ARBiT
it happens here...

International Rabbit Day

Held on the last Saturday of September, this annual celebration of the long-eared, short-tailed mammal is not just in the name of the millions of bunnies kept as pets across the Western world but also aims to promote a serious message about animal welfare. On International Rabbit Day, we are encouraged to consider, not only the companionship offered by our favourite hutch-dwellers, but the various ways in which rabbits are harmed by medical and cosmetic testing, hunting, fur farming and, of course, casseroling.

राष्ट्रदूत
SATURDAY
28 September 2024
A-B

#ANCIENT TECHNOLOGY

Egyptian Pyramids

The Step Pyramid is believed to have been built in around 2680 BCE as a funerary complex for the Third Dynasty pharaoh, Djoser. Yet, the precise method of its construction has always remained unclear.

Egypt's Great Pyramids have been a source of wonder and mystery for centuries. But recent research has shed a dazzling light on the secrets of how they were created, and how this involved the impressive use of water.

Now, a new study has suggested that at least one of the great structures was built using equipment that was far more sophisticated than once thought.

In the past, experts believed that the *Step Pyramid* was most likely constructed using a network of ramps and levers.

However, the latest analysis, led by Xavier Landreau of France's CEA Paleotechnic Institute, suggests that the Ancient Egyptians channelled nearby canals to power weight-bearing lifts.

The study suggests that water was enabled to flow into two shafts, located in the pyramid itself, which were used to help raise and lower a float used to carry the heavy stone building blocks.

"Ancient Egyptians are famous for their pioneering and mastery of hydraulics through canals for irrigation purposes and barges to transport huge stones," the researchers wrote.

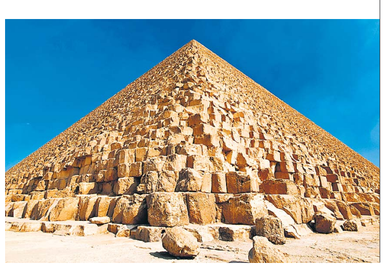
This work opens a new line of research, the use of hydraulic force to erect the massive structures built by Pharaohs. The Step Pyramid, is believed to have been built in around 2680 BCE as a funerary complex for the Third Dynasty pharaoh, Djoser. Yet, the precise method of its construction has always remained unclear.

Landreau and his colleagues argue that a nearby previously-unexplained structure, known as the *Gisr el-Mudir enclosure*, was, in fact, a 'check dam' used to capture water and sediment.

They also posit that a series of compartments dug into the ground, just outside the pyramid, may have served as a water treatment facility. This would have enabled sediment to settle as water passed through each subsequent compartment. From there, after flowing into the pyramid's shafts themselves, the pressurised water would have floated the building stones towards the upper levels of the structure via an internal shaftway, in a process known as 'volcano' construction. Nevertheless, whilst the authors feel confident that the internal architecture of the Step Pyramid is consistent with a hydraulic elevation device never reported before, they concede that further investigations are needed. They now aim to establish how water might have flowed through the shafts, as well as how much water was available in the surrounding area, all those thousands of years ago. Still, they note that whilst other structures, including ramps, were probably also used to help erect the pyramid, a hydraulic lift system could have been used to support the building process when there was enough water.

They stress that their research, carried out in conjunction with several national laboratories, has led to the discovery of a dam, a water treatment facility, and a hydraulic elevator, which would have enabled the construction of the Step Pyramid of Saqqara.

They conclude that this work opens a new research line for the scientific community that is the use of hydraulic power to build the pyramids of Egypt.



The Lord has a good appetite, not only for fragrant flowers and ornaments but also for delicious food. Lord Sri Venkateswara, who loves delicious food, happily shares the same with his devotees in the form of *Prasadam*. Tenali Ramakrishna, the court poet of Sri Krishna Deva Raya had bestowed the title '*Thindimendayya*' (voracious eater) on the Lord after he was unable to assess the Lord's food intake. *Prasadams*, of this magnitude, are prepared with pure ghee. It is believed that the leftover ghee, after all items that are prepared on a regular day, is sufficient for preparing prasadams in smaller temples, throughout the year. In *Tirupati mandir*, Laddu is the main offering (prasadam) to the presiding deity.

