

Archaeology Dept. kicks off excavation at Porpanaikottai

Minister Thangam Thennarasu says studies indicated that a huge fort had existed at the site; he expresses confidence that the findings would bring out cultural significance of the region

S. Ganesan
TIRUCHI

The State Archaeology Department on Saturday began excavation at Porpanaikottai seeking to unearth an ancient fort in the village, situated about 6.5 km to the east of Pudukottai town.

This is one of the new sites where the department had launched excavations this year. Studies at the site using Light Detection and Ranging (LIDAR), a remote sensing method, had indicated that a fort had existed at Porpanaikottai, said Thangam Thennarasu, Minister for Finance, Human Resource Management and Archaeology, after inaugurating the excavation along with Minister for Law S. Regupathy and Minister for Environment Siva V. Meyyanathan.

Potsherds engraved with graffiti, Tamil-Brahmi-inscribed potsherds, shell bangles, bone tools and evidence of hopscotch were unearthed during an excavation conducted by E. Iniyan of Tamil Nadu Open University in 2021.

Though excavations are under way at other Sangam Age sites in Tamil Nadu, this is an important site with a big fort and habitation, Mr. Thennarasu said, expressing confidence that the findings would bring out the historical and cultural significance of the region.

"The excavation is being done in a scientific manner



Digging up the past: Ministers Thangam Thennarasu, S. Regupathy and Siva V. Meyyanathan inaugurating the excavation at Porpanaikottai in Pudukottai district on Saturday. SPECIAL ARRANGEMENT

and the best possible location has been identified for the digging," the Minister added.

Study findings

According to the Archaeology Department, studies had indicated that the fort was spread over an area of 17.75 hectares with three entrance gates. A habitation mound, spread over 1.26 hectares, with continuous settlements from the Iron Age is believed to have existed within the fort. Iron Age burials, black-and-red ware and early historic bricks had been recovered from the site.

vered from the site.

"The earliest lithic evidence in the form of a memorial stone, datable to 3rd-4th century CE on the palaeographical ground, emerged from this site. It looks contemporary to the Pulankurchi inscription. The memorial stone was raised for a hero Kanan-kumaran, a soldier of the close circuit, who died in a cattle raid carried on this village by Ponkongar Vin-nakon. The ruined fort was probably built in the 13-14th century CE," said a note issued by the Archaeology Department.

"It is a huge fort. According to tradition, it had 32 bastions. Inside, one could notice the remnants of the buildings probably a palace of the chief. Evidence of temples at four cardinal points had been found. An iron slag mound lies on the southern side near the fort," it said.

S.R. Gandhi, Director; R. Sivanantham, Deputy Director; and K. Rajan, Advisor, Department of Archaeology; Kavitha Ramu, Collector; and T. Thangadurai, Excavation Director, were present among others.

Centre seeks review of SC verdict on Delhi govt. powers

Petition says the judgment has upset the basic tenets of the constitutional idea of federalism and has equated the NCT of Delhi to a State by granting it legislative and executive authority

Krishnadas Rajagopal
NEW DELHI

The Centre has sought a review of a Supreme Court verdict upholding the Delhi government's power to make laws and wield control over civil services in the national capital.

The Centre said the judgment by a Constitution Bench headed by Chief Justice of India D.Y. Chandrachud had the effect of declaring Delhi a "full-fledged State" when it is actually a Union Territory.

"Union Territories are not 'States'. They are the territories of the Union falling outside the territories of the States. The judgment has upset the basic tenets of the constitutional idea of federalism. It has equated the National Capital Territory of Delhi to a State by granting it legislative and executive authority akin to a State," the Centre submitted in its 370-page review petition filed in the top court.

The Union government



 The judgment wholly ignores that the nominee of the President, the L-G or the Central government, are also manifestations of democracy

CENTRE'S REVIEW PLEA IN THE SUPREME COURT

said Delhi has never been elevated to the level of a State. The Centre said the judgment was self-contradictory – terming that Delhi had a *sui generis* or special status while at the same time treating it as a 'State'.

"The Legislative Assembly of NCT of Delhi is not a full-fledged Legislative Assembly and does not elevate Delhi to the status of a State List," the review petition said.

The Centre argued that for a Union Territory, the Parliament is the sole legislative body.

