

#END OF AN ERA The Northern White Rhino Is Now Functionally Extinct

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In a heartbreaking milestone for global conservation efforts, the northern white rhinoceros has officially become functionally extinct. The death of the last known male, Sudan, in 2018 marked a critical turning point for the species. Today, only two elderly females remain, both incapable of natural reproduction, bringing an end to the natural lineage of one of the planet's most

A Victim of Human Activity

The extinction of the northern white rhino is not the result of natural selection, but rather the devastating impact of human actions. Rampant poaching, driven by the illegal demand for rhino horn in parts of Asia, has decimated rhino populations across the African continent. Rhino horn is falsely believed to possess medicinal properties, leading to a lucrative black market that has put immense pressure on law

Science Offers a Glimmer of Hope

Although natural reproduction is no longer possible, international teams of researchers are working on advanced techniques such as in-vitro fertilization (IVF) and stem cell technology. Using preserved semen from deceased males and harvested eggs from the remaining females, scientists have already created a small num-

A Global Wake-Up Call

The extinction of the northern white rhino serves as a stark warning about the broader biodiversity crisis. According to the International Union for Conservation of Nature (IUCN), over 42,000 species are currently threatened with extinction due to factors such as habitat loss, climate change, pollution, and

What Comes Next

Conservationists are urging world leaders, policymakers, and the general public to treat the extinction of the northern white rhino as a call to action. Protecting remaining rhino species, such as the southern white and black rhinos, has become more urgent than ever. Public awareness, stronger anti-poaching enforcement, habitat preservation, and sustainable development policies are key pillars in the fight to pro-



Khas Mats and the Scent of Winter

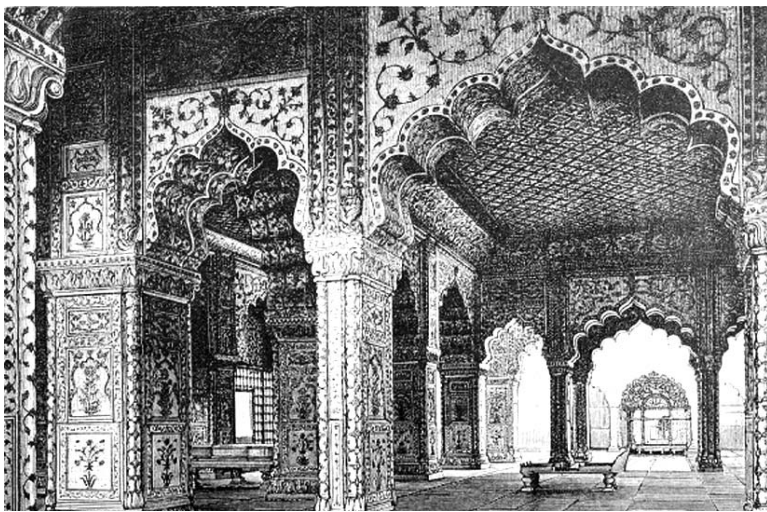
Dominik Wujastyk has argued that Ayurvedic practices were also premised on the foundational balance between hot and cold, and conceived of an important role for 'cooling' foods, which were often bitter in flavour, as well as fragrant cooling substances, such as the scent of camphor and even solutions made of pearls. If ice was not recommended, clear water was. One early Ayurvedic text prescribes that "One's water should be warmed by the rays of the sun, cooled by moonbeams, and by day and night, it should be completely cleared of toxins by the rising of the star Canopus. Such water is pure, immaculate, and drives away impurities. This is called Swan water. It does not cause any fluxes, nor is it rough. It is like an elixir among drinks."

Sylvia Houghteling

The acquisition of ice has historically been labor intensive and materially expensive, and, in textual accounts, its use was largely put towards bringing coldness to food and drinks. Ice was also inherently limited in its spread by geography and technologies of production. For those who could not afford it, or who were located too far from a source of ice, other substances and sensory experiences, such as flavour, scent, and colour, were important factors in cooling.