What's in a Laddo?

In this one, a Piece Of God!

Anjali Sharma
Senior Journalist & Wildlife Enthusiast

So, what is it about this '*laddu*' that makes it so special? To begin with, this delicacy was created during the Pallava dynasty's rule. Even inscriptions from the 1480s mention the *laddoo*, which was then called '*manoharam*.' The latter was originally served in a loose, chunky form. The sweet's components underwent up to six modifications over history before settling on their current ball form under the Madras Government in 1940.

In this article, an attempt is made to highlight the preparation of *Srivari Laddu*, ingredients, which are used for preparing the Laddu, income and expenditure and the pilgrims' satisfaction on the *Taste of the Laddu*. Based on the pilgrims' opinion, and when they are asked for it, suggestions are given for the TTD authorities to provide better *Srivari Prasadam* for the pilgrims. Tirumala Sri Venkateswara Temple is a world famous temple. Probably, no place of worship, anywhere in the world, attracts as many pilgrims and receives as much revenue as the Tirumala temple. More than 60,000 pilgrims visit Tirumala every day.

The Lord has a good appetite, not only for fragrant flowers and ornaments but also for delicious food. Lord Sri Venkateswara, who loves delicious food, happily shares the same with his devotees in the form of *Prasadam*. Tenali Ramakrishna, the court poet of Sri Krishna Deva Raya had bestowed the title '*Thindimendayya*' (voracious eater) on the Lord after he was unable to assess the Lord's food intake. *Prasadams*, of this magnitude, are prepared with pure ghee. It is believed that the leftover ghee, after all items that are prepared on a regular day, is sufficient for preparing prasadams in smaller temples, throughout the year. In *Tirupati mandir*, Laddu is the main offering (prasadam) to the presiding deity.

Tirumala, and its prasadam, *laddu* are almost synonymous. The huge *vada* occupies the next position. The architect of the 'Laddu' was Kalyanam Iyengar. He introduced the *Mirasidari* system to prepare *Laddus*. Those preparing laddus in the kitchen (*potu*) were called *Gamekar Mirasidars*. The Mirasidars enjoyed the privilege of preparing Laddus and got their share of the prasad till 2001. Out of the each lot of 51 laddus, 11 were given to *Mirasi Brahmin* families. The TTD management won a legal battle in the Supreme Court for abolition of Mirasi system. Mirasidari system was abolished in 2001, whereby the Government of Andhra Pradesh put an end to the rights of the hereditary trustees in preparing offerings.

About one tonne of *besan* flour, 10 tonnes of sugar, 700 kgs of cashew nuts, 150 kgs of cardamom, 300 to 500 litres of ghee, 500 kgs of sugarcandy and 540 kgs of raisins are used daily, besides saffron strings and edible camphor. This is the standard recipe, which is to be multiplied according to the quantity to be made. We cannot return home without *Tirumala Laddu*, after the divine *darshan* of Lord Venkateswara. There is no satisfaction in doing so. Every devotee, returning from Tirupati, will necessarily distribute 'Laddu' as *prasadam* to his friends and relatives. Laddu is so important for every devotee that even VIPs bring recommendation letters to have a few more than the quota for each *Arjitha Seva* such as *Kalyanam* or the *Archana Antara Seva*. The reason for such a popularity of Laddu among pilgrims of Tirumala is its unique flavour. Devotees find it 'divinely' tasty, and most of them can be heard saying, "It is so good, because it's *prasadam*. Making them at home does not infuse that extra goodness." All these characteristics and never-compromising quality of Laddus ever since it all began distributing 300 years ago, though the size of Laddu has reduced over the years, have made this prasadam the 'most sought after in India.'

Tax and land reforms' records found on an inscription.