The judgment, though accepting the superior legislative authority of the Parliament over Delhi, had gone on to recognise ex-

tensive legislative and executive powers to the Delhi Council of Ministers and the Legislative Assembly.

The review plea said the legislative powers are distributed between Parliament and State Legislatures and not between Parliament and Legislative Assemblies of Union Territories.

The petition further said the five-judge Bench judgment contradicts a 1997 nine-judge Bench decision of the Supreme Court in *New Delhi Municipal Corporation vs State of Punjab*, in which it was "clearly held that notwithstanding the 69th Amendment introducing a Legislative Assembly for Delhi, the NCT

of Delhi remains a Union Territory".

The Centre said Article 309 of the Constitution clearly distinguished between the Centre and State services. The civil services in a Union Territory clearly belonged to the Centre. The appointments and transfers are made in the Delhi administration in accordance with the Central recruitment rules approved by the President through Lieutenant-Governor (LG) under Article 309.

"The judgment wholly ignores that the nominee of the President, the L-G or the Central government, are also manifestations of democracy, exhibiting the democratic conscience of the country as a whole when compared to the elected government of Delhi. The Central government is administered by the people of the entire country who have a vital and preponderant interest in the governance of the capital of the entire country," the review petition contended.

What is the Governance Model of New Delhi?

- The status of Delhi being a Union Territory under Schedule 1 of the Constitution but christened the 'National Capital Territory' under Article 239AA, engrafted by the Constitution (69th Amendment) Act.
- The 69th amendment to the Constitution of India inserted Article 239AA, which declared the Union Territory of Delhi to be administered by a L-G who works on aid and advice of the elected legislative assembly.

However, the 'aid and advice' clause pertains only to matters on which the elected Assembly has powers under the State and Concurrent Lists With the exception of public order, police, and land.

- Further, the Article 239AA also notes that L-G has to either act on the aid and advice of the Council of Ministers, or he is bound to implement the decision taken by the President on a reference being made by him.
- Also, Article 239AA, empowers the L-G to refer a difference of opinion on 'any matter' with the Council of Ministers to the President.
- Thus, this dual control between L-G and the elected government leads to a power tussle.

ARTICLE 309:

Recruitment and conditions of service of persons serving the Union or a State.

Subject to the provisions of this Constitution, Acts of the appropriate Legislature may regulate the recruitment, and conditions of service of persons appointed, to public services and posts in connection with the affairs of the Union or of any State:

Provided that it shall be competent for the President or such person as he may direct in the case of services and posts in connection with the affairs of the Union, and for the Governor of a State or such person as he may direct in the case of services and posts in connection with the affairs of the State, to make rules regulating the recruitment, and the conditions of service of persons appointed, to such services and posts until provision in that behalf is made by or under an Act of the appropriate Legislature under this article, and any rules so made shall have effect subject to the provisions of any such Act.

Global polio targets set for this year unlikely to be met

The Hindu Bureau

Since 1988, when the World Health Assembly established the Global Polio Eradication Initiative (GPEI), wild poliovirus subtype-2 and subtype-3 have been successfully eradicated. The number of wild poliovirus cases across the world have sharply dropped by more than 99.9%.

Today, Afghanistan and Pakistan are the only coun-

tries where indigenous wild poliovirus subtype-1 transmission continues uninterrupted.

Rise in cases

Last year, the number of wild poliovirus subtype reported from Afghanistan and Pakistan shot up to 22 (two in Afghanistan, and 20 in Pakistan), from just five such cases in 2021. All the 20 cases reported in Pakistan were from security-compromised districts

in Khyber Pakhtunkhwa province, representing a 19-fold increase over the single case reported in 2021. As of May 10, 2023, one case of wild poliovirus subtype-1 (WPV1) was reported in Khyber Pakhtunkhwa. In the case of Afghanistan, the latest reported WPV1 case was on August 29, 2022.

This year, as of May 10, one WPV1 case has been reported in Pakistan (February 20, 2023), while

two cases have been detected from environmental samples. In contrast, there have been no wild poliovirus subtype-1 cases reported this year in Afghanistan, while 18 positive environmental samples have been reported so far this year.

