanism was placed. "The mechanism of the clock occupied the complete third floor of the tower, but it was in complete disarray. The clock had stopped functioning at some point in time," said Anjali adding, "most of the timekeeping mechanism including the time train, the escapement and tool (to run the clock) were kept enclosed in a rugged box." The officer told her that some repairs have been made to the clock from time-to-time and yet the clock had not been working for months.

"In spite of the dirt and all sorts of garbage that been stuffed inside the tower one could easily find the instruments that were originally used in the tower and could be used to restore it to its original glory," she says.

"The clock hands that were being used originally in the clock, in the present day were replaced; one could see that they were quite new. But I could see the original clock hands and also the bell that must have been used in the clock tower at the time of installation... kept among the trash... One could see that if someone at some-point wanted to restore the clock back to its original glory, it would be have been possible."

> Speaking to Arbit about the process of documenting all her research about the Ghanta Ghars (Clock towers) in Jaipur, Anjali says that she was in for quite a surprise, 'there isn't much information available'. For a city that pride itself on being adorned with the title of World Heritage Site.

The Yaadgar ghanta ghar with its symmetrical overhanging balconies in rosy sandstone and two of the four clock faces visible behind them.

The driving weight comprises of two different sizes of separate cast iron weight plates. Back in the day, this led to the speeding up or slowing down of the escapement.

Details of an open-door lining one of the balconies of the Yaadgar ghanta ghar's clock room.

Harrowing Journey

Enthralled with her experience at Edward Memorial, Yadgar, at Ajmeri Gate, Anjali was motivated to research about these clock towers of Jaipur and publish her findings. She had even managed to secure funding for her research from Shahpedia.org, an organisation that calls itself an 'open online resource on the arts, cultures and heritage of India'. The timing of it all she thought could not be more serendipitous, as her contract with Maharaja Sawai Man Singh II Museum, was nearing completion.

However, she couldn't have assumed that her research work would entail an interesting yet harrowing journey; involving endless cycles of bureaucratic hurdles, which would force her to almost give up on her project.

Speaking to Arbit about the process of documenting all her research about the Ghanta Ghars (Clock towers) in Jaipur, Anjali says that she was in for quite a surprise, 'there isn't much information available'. For a city that pride itself on being adorned with the title of World Heritage Site – the city's government did very little to document its architectural heritage – especially its historic clock towers. Anjali says that she even talked to her peers at Maharaja Sawai Man Singh II Museum and tried to Google, read-up books or papers (that documented when and where the clock towers where built), but she couldn't make much head way.

Giles Tilitson, an author, scholar and historian, who also was Anjali's colleague at City Palace Museum – coincidently had written a couple of books which had passing references about the clock tower at City Palace and King Edward Memorial (about when and how they were built). But Anjali had to do most of her research sifting through public documents, whenever she could lay hand on them.

If one were to count, there are in fact quit a few clock towers in Jaipur, seven to be exact – and starting with the oldest – that would possibly be the clock tower at Mahila Chikitsalay, in front of Sanganeri Gate or the Mayo Hospital, as it was known during the British Raj (built around 1870-75); followed by the clock tower at The City Palace (built around 1874); then the clock tower at Edward Memorial Yadgar, at Ajmeri Gate (built between 1911-1915); then comes clock tower at St Andrew's Church, situated just outside Chandpole, the western gate of the walled city (unveiled in 1922); followed by the clock tower at Raja Ramdeo Poddar School (unveiled in 1963), and finally the clock towers at The Ram Mandir, in Bani and Jhulelal Mandir, unveiled in 1973 and 2006 respectively.

For the inveterate chronologists amongst us, it is easy to further divide these clock towers (according to the period in which they were built) into a pre-independence and post-independence list.

Clock Towers Built by the Kings

And here in lies a story – Anjali says unlike the rest of India, clock towers in Jaipur were not built by the British. They were not built as an attempt to litter the Indian landscape with tall and imposing symbols of imperialism and British hegemony, says Anjali, adding that they were built or commissioned by the king's direct orders.

"In cities like Shimla (which was the summer home for British residents) or Bombay, Calcutta, Madras and Allahabad (Mumbai, Kolkata, Chennai and Prayagaraj; as it is called now), clock towers were built by the British Raj. But since Jaipur was a princely state only the king could order the construction of these structures," states Anjali.

"Most of the pre-independence clock towers were commissioned by Maharaja Sawai Ram Singh II, and were either completed during his reign or after his death."

Anjali says that it is unlikely that the king built these clock towers to appease the British stating that: "A lot has to do with the fact that Ram Singh had modern education, hence he wanted to build a modern city and had the money to do so. He was also an ardent admirer of art and architecture and wanted to bring to his kingdom the latest kinds of gadgets and instruments. These clock towers were not supposed to remind the common man of the time. Instead, I see them as structures that are built to decorate the city."

"Ram Singh also had an advisory role to the British Raj, and he would travel to Delhi, Calcutta and Bombay very often... Thus, he was exposed to the latest technologies and modern architecture. And he did had the funds to build modern architectures in Jaipur for his people to see."

To be continued...

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(All photos by Anjali Jain)

The setup of the mechanism indicates that the clock work once included a bell, most probably one that struck every hour.

#RESEARCH

The PHL7 enzyme disintegrated an entire piece of plastic in less than a day.

Biodegradable Plastic

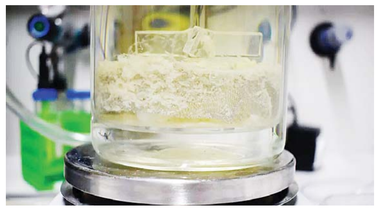
While scavenging through a compost heap at a Leipzig cemetery, Christian Sonnendecker and his research team found seven enzymes they had never seen before.