The interlinked medical and culinary theories in Hindustan provided different perspectives on bodily temperature and the consumption of food. Within Ayurvedic writings, ice and cold drinks have historically been considered an impediment to digestion and were avoided in preference for substances of a more moderate temperature. Yet, as Dominik Wujastyk has argued, Ayurvedic practices were also premised on the foundational balance between hot and cold, and conceived of an important role for 'cooling' foods, which were often bitter in flavour, as well as fragrant cooling substances, such as the scent of camphor and even solutions made of pearls. If ice was not recommended, clear water was. One early Ayurvedic text prescribes that 'One's water should be warmed by the rays of the sun, cooled by moonbeams, and by day and night, it should be completely cleared of toxins by the rising of the star Canopus. Such water is pure, immaculate, and drives away impurities. This is called Swan water. It does not cause any fluxes, nor is it rough. It

ber of viable embryos. The hope is to implant these embryos into surrogate southern white rhino females, a closely related subspecies, in a groundbreaking effort to bring the northern white rhino back from the brink. While the challenges are immense, these developments represent a glimmer of hope in an otherwise somber story.



Interior Hall Palace, Mughal Kings, Delhi.

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Within the Yunani bio-medical treatises that informed much of Iranian and northern Hindustani medical and culinary culture, there was also a basic taxonomy, founded in humoral theory, that distinguished between medicinal substances and foods that were hot (garm) or cold (sard), as well as the spectrum from dry to moist. Spices and scents had a hot or cold valence, with camphor and sandalwood as cooling. Yet, foods could also be variable and fluid in their assignments. Divya Narayanan notes that the pineapple, a New World fruit, was variously considered hot and moist in certain Indo-Persian texts, but also deemed 'cold and moist' in others. Certain substances, such as rosewater, were used to cool the body as both a medicinal cure and a pleasantly scented beverage. Particularly for those with sanguine (dam) temperaments, cool drinks and dairy were an important part of the diet.

Foods were accompanied by diverse alternative methods for ameliorating or managing one's way out of the heat through scent, colour, and texture. While foods and flavours are ingested, surface contact with cooling materials can also refresh the body through the heat transfers that occur from the skin to other materials. For instance, applying henna paste to the palms and feet brings coolness. Diaphanous cotton clothing made of muslin, or malmal, popular at the Mughal court, provided not just a lightweight means of covering the body, but its cotton material also absorbed humidity and moisture. When a breeze caught the dampened cloth as it sat on the skin, the whole body was cooled. Perhaps, for these reasons, muslin cloths were likened in poetry to cooling fountains and



Silver Thread Bed-Roll, Mughal Empire, 18th century.

PART:3 #BEYOND ICE



Mughal Garden.

were given watery names, such as *shabnam* (evening dew) and *abi-rawan* (running water); another textile was known as *tansukh*, which references the pleasure (sukh) it brought to the body (tan). For nighttime, various woven materials served to cool during sleep. Flat woven bedrolls were made from shining silver threads. As one of the most conductive metals, silver draws heat from warmer bodies or objects. Covered with a cotton sheet, a silver surface could calm the skin at night in the eastern region of Bengal, a less precious form of woven mat known as a *sital-pati* (which literally means 'cold' or 'cool' (sital/shital), mat (pati) in Bengali and Hindi) was recorded in the eighteenth century, and was still in use in the nineteenth century and into the present day in West Bengal, India, and Bangladesh. Woven from the fibers of the split stems of the *murtia cane* plant (Schumannianthus dichotomus), the mats are thin and the front surface is glossy in texture. The surface is said to be so smooth that even a snake cannot slide across it.

While mats cooled the floors and sleeping areas, screens made from *khas* or *khas-khas* (also spelled khush, or cus), the long, fragrant root of the vetiver grass (Chrysopogon zizanioides), created immersive cooling environments, and have continued to do so. When doused with water, these screens release a fresh scent that was said to bring 'winter' in the midst of the heat. Khas screens appear in the A'in-Akbari as part of the emperor's quest to find cool in Hindustan. After lauding the 'arable' and 'productive' soil of Hindustan, the abundance of 'mines of diamond, ruby, gold, silver...', and praising the elephants and 'perfumes and melodies' of