Cause for concern

According to a recent report in the *Morbidity and Mortality Weekly Report* (MMWR), 859 cases of circulating vaccine-derived

polioviruses (cVDPVs) have been reported last year. This marks an increase of 23% (698 cases) increase in such cases a year earlier – 2021. But what is particularly concerning is the fact that circulating vaccine-derived polioviruses have been reported from countries where poliovirus transmission had long been eliminated such as Canada, Israel, the U.K. and the U.S. In addition, there has been co-circula-

tion of multiple poliovirus types occurring in multiple countries globally – Democratic Republic of the Congo (DRC), Israel, Malawi, Mozambique, Republic of the Congo, and Yemen.

The report warns that it is “unlikely” that the current global epidemiology of poliovirus transmission will make it possible to meet the 2022-2026 GPEI goal of detecting the last cases of WPV1 and cVDPV this year.

What is Polio?

- Polio is a crippling and potentially deadly viral infectious disease that affects the nervous system.
- There are three individual and immunologically distinct wild poliovirus strains:
 - Wild Poliovirus type 1 (WPV1)
 - Wild Poliovirus type 2 (WPV2)
 - Wild Poliovirus type 3 (WPV3)
- Symptomatically, all three strains are identical, in that they cause irreversible paralysis or even death. However, there are genetic and virological differences, which make these three strains separate viruses which must each be eradicated individually.
- **Spread:**
 - The virus is transmitted person-to-person mainly through the faecal-oral route or, less frequently, by a common vehicle (for example, through contaminated water or food).
 - It largely affects children under 5 years of age. The virus multiplies in the intestine, from where it can invade the nervous system and can cause paralysis.
- **Symptoms:**
 - Most people with polio do not feel sick. Some people have only minor symptoms, such as fever, tiredness, nausea, headache, pain in the arms and legs, etc.
 - In rare cases, polio infection causes permanent loss of muscle function (paralysis).

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- Polio can be fatal if the muscles used for breathing are paralysed or if there is an infection of the brain.
- **Prevention and Cure:**
 - There is no cure, but it can be prevented through Immunisation.
- **Vaccines:**
 - Oral Polio Vaccine (OPV): It is given orally as a birth dose for institutional deliveries, then primary three doses at 6, 10 and 14 weeks and one booster dose at 16-24 months of age.
 - Injectable Polio Vaccine (IPV): It is introduced as an additional dose along with the 3rd dose of DPT (Diphtheria, Pertussis and Tetanus) under the Universal Immunisation Programme (UIP).
- **India & Polio:**
 - India received polio-free certification by the World Health Organisation (WHO) in 2014, after three years of zero cases.
 - This achievement has been spurred by the successful Pulse Polio Campaign in which all children were administered polio drops.
 - The last case due to wild poliovirus in the country was detected on 13th January 2011.

What Initiatives have been taken to Eradicate Polio?

- **Global:**
 - Global Polio Eradication Initiative:
 - It was launched in 1988 by the Global Polio Eradication Initiative (GPEI), by national governments and WHO. Presently, 80% of the world's population is now living in certified polio-free regions.
 - An estimated 1.5 million childhood deaths have been prevented, through the systemic administration of vitamin A during polio immunization activities.
 - World Polio Day:
 - It is observed every year on 24th October in order to call on countries to stay vigilant in their fight against the disease.
- **Indian:**
 - Pulse Polio Programme:
 - It was started with an objective of achieving 100% coverage under Oral Polio Vaccine.

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- Intensified Mission Indradhanush 2.0:
 - It was a nationwide immunisation drive to mark the 25 years of Pulse polio programme (2019-20).
- Universal Immunization Programme (UIP):
 - It was launched in 1985 with the modification to 'Expanded Programme of Immunization (EPI). The objectives of the Programme include:
 - Rapidly increasing immunization coverage
 - Improving the quality of services
 - Establishing a reliable cold chain system to the health facility level
 - Introducing a district-wise system for monitoring of performance
 - Achieving self-sufficiency in vaccine production.

New technique welcomes calcium-41 to radiometric dating

Vasudevan Mukunth

Since its invention in 1947, carbon dating has revolutionised many fields of science by allowing scientists to estimate the age of an organic material based on how much carbon-14 it contains. However, carbon-14 has a half-life of 5,700 years, so the technique cannot determine the age of objects older than around 50,000 years.