Historical Background

#AASTHA

THE TTD HAS ENTERED INTO CONSULTANCY SERVICE CONTRACT WITH THE CENTRAL FOOD TECHNOLOGICAL RESEARCH INSTITUTE, MYSORE TO ENSURE GOOD QUALITY OF PRASADAM PANIYARAMS. IN TIRUMALA TEMPLE, THREE TYPES OF LADDUS ARE BEING PREPARED WHICH ARE:

Asthanam Laddu, Kalyanotsavam Laddu and Proktham Laddu. The difference between these three Laddus is:

- **Asthanam Laddu:** This is prepared on Special Festive occasions. These can be distributed only to Special Guests like President of India, Prime Minister, Presidents, and Prime Ministers from other countries. They weigh 750 grams. For this, more quantity of Cashew nuts, Almonds, Ghee and Saffron flowers are used for the preparation, when compared to the allotted *Dittam*.
- **Kalyanotsavam Laddu:** The Laddu is distributed to those who take part in the *Kalyanotsavam* and *Arjitha Seva Grihastas*. This is tastier when compared to the small Laddus. Those who want Kalyanotsavam Laddu, they can pay Rs. 100/- for each. There is demand for these Laddus in Tirumala.
- **Prokthum Laddu:** This is small Laddu which is distributed to the common pilgrims in Tirumala Temple. Weight of the Laddu is 175 grams. According to the TTD records, for preparation of each Laddu, there is an estimation of Rs. 25. But the TTD distribute with subsidised rates for the benefit of the common pilgrims. Pilgrims, those who complete their *Darshan*, can get two Laddus at the cost of Rs. 20. The list of ingredients and the proportion in which they are to be used is called *dittam*. Changes in dittam have been made over the years six times to meet the increasing demand. Recently, the TTD management has decided to stick to the original dittam's specifications, as there are many complaints on the falling shelf-life of the laddus. Now, the cost of preparation of each laddu is Rs. 25.

The dittam for the Srivari Laddu in Tirumala temple is as follows:

1. First Quality Rice
2. Sugar
3. Cashewnuts
4. Cardamom
5. Cow Ghee
6. Sugarcandy (*Misri*)
7. Raisins (*Kishmish*)
8. Gram flour

Historical records show that during the *Pallavas shasan*, prasadam was offered to the Presiding deity. Later, Devaraya II made a grant of three villages and gift of 200 *panam* for certain daily offerings. In addition, another officer of the Devaraya II, Amatya Shekara Mallanna, was appointed for arrangements for *Naivedyam* and *Nityadipam* to Lord Venkateswara. He introduced time table for food offerings to the Lord. The remaining food was to be distributed for the pilgrims, free of cost. This prasadam was called as *Tiruppongam*.

Later, *Sukkiyam*, *Appam*, *Manohara Padi*, *Vada* were also to be offered to the God. The Tirumala Temple received liberal patronage under the Vijayanagara rulers. The name given in the inscription is 'Avasaram.' The word 'Avas' in Sanskrit is food. This term is noticed in three previous inscriptions of the year 1554, 1579 and 1616. The inscriptions also made it clear that there was a similar food offering instituted by one Maharaja Sri Shudaji Bhanuji Pantulu. It seems from the inscription that Aliya Ramaraya's food offerings ceased after the conquest of the country by the Golkonda kings, and that the few, who were continuing to do service in the temple, stood in need of food like *suddhannam* (cooked food). Gradually, there was demand for the prasadam in Tirumala temple. The Madras Government identified the problem in AD 1803 and started sale of prasadams. Here, the pilgrims demanded more Vadas because Vada could be preserved more days when compared to other Paniyarams. The Madras Government started to sell the sweet *Bundi*, that is the initial form of Laddu. In 1940, that was shaped into Laddu.

Tamil Inscription.

From 1996 to 2001, the TTD prepared Laddu and other prasadams themselves. It started to become difficult for the TTD to increase the number of Laddus per day. The influx of pilgrims meant distribution of equal or more number of Laddus. They also had to cater to other '*Sevas*' and *Kalyanotsavams*. It became a herculean task for the officials to meet the demand. The Lord's kitchen is called *Potu*. In this potu, prasadam was prepared with only firewood. From 1984, the use of LPG started as there was a spurt in the number of laddus required every day. Even though the number increased to one lakh laddus per day, only 150 cooks were able to handle the work with the introduction of latest cooking technology. This number of laddus was less than half of the demand from devotees. Another kitchen was added to make another 70,000 laddus. On special occasions like *Ugadi*, the staff prepares special laddus and offers them to the God. Till now, the biggest laddu offered to Lord Venkateswara is 32 kgs. It was prepared by special hereditary priests known as *archakas* in special temple kitchen. Working space has been increased by expanding the Potu. This improved the sanitary and hygienic conditions of the Potu. Stainless steel trays are being used to stock the prasadam.

