

#SCULPTURE

## A Piece Of Excellence

The layered craftsmanship reveals a deep understanding of mythology and sacred symbolism preserved through generations



This magnificent stone carving of Lord Ganesha reflects the extraordinary devotion and artistic brilliance of ancient temple sculptors. Every intricate ornament, delicate curve, and symbolic detail is carved with remarkable precision, bringing divine presence to life through stone. Surrounded by finely sculpted attendants and decorative motifs, the sculpture embodies wisdom, protection, and the remover of obstacles as celebrated in spiritual tradition. The layered craftsmanship reveals a deep understanding of mythology and sacred symbolism preserved through generations. Even centuries later, this timeless masterpiece continues to inspire reverence, standing as a powerful reminder of faith expressed through enduring art and cultural heritage.

#HUMANS

## A New Species Of Humans

Evidence suggests that Homo juluensis were sophisticated hunter-gatherers who thrived in groups, hunting wild horses and crafting advanced stone tools

Scientists have officially discovered a new species of human. Scientists have officially identified Homo juluensis, a massive, skulled human species that lived in China 200,000 years ago, redefining our evolutionary lineage. In a discovery that reshapes our understanding of human history, researchers have identified a new species of ancient human in China: Homo juluensis. Living roughly 200,000 years ago, these individuals were notable for their massive physical presence and brains that reached 1,700 cubic centimeters, making their heads significantly larger than those of modern humans today. The identification of this 'big-headed' relative provides a vital piece to the evolutionary puzzle, filling a long-standing gap in the fossil record and proving that the path to modern humanity was far more complex than once believed. Evidence suggests that Homo juluensis were sophisticated hunter-gatherers who thrived in groups, hunting wild horses and crafting advanced stone tools to survive in challenging environments. Led by paleoanthropologists Christopher Bae and Xuejie Wu, the research suggests that this new species may even include the mysterious Denisovans, a group previously known almost entirely from fragmented DNA. By establishing Homo juluensis as a distinct branch of our family tree, scientists are revealing a prehistoric Asia that was a vibrant crossroads of diverse human lineages coexisting long before modern humans emerged as the sole survivors.



# The Queen Who Held the Pass to Bharat



The campaign of Muhammad Ghori ended with the defeat of his army in 1178. The invading force was driven back, and the expedition to Rajasthan-Gujarat failed. Later historical records remember the hardships of this campaign, and the traditions surrounding Naika Devi's reign remember her contribution to the survival of her kingdom.



Purushendra Singh

As Diwali lamps are lit in Rajasthan, the tales of Vijayadashami always feature a victory of good over evil, or even courage over adversity. However, not all of the history of this land is about the epics or famous Maharajas. The lands of our state have a peculiar story of a woman who defended the kingdom from an invading army, and he never dared again to cross her path. Her name was Naika Devi or some spell it as 'Naiki' or 'Navika.' Almost nine centuries ago, in 1178, she drew up for battle, which would have eternal consequences for the ambitions of Muhammad of Ghor, also known as Muhammad Ghori. And no, this battle wasn't the infamous one of Tarain, fought under the banners of Prithviraj Chauhan III or 'Rai Pithora.' It took place much further south, in the region of Mount Abu, Sirohi.

Naika's story begins in modern-day Gujarat, in the kingdom of Chaulukya, whose capital was the city of Anahilavada (modern Patan). After the death of her husband, King Ajayapala, the throne was inherited by his toddler son,



Naika Devi.

Mularaja II. The mother of the young king, who was in the laps of Naika Devi when she fought the historic battle of Kayadara, acted as a regent similar to how Bairam Khan did for Akbar. Moreover, she volunteered to protect the kingdom from external enemies and hold the nobility together.

Having established himself in the northwestern sub-continent, the Ghurid ruler turned his eyes to the rich kingdom of Chaulukya. The army of the Ghurid ruler crossed the Multan and Uch territories, present-day Pakistan and Afghanistan or AfPak, as some geopolitical analysts would call it, headed towards the present day Rajasthan-Gujarat border, as it seemed a natural pathway further ahead of Multan.

For Naiki Devi, an approaching and much stronger enemy army was a problem that could not be resolved just by courage but with a mixed strategy of diplomacy, statecraft, alliances and then, of course, courage. A foreign invasion had to be stopped, but many details and a plan had to be drawn. First of all, it was necessary to raise a sufficient army for the confrontation with the invading force. The solution to this complex task was hidden in the peculiarities of the local political situation.

Medieval Rajasthan was not a single empire with a capital. It was a set of different kingdoms, each with its own interests. The Chauhans of Nadol, the Chahamanas of Jalore, and the Parmars of the region of Arbuda or Chandravati, in today's time, Abu, were the most influential local rulers of the region. Their interests overlapped in the territory connecting southern Rajasthan and northern Gujarat. Though they were loosely connected, each of these rulers had their own interests and methods of ruling the land.