Elsewhere in the A'in-i Akbari, Akbar is given less credit for this 'invention.' In a section on building materials, Abul' Fazl writes, "Khas is the sweet-smelling root of a kind of grass, which grows along the banks of rivers. During summer, they make screens of it, which are placed before the door and sprinkled with water. This renders the air cool and perfumed. Price, 1 1/2 Rs. per man (approximately 30-40 pounds)." Here, the text is more impersonal about who created khas screens and also provides a price, which can be compared to the much greater cost for ice, ice

the empire, Abul' Fazl recounts Akbar's chief complaints about Hindustan that mirror those of Babur: its 'lack of cooled water, its excessive heats, the scarcity of grapes, melons and carpets, and of camels.' Yet, Akbar has 'remedied these deficiencies. Saltpeter is now extensively used for its cooling properties, and high and low appreciate the benefit of snow and ice brought down from the northern mountains. Skilled hands from Turkestan and Persia sowed camels and planted vines, and traders began to introduce in security the fruits of those countries.' In the midst of these references to saltpeter, ice, and fruits, Abul' Fazl writes: "There is a fragrant root, very cool (khunuk), which is called khas. By His Majesty's command, it became common to make huts of bamboo frames (nai-bast khana-ha) stuffed with it. When water is thrown on it, winter seems to arrive in the midst of summer (zamistan digar dar tabistan padid ayad)." Abul' Fazl attributes the creation of a space scented with khas to Emperor Akbar, although descriptions of khas are present in early Ayurvedic texts.

By the eighteenth century, khas screens appear in paintings from the courts of the northwestern region of Rajasthan, allowing for an approximation of the structures made from these woven materials. The Rajput courts of Mewar and Amer-Jaipur shared

was nearly forty times the cost of khas by weight. In a short note on this passage, Irfan Habib points out that in the Bahar-i-Ajam, another eighteenth-century Indo-Persian lexicon, this use of khas is noted to be 'peculiar to India.'

The khas screens represent a distinctive form of cooling from ice, which acts by lowering the temperature of the air or liquid around it as the frozen water melts, and saltpeter, which absorbs the heat in water as it dissolves. By contrast, khas cools both through changes to the atmosphere, as dry air acquires moisture when it passes through the wet mats, but also through altering the scent of the air. It is the scent that, according to Akbar's accounts, makes winter seem to 'arrive in the midst of summer.' Within Ayurvedic medicine, khas was long linked to cooling medicinal treatments and foods that are identified as cold. Recent scientific studies of the neurology linking scent and temperature have suggested that certain smells are not only experienced by olfaction, the sensory system of smelling, but also by the trigeminal neurons, which are used by the face to gauge temperature. The most prominent cooling scents that have been studied include menthol and mint, but the scent of khas (vetiver) also affects trigeminal stimulation. In this way, khas might have the function of signaling to the body that it is cool when this scent is released.

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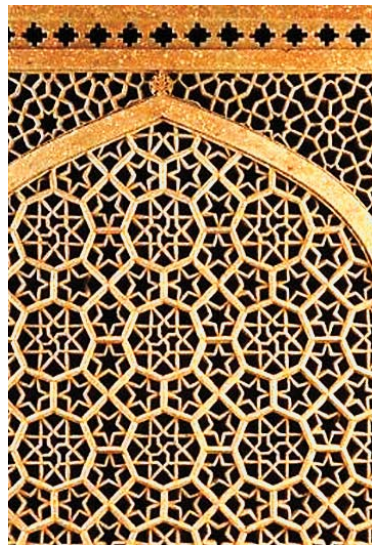


Indian Mughal Costumes.

with the Mughal court many practices of adorning and maintaining outdoor spaces. During the hot season, cotton cloths were spread over marble floors so that the cool of the stone could be felt beneath. Tents and chick screens were erected to protect against the sun. Known as *khas khana*, the structures seen in Rajput paintings seem to have been fashioned as Abul' Fazl described from a bamboo frame, from which are hung screens of the woven khas (khas-ki tatti).

In one painting of a humid scene from circa 1705, Rana Amar Singh II of Mewar is depicted with his consort in a garden. In the foreground, fountains spray silvery-gray water in looping lines, a peacock fans his tail, and musicians perform wearing gray and pale pink garments studded with pearls. In the sky, blots of gray laced with golden lightning suggest thunder clouds rolling in. This painting bears the quintessential seasonal iconography of the monsoon season, when the rains arrive to bring relief from the hottest temperatures of the summer. The depiction of the khas grass in this context is a reminder that identifiable iconography is just one of the multiple ways that this painting communicates the season and the arrival of refreshing cloudy weather. Recent interdisciplinary scholarship in South Asian studies has explored how paintings, music, and poetry conveyed 'monsoon feelings,' the anticipation of the cooling rains and release from the heat. As Dipti Khera has written, it is through these representations of the feeling (bhava) of a place experiencing a bountiful rain that the 'potentiality was actualized.'