The Tamil Nadu Milk Co-operative Federation and Karnataka State Milk Federation have so far supplied 2,400 tonnes of ghee to *Tirumala Tirupati Devasthanams*. The TTD has sources of income through the sale of laddu. The revenue from the sale of laddu annually is more than 11 million rupees. In 2012-13, TTD estimated Rs. 140.00 crore receipts for the sale of Laddus, but it was projected at Rs. 150.00 crores. *Tirupati Laddu* got the patent rights under the Geographical Indications of Goods (Registration and Protection) Act in 2009. The TTD had applied for GI with Chennai-based Geographical Indication Registry to avoid its black-marketing by hawkers and middlemen. More than eighty five per cent (87.6%) of the pilgrims agreed that Laddu's taste is good. The reason for such a popularity of Laddu among pilgrims of Tirumala is its unique flavour, characteristics and never compromising on quality of Laddus (Though, the size of Laddu has reduced over the years.). More importantly, Laddu is the favourite *naivedyam* of Lord Venkateswara himself. Remaining 12% of the pilgrims mentioned that they are satisfied with laddu taste. Less than one per cent (0.4%) of them answered that Laddu's taste is bad when compared to the past days.

The reason is that there is a problem in storing laddus, apart from preparation of laddus. Tirumala is a cold place, but the humidity in air is high. Laddu cannot be stored for long time. Due to heavy demand, laddus are sent to sales counters immediately after preparation. Today, 2.50 lakhs of Laddus are being prepared in Tirumala.

Though, many modern methods are implemented in the speedy and quality preparation of laddus, they have not yielded good results. It is suggested that the administration should take care while preparing the *Laddu* (prasadam), and also that a mechanised pressing system can be introduced for making Laddu. The employees, those who are working in Potu, should maintain the kitchen in a hygienic condition.

The Tirumala Tirupati Devasthanams (TTD), which manages the Sri Venkateswara Swami temple in Tirupati, buys the ingredients through e-auction, spending about 500 crores on the procurement. The tendering process had shifted to online in 2022 to reduce human intervention.

The ghee tankers come with certification by the National Accreditation Board for Testing and Calibration Laboratories (NABL), which ensures that food testing has been done reliably. The consignment is stocked in godowns spread over two acres near Alipiri in Tirupati, for use in prasadam as well as for its free food scheme.

The annual procurement includes over 6,100 tonnes or 61 lakh kgs of ghee, 14 tonnes sugar, 9,200 tonnes of Bengal gram, 4,680 tonnes of *sona masoori dal*, and other ingredients that include raisins, cashews, cardamom and sunflower oil.

Only those agencies registered with the Andhra Pradesh Technological Services are allowed to take part in the e-auction. The contracts are awarded on the basis of various technical parameters and financial factors. AGMARK certification and FSSAI licences are a must for some of the ingredients from such agencies.

The consignment, that has come under spotlight, included 10 tankers of ghee from the Tamil Nadu-based AR Dairy Food Pvt. Ltd. Four of their tankers were stopped over suspected adulteration. The samples were sent for testing and the consignment was kept aside.

AR Dairy has said that its consignments have cleared multiple lab tests and that they have documents to prove that all test reports had cleared the ghee, which was sent to the temple. The dairy said it supplied just 0.01 per cent ghee to Tirumala.

This is a saga of one of the biggest enterprises of cooked fare. But this cannot be judged by ordinary standards of business, allowing '*theka*' or standard systems of tenders. This is a matter of faith for a large people, and cost cutting cannot be the guiding principle. It's like this, *kar seva* can't be paid for, it is not a salary for a worker, it's a seva, by rich and poor in *gurudwaras*, and can't be regulated by the same systems applied to other cost effective projects. Prasadam is God's blessing, just as kar seva is prostration before him, and the white smoke coming out of the chimney is god's confirmation of the new pontiff. It's a matter of '*aastha*.'