### Collective alliance against common enemy

Naika Devi knew that to defeat a much more powerful army, she had to bring other armies together. For this, her challenge was to reach out, convince and bring the other kingdoms' military resources and regional relationships together. Denying the conventional role of a King and being a woman in the 12th

### #THE TURNING POINT



century, she brought together the rulers of Nadol, Jalore and Abu, who were crucial to this effort. Kelhana of Nadol, his brother Kirtipala of Jalore, and Dharavarsha, the Paramara ruler of Abu, appear in accounts of the resistance to the Ghurid advance alongside Naika Devi. They represented neighbouring centres of power whose participation could help transform a vulnerable kingdom's defence into a coordinated regional response.

And it was their collective alliance that determined the outcome of the long-drawn battle. When we speak of Naika Devi, we don't only speak of the bravery of a queen. The preservation of a kingdom was a complex political task, which included the need to unify various local rulers around a common cause. The interest of each of them may have been different, but

their combined strength became the reason for the failure of the invading army.

Whilst the armies of the Ghurid dynasty were busy with the long campaign, the terrain provided the defenders with several tactical advantages as well. This battle of Kayadara is traditionally associated with the territory of Kasahrada (or Kayadara or Gadararaghatta) near the foothills of Mount Abu (modern-day Sirohi). It was a region of hills, passes and narrow corridors, which was quite different from the open plains. Though the details of the battle aren't very clear, the location in which it took place is strategic. An invading army would have few opportunities when it had to fight in a region that wasn't suited for large-scale cavalry battles, and soldiers had to form a queue to cross the hills. Naika Devi strategically chose this region for this particular reason,

and she was a ruler who knew the value of the terrain and how not to have fought the enemy on his terms, but on her terms and place of choosing.

The approach to the mountains of Abu gave strategic advantage for the defenders to sight the enemy in a queue formation rather than giving them the option to spread and hide. This stopped the invading force from drawing deep and manoeuvring around the hills.

Naika knew that the invading force would have travelled a long way to reach her and to make them go up and down the hills would further exhaust them. And it happened: the Ghurid army had to cover a significant distance, and the march itself was exhausting. The defending troops, who fought on their native territory and were full of energy and patriotic gusto, along with access to their military



resources in close proximity, had an undeniable advantage. Thus, it was the terrain, tactics, mutual alliances and the spearhead thinking of the regent queen that determined the outcome of this battle, which proved decisive in terms of Ghori not daring to cross his swords again with the Great Naika.

### Return of the Ghurid Forces

The campaign of Muhammad Ghori ended with the defeat of his army in 1178. The invading force was driven back, and the expedition to Rajasthan-Gujarat failed. Later historical records remember the hardships of this campaign, and the traditions surrounding Naika Devi's reign remember her contribution to the survival of her kingdom.

One of the stories associated with the queen tells of her battle with the enemy army alongside her young son. A living symbol of the vulnerability of the kingdom, the mastery over statecraft of the queen saved the day. Furthermore, the legacy of Naika Devi and the defence of the kingdom against the Ghurid dynasty is remembered and honoured. Glad to note that her story has been officially introduced in the NCERT textbooks after the course structure revamping was undertaken after the rollout of the New Education Policy (NEP), 2020.

With this, and for a brief period, the personal campaign of Muhammad of Ghor was halted, and the invading force wasn't able to make its way through Western Rajasthan again. Later historical records show that the Ghurid ruler changed the direction of his campaign, and the two Battles of Tarain were fought. There were further attempts at invading the Chaulukyan kingdom, but they all failed. Thus, it is with pride that we remember Naika Devi, the queen who held the pass and stood guard at the gateway to Bharat.

Fast forward to fourteen years later, in 1192, Muhammad Ghori defeated Prithviraj Chauhan at the Second Battle of Tarain. The memory of the battle has entered the folklore of India, and the popular stories remember it with clear remembrance. The story of the Battle of Kayadara, however, isn't as famous, even though it should be, as it provides a vivid example of resistance and victory against the odds.

Perhaps because the battle at Tarain is remembered as a turning point in the medieval history of India, marking the advent of Islamic rule in India. The defeat of Prithviraj Chauhan marked the end of his rule and the beginning of a new era. The victory at Kayadara didn't produce such dramatic results. It preserved the status quo, leaving the kingdoms of Rajasthan and Gujarat intact. Perhaps, for this reason, the story of Naika Devi and her contribution to the defence of the kingdom isn't so well-known.