Calcium-41

In 1979, scientists suggested using calcium-41, with a half-life of 99,400 years. It is produced when cosmic rays from space smash into calcium atoms in the soil, and is found in the earth's crust, opening the door to dating fossilised bones and rock. But several problems need to be overcome before it can be used to reliably date objects.

One important advancement was reported in *Nature Physics* in March 2023.

When an organic entity is alive, its body keeps absorb-

ing and losing carbon-14 atoms. When it dies, this process stops and the extant carbon-14 starts to decay away. Using the difference between the relative abundance of these atoms in the body and the number that should have been there, researchers can estimate when the entity died.

A significant early issue with carbon dating was to detect carbon-14 atoms, which occur once in around 1,012 carbon atoms. Calcium-41 is rarer, occurring once in around 1,015 calcium atoms.

In the new study, researchers at the University of Science and Technology of China (USTC), Hefei, pitched a technique called **atom-trap trace analysis (ATTA)** as a solution. ATTA is sensitive enough to spot these atoms; specific enough to not confuse them for other similar atoms and fits on a tabletop.

A sample is vaporised in an oven. The atoms in the vapour are laser-cooled and loaded into a cage made of light and



Limitation: Carbon-14 dating cannot determine the age of objects older than around 50,000 years.

magnetic fields. In an atom, an electron in one orbital can transition to the next if it's given a specific amount of energy; then it jumps back by releasing that energy.

Electron transition

In ATTA, a laser's frequency is tuned such that it imparts the same energy as required for an electron transition in calcium-41. The electrons absorb and release this energy, revealing the presence of their atoms.

The researchers reported

being able to spot one calcium-41 atom in every 1,016 calcium atoms with 12% precision in seawater.

"However, there was only one sample analysed," Tian Xia, an associate scientist at the USTC and a co-author of the paper, told *The Hindu* by email.

In future, "we hope that from the effusive atomic beam, the loading efficiency of the Ca-41 atoms into the trap can be improved," so that the measurement time for each sample is lower and the

sensitivity is higher, Dr. Xia added.

His group leader, Zheng-Tian Lu, said in the journal, *Physics Today*, that ATTA's success is due to innovations with lasers: "laser power is a lot higher, and laser frequency control is better".

ATTA also avoids potassium-41 atoms, which are similar to calcium-41 atoms but lack the same electron transition.

Earth-science application

The researchers are currently exploring an earth-science application. In warmer climate, glaciers retreat and allow rock below to accumulate calcium-41. In colder climate, glaciers advance and block the calcium-41 from reaching the rock.

This way, scientists hope to use ATTA to study how long some rock has been covered by ice.

"We are collaborating with geo-scientists... by measuring the Ca-41 abundance in some rock samples," Dr. Xia said.

How has SC validated T.N. stand on jallikattu?

Why has the judgment brought cheer to the Tamil Nadu government and supporters of the sport?
Will it be applicable to similar races in other States? Is regulation preferred over a ban? How has the court dealt with animal rights?

Jallikattu, the traditional rural sport involving bulls, has received judicial approval. A Constitution Bench of the Supreme Court has ruled that the amendment made in 2017 by the Tamil Nadu Assembly to the Prevention of Cruelty to Animals Act, 1960, facilitating the smooth conduct of the sport with stringent regulations, is valid. The court has, thus, settled the question whether the sport should be disallowed on the ground that it involves unnecessary cruelty to animals and violates animal rights. The verdict is also applicable to other sports involving bovines such as Kambala (buffalo race) in Karnataka and bullockcart racing in Maharashtra.

What are the controversies over jallikattu?

The main conflict over the sport, which involves sturdy bulls being let loose into the arena and being chased by men who are considered winners if they manage to hold on to the humps of the animals without being thrown off, is whether it entails unnecessary cruelty. Animal rights activists have been arguing that the manner in which it is held is cruel because it inflicts pain and suffering. What appears to be a bull's ferocity in the arena is actually a flight response born out of fear. Specific acts that allegedly took place in the past — before the events were regulated by law — such as beating the bulls or twisting their tails and other acts that inflict pain so that they are more ferocious in the arena, are now rare.