The artist has conjured the humidity in the air by dampening the vibrancy of the colours, as though the water vapor in the air is muting their hues. The artist depicts sound not only through the presence of the musicians, but also through the gestures of Rana Amar Singh II, which move in time to the beat of a raga. Beyond the senses of vision and sound, activated through colour and gesture, however, it is the inclusion of the khas screens that allow the paintings to communicate scent and even temperature. The painter has captured the subtle texture of the khas screen. In actual practice, the grasses are woven in long and regular but



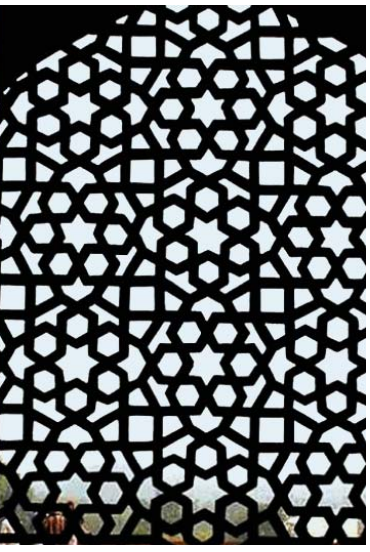
Rana Amar Singh II.

loose rows that appear as vertical hatch lines in the painting. The grasses are thick and pliable, since it is the oils in the grass that release the scent. The painter has captured the three-dimensionality of the khas screens by rendering the grasses with slightly curving, irregular upright lines, suggesting the texture of the woven grass slightly bulging out from the flatness of the walls. The khas grass covers the interior of the hut and the exterior, where it is darker in colour and adorned with garlands of sweet-smelling flowers, lotus petals, and leaves. Inside the hut, the bodies of the Rana and his consort are carved out from the white floor more clearly than any of the other figures in the painting. Between the lovers, an arched window has been painted with a wash of pigment that in its pooling edges and silvery colour still appears to be wet, evoking cold water inside. The sharp lines of the bodies set against the light colour of the floor makes it seem as though the cooling air they're in has made the air crisp within the enclosed, fragrant space.

In paintings, it is the central figures who are cooled by the air passing through khas grasses, indicating the high status of those within. Although they are not depicted, we know from textual accounts that laborers would need to work outside of the khas structures to continually douse the mats with water. Khas also appears in Anand Ram Mukhlis's dictionary, where he mentions that in Hindustan, an attar, or perfumed oil, is made from khas whose scent is very 'cold.' Here, he uses the Hindi word for cold, *thand*. For Mukhlis, khas is defined in part by its associations with elite use: "It is a kind of grass which emits fragrance, especially when it is wet in water. In Hindustan, the persons of status and wealth use it in summer, by arranging it in a particular manner and watering it which makes the apartments extremely cool (Here, the word used is 'sard'). They call it *khas khana*." Mukhlis's comment is a reminder that only the privileged enjoyed the coolness of khas, while laborers worked in the heat to refresh the screens with water, or to fan those within.

To be continued...

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#CARE

Oldies Do Fall A lot



Falls lead to the deaths of more than 32,000 older adults each year!

Physical conditioning can make a major difference for maintaining independence, including avoiding a fall, but also how well someone reacts to and recovers from one. The COVID-19 pandemic may have increased older adults' risk of falling and injuring themselves due to changes in physical activity, conditioning, and mobility; a new national poll suggests. More than a third of people between the ages of 50 and 80 report their physical activity declined in the pandemic's first 10 months, and more than a quarter say they're in worse physical condition now than before the pandemic, according to the new findings from the University of Michigan's National Poll on Healthy Aging. Many of these adults also reported an increased fear of falling. Fall

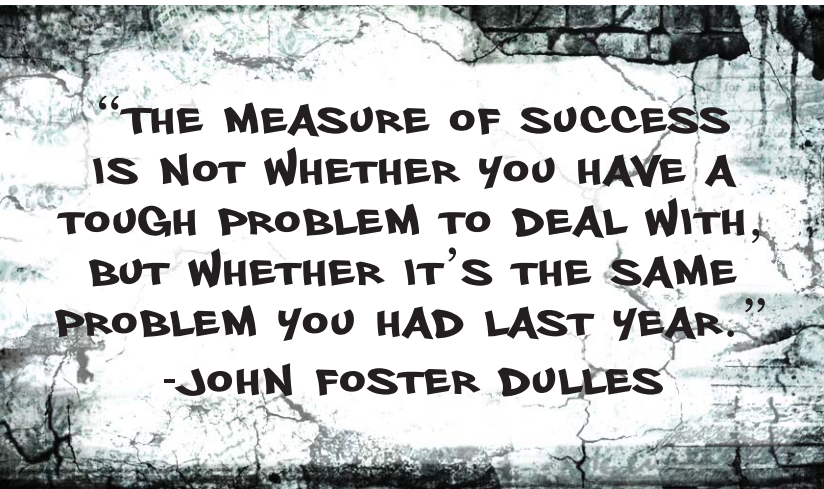
Concerns About Fall Risk Loneliness and Delayed Care