There is, however, another reason to remember the local rulers and their role in the long-drawn battle. The general perception of medieval diplomacy focuses mainly on the long-drawn negotiations between different emissaries of the great kingdoms. But the experience of medieval Rajasthan shows that it was the local interactions between the different rulers that formed the basis of the political history of the region.

As the Diwali lamps are lit in Rajasthan, the story of Naika Devi reminds us that history is a complex process and not to be forgotten. The courage of a queen wasn't enough for her to repel the siege. The terrain, tactics, collective alliance, strategy and the local political situation played a significant role in the outcome of the battle. Let us not forget, our region's history is replete with such examples, each a reminder of a past we can take pride in.



Muhammad Ghori.

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#LIFE

## A SECOND LIFE FOR PLASTIC FORKS?

"In reality, it creates a lot of pollution. When we do start producing PLA on the million-ton scale, we will know how to deal with it."



A method to convert a commonly thrown-away plastic into a resin used in 3D-printing could allow for making better use of plastic waste.

Researchers developed a simple and efficient way to convert polylactic acid (PLA), a bio-based plastic used in products such as filament, plastic silverware, and food packaging, to a high-quality resin. "We found a way to immediately turn this into something that's stronger and better, and we hope that will provide people the incentive to upcycle this stuff instead of just toss it away," says Yu-Chung Chang, a postdoctoral researcher in the Washington State University School of Mechanical and Materials Engineering and a co-corresponding author of the study, published in Green Chemistry. "We made stronger materials just straight out of trash. We believe this could be a great opportunity."

About 300,000 tons of PLA are produced annually, and its use is increasing dramatically. Although it's bio-based, PLA, which is categorized as a number seven plastic, doesn't break down easily. It can float



in fresh or salt water for a year without degrading. It is also rarely recycled because like many plastics, when it's melted down and re-formed, it doesn't perform as well as the original version and becomes less valuable.

"It's biodegradable and compostable, but once you look into

it, it turns out that it can take up to 100 years for it to decompose in a landfill," Chang says.

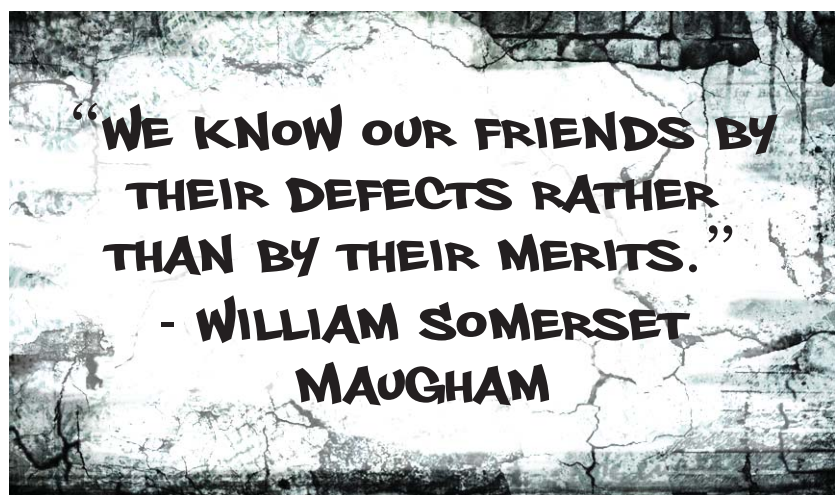
"In reality, it still creates a lot of pollution. We want to make sure that when we do start producing PLA on the million-ton scale, we will know how to deal with it." In the study, lead author Jinwen Zhang, professor in the School of Mechanical and Materials Engineering, and colleagues developed a fast and catalyst-free method to recycle the PLA, breaking the long chain of molecules down into simple monomers, the building blocks for many plastics. The entire chemical process can be done at mild temperatures in about two days. The chemical they used to break down the PLA, aminethanol, is also inexpensive. "If you want to rebuild a Lego castle into a car, you have to break it down brick by brick," Chang says. "That's what we did. The aminethanol precision cut the PLA back to a monomer, and once it's back to a monomer, the sky's the limit because you can re-polymerize it into something stronger."

Once the PLA was broken down to its basic building blocks, the researchers rebuilt the plastic and created a type of photo-curable liquid resin that is commonly used as printing "ink" for 3D printers. When it was used in a 3D printer and cured into plastic pieces, the product showed equal or better mechanical and thermal properties than commercially available resins.

While the researchers focused on PLA for the study, they hope to apply the work to polyethylene terephthalate (PET), which is more common than PLA, has a similar chemical structure, and presents a bigger waste problem.

The researchers have filed a provisional patent and are working to further optimize the process. They are also looking into other applications for the upcycling method.

### THE WALL



### BABY BLUES



By Rick Kirkman & Jerry Scott

### ZITS



By Jerry Scott & Jim Borgman