In 2006, a Madras High Court judge, when a petition for permission to hold a rekla race (a kind of bullock cart race) came up before her, barred the conduct of any such event including jallikattu. On appeal, a Division Bench set aside the order, but asked the government to take steps to prevent any kind of violence or cruelty as well as ensure the safety of the participants and spectators. It favoured regulation over an outright ban. The State Assembly adopted the Tamil Nadu Regulation of Jallikattu Act in 2009 to strengthen its case for holding the event by adopting regulations and safety measures. In July 2011, the Union Ministry of Environment and Forests issued a notification including 'bulls' in a list of animals that are prohibited from being exhibited or trained for any performance. Efforts to organise the sport as a regulated event failed and jallikattu could not take place for some years. The ban caused a bitter divide in society between two camps: those who believed that jallikattu should be organised without any hindrance as it was part of the State's tradition and culture, and that its continuance was needed to preserve the native breeds of bulls on the one hand; and those who believed it cannot be regulated at all as it amounted to cruelty and illtreatment of animals in any form. Further, the number of human casualties during the events every year also raised concern about the safety of the participants and spectators.

Why did the Supreme Court ban the sport?

In a landmark verdict that established a rights jurisprudence for animals under the Constitution, the Supreme Court imposed a ban on jallikattu and similar sports involving animals in 2014. It held the Tamil Nadu law regulating the sport as repugnant to the Central legislation on preventing cruelty to animals. It said the Act was “anthropocentric” in the sense that it sought to protect the interests of organisers, spectators and participants and not the animals. On the other hand, the Prevention of Cruelty to Animals Act, 1960 (PCA) was an “ecocentric” law. The Bench ruled that the provisions of the State law were contrary to provisions of the Central Act in three ways: it went against the statutory duty of anyone with the care or charge of any animal to ensure its wellbeing and prevent infliction of unnecessary pain or suffering, the bar on using animals solely for entertainment and inciting them to fight and the restrictions on the training and exhibition of performing animals.

The court cited the ‘Five Freedoms’ recognised for animals by the World Health Organization for Animal Health — freedom from hunger, thirst and malnutrition; freedom from fear and distress; freedom from physical and thermal discomfort; freedom from pain, injury and disease; and freedom to express normal patterns of behaviour and said that these freedoms should be read into the provisions favouring animal rights found in the PCA.

What was Tamil Nadu’s response?

A massive agitation broke out in January 2017 against the government’s failure to facilitate the conduct of jallikattu for successive years, with tens of thousands of people, especially youngsters, occupying the sands of the Marina in Chennai for days. This led to a surge of support for jallikattu. The government of then Chief Minister O. Panneerselvam agreed to take legislative measures. With the Union government’s cooperation, it obtained the President’s prior instruction to issue an ordinance that sought to remove the basis for the 2014 Supreme Court judgment. To avoid repugnancy with the Central law, the ordinance, which was replaced by an Act within a few days, was adopted as a Statespecific amendment to the PCA itself. It was framed in a way that would define jallikattu as an event organised to promote and follow tradition and culture and to preserve the native breeds of bulls. Its clauses were worded to remove the applicability of the PCA provisions to jallikattu. It added the sport as another exception to the list of acts the PCA itself allows as those that do not amount to cruelty (other exceptions include dehorning, castration and destruction of stray dogs and other animals). It made the restriction on use of animals for performances inapplicable to jallikattu, besides including the sport to the list of ‘exemptions’ from the rule against using some animals as performing animals. With the President giving his assent, the amendment became law in Tamil Nadu.

What does the SC ruling now say?

In its latest ruling, a Constitution Bench has accepted the basic argument that jallikattu is part of the cultural heritage of Tamils. It observed that the judiciary cannot examine the question whether something was part of tradition and culture, and that it would defer to

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the legislature's view in this regard. On this point, it differed from the 2014 verdict which had rejected the claim that the sport had cultural and traditional value. It upheld the Amendment Act, saying it has now legitimised the bovine sport and that it cannot be termed a piece of colourable legislation. The court recalled that the 2014 judgment had banned the sport by citing acts that amounted to cruelty then. However, the situation was now different, the Constitution Bench said, as the State amendment has been followed up with stringent regulations for conducting jallikattu. It ruled that the State legislation should be read along with the rules framed for holding these events. Therefore, there are no statutory violations now that warrant a ban on jallikattu

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