They were hunting for proteins that would eat PET plastic - the most highly produced plastic in the world. It is commonly used for bottled water and groceries like grapes.

The scientists weren't expecting much when they brought the samples back to the lab, said Sonnendecker when DW visited their Leipzig University laboratory.

It was only the second dump they had rummaged through and they thought PET-eating enzymes were rare.

But in one of the samples, they found an enzyme, or polyester hydrolase, called PHL7. And it shocked them. The PHL7 enzyme disintegrated an entire piece of plastic in less than a day.



Two enzymes 'eat' plastic: PHL7 vs. LCC

PHL7 appears to 'eat' PET plastic times faster than LCC, a standard enzyme used in PET plastic-eating experiments today.

To ensure their discovery wasn't a fluke, Sonnendecker's team compared PHL7 to LCC, with both enzymes degrading multiple plastic containers. And they found it was true: PHL7 was faster.

"I would have thought you'd need to sample from hundreds of different sites before you'd find one of these enzymes," said Graham Howe, an enzymologist at Queens University in Ontario, Canada.

Howe, who also studies PET degradation but was not involved in the Leipzig research, appeared to be amazed by the study published in Chemistry Europe.

"Apparently, you go to nature and there are going to be enzymes that do this everywhere," said Howe.

PET Plastic Is Everyone

Although PET plastic can be recycled, it does not biodegrade. Like nuclear waste or a nasty comment to your partner, once PET plastic is created, it never really goes away.

It can be refashioned into new products - it's not hard to create a tote bag from recycled water bottles, for example. But the quality of the plastic weakens with each cycle.

So, a lot of PET is eventually fashioned into products like carpets and – yes – an exorbitant number of tote bags that end up in landfill sites. There are two ways to look at solving this problem: The first is to stop production of all PET plastic.

But the material is so common that even if companies stopped producing it immediately, there would still be millions of empty soft drink bottles - or tote bags fashioned from those bottles - lying around for thousands of years.

The second way is to force the plastic to degrade. Scientists have been trying to find enzymes that will do that for decades and in 2012 they found LCC, or "leaf-branch compost cutinase."

LCC was a major breakthrough because it showed that PETase, a component of LCC, can be used to degrade PET plastic when it is combined with another enzyme known as an esterase.

Esterase enzymes are used to break chemical bonds in a process called hydrolysis.

Scientists working on LCC have found that the enzyme does not differentiate between natural polymers and synthetic polymers - the latter being plastic. Instead, LCC recognizes PET plastic as a naturally occurring substance and eats it like it would a natural polymer.

Engineering the Enzyme

Since the discovery of LCC, researchers like Sonnendecker have been looking for new PET-eating enzymes in nature. LCC is good, they say, but it has limitations. It is fast for what it is, but it still takes days to break down PET and the reactions have to occur at very high temperatures.

Other scientists and researchers have been trying to figure out how to engineer LCC to make it more efficient.

A French company called Carbios is doing that. They are engineering LCC to create a faster, more efficient enzyme.

Elsewhere, researchers at the University of Texas in Austin have created a PET-eating protein using a machine learning algorithm. They say their protein can degrade PET plastic in 24 hours.

David Zechel, a professor of chemistry at Queen's University said these approaches always start with something that is known - the researchers don't necessarily find anything new, but work to improve what has already been discovered.

This type of engineering is important as researchers try to create the optimal enzyme to degrade PET, said Zechel.

Sonnendecker's work shows that 'we haven't even remotely scratched the surface' in terms of the potential of naturally occurring enzymes 'with respect to PET'.

Bottles Still Don't Biodegrade

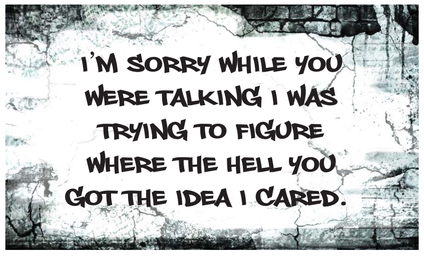
Sonnendecker's newly discovered enzyme has its limitations, too. It can break down the containers you buy your grapes in at the grocery store, but it can't break down a soft drink bottle. Not yet.

The PET plastic used in drink bottles is stretched and chemically altered, making it tougher to biodegrade than the PET used in grape containers.

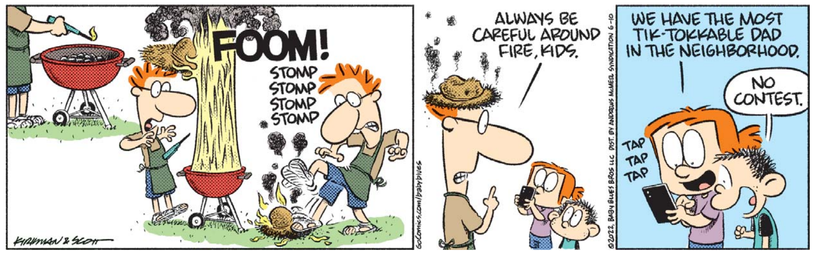
In tests, Sonnendecker's team has developed a pre-treatment that is applied to PET bottles, making it easier for the enzyme to degrade the plastic. But that research has yet to be published.

With industry help, said the researcher, technology using PHL7 to break down PET at a large scale could be ready in around four years.

THE WALL



BABY BLUES By Rick Kirkman & Jerry Scott



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