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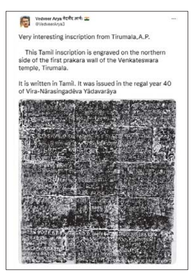


Written in Tamil, it was issued by Krishna Deva Raya.

#SPACE

It Turns Out that Earth May Have Once Had a Ring

Take that, Saturn.

We know what Earth looks like. Famously nicknamed the 'pale blue dot' by Carl Sagan, our planet is a fairly small, rocky one with a moon, a thin atmosphere, a little bit of land, and a whole lot of ocean.

But Earth has looked a lot of ways over the course of its life. It's been hot and fiery. It' been the opposite of hot and fiery. It's been lonely without its little lunar companion. It's been in shambles after being slammed into by another giant space rock.

And, according to a study recently published, during an era known as the Ordovician period, it may have once had rings. Seriously.

The researchers behind the paper arrived at their hypothesis by taking a look at the geology of our planet, or, at least, the geology it would have had during the Ordovician period via reconstructions. And what they found was weird. The team was able to note the presence of 21 impact craters caused by meteor strike, all within 30 degrees of the equator that came from that same about 460-million-years-go period of time. Given that most (by a significant margin) of Earth's land falls outside that 30 degree band, it's very odd that there would be such an outsized number of impacts happening in just that narrow region.

Unless, that is, we had a ring that was slowly raining debris down on our world. "Over millions of years," Andy Tomkins, the lead author on the study from Monash University, said in a press release, "Material from this ring gradually fell to Earth, creating the spike in meteorite impacts, observed in the geological record. We also see that layers in sedimentary rocks from this period contain extraordinary amounts of meteorite debris."

Planetary rings can be formed in a few ways, but the researchers believe that any ring that Earth may have had would have been caused by our planet, basically turning its gravity on a nearby asteroid and ripping it apart. This happens when an object (say, an asteroid or a moon) falls within what is called a planet's Roche limit, the distance from a planet at which its gravitational tidal forces overcome the internal gravity holding the captured object together, tearing it asunder until it functionally dissolves. Between its momentum and succumbing to Earth's orbit, the debris then forms a ring around our planet.

At least, for a while. Gravity doesn't ease up whenever a large object turns into a field of tiny objects. It's still pulling, and that can cause 'rain,' where bits of those rings slowly fall to the surface of the planet until there's nothing left. Saturn's rings are currently (very slowly) raining out of orbit, and are actually expected to disappear by around 100 million years from now. So, enjoy them while you can.

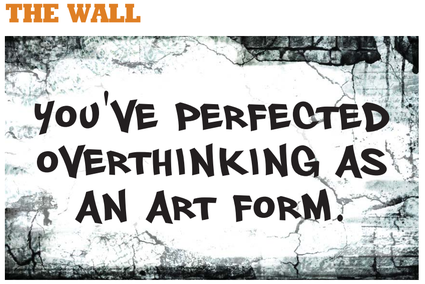
That rain is where the craters come in. Rings tend to form around the equators of planets. So, if Earth had rings, and thus, ring rain, we would see a pattern of impact craters exactly like those described in this recent study.

And that's not all. "What makes this finding even more intriguing," Tomkins added, "is the potential climate implications of such a ring system."

The Ordovician period and its impact spike correspond closely with a period of intense cold for our planet known as the *Hirnantian glaciation*, or, more dramatically, as the *Hirnantian Icehouse*. This was a truly freezing period that resulted in significant glacier formation, sea level drop, and a huge, marine-centered mass extinction, second in scope only to the 'Great Dying.' This was the coldest period in the last 540 million years of Earth's history. And the research team believes that all of this could have been caused in part by the shadow cast by a ring around our planet. "The idea that a ring system could have influenced global temperatures," Tomkins said, "adds a new layer of complexity to our understanding of how extra-terrestrial events may have shaped Earth's climate."

Of course, the entire idea remains a hypothesis at this point. Additional study will likely be needed before we can say anything for sure. But this research offers up a new lens through which to look at our past, and if we're lucky peering through it will allow us to understand the world, that we live in, better than ever before.

THE WALL



BABY BLUES

By Rick Kirkman & Jerry Scott

ZITS

By Jerry Scott & Jim Borgman