The poll also reveals clues about how the loneliness and lack of companionship that increased among older adults during the pandemic might play into changes in activity levels, mobility, and fall risk, says poll director Preeti Malani, a Michigan Medicine Infectious Disease Physician, also trained in Geriatrics. The percentage of older adults reporting falls was higher, 32%, among those who says they lack companionship. This grew since the pandemic began. Nearly the same percentage say they spent less time on their feet, walking or standing, after March 2020. This reduced activity translated into 27% saying their physical conditioning, flexibility, muscle strength, and endurance, had worsened. Mobility, the ability to move around including with a cane, walker or vehicle, declined for 25% of respondents according to poll responses. The poll also asked about fear of falling, which 36% of respondents overall say they experienced, and by nearly half of all poll respondents over age 65 (46%) and of women aged 50 to 80 (44%). Among all older adults who say they fear falling, 23% says that fear increased during the pandemic. But the percentage that reported increased fear of falling was much higher among those who reported less physical activity (32%), worsened physical conditioning (42%), or worsened mobility (45%). Falls lead to the deaths of more than 32,000 older adults each year. The number has risen steadily in recent years and is expected to continue to increase with the aging of the US population, according to the Centres for Disease Control and Prevention.

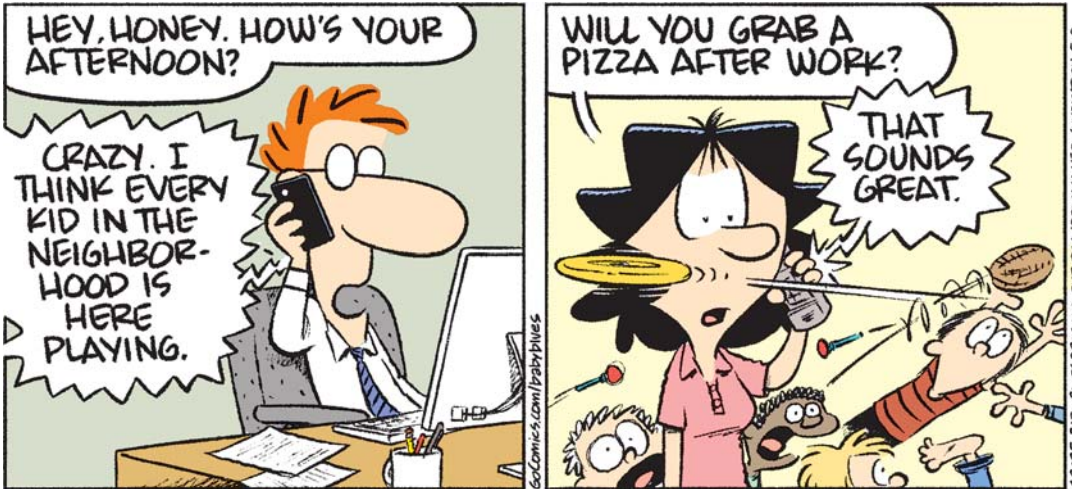
major fall-related injuries. Even better if this happens in conjunction with social interaction." Hoffman and Malani also note another of the poll's findings: During the pandemic, 28% of older adults injured by a fall either delayed or did not receive medical care they felt they needed. Forty percent of this group says the pandemic was directly related to this lack of care. People who have lingering effects from a fall experienced during the height of the pandemic, joint pain or reduced mobility and strength, for instance, should seek rehabilitation and other care to avoid or reduce the risk of any further issues, they add. "Falls are a significant health and safety concern for older adults," says Allison Bryant, senior vice president of research for AARP. "Thankfully, there are many ways you can reduce your risk of falling, including simple home modifications like using brighter light bulbs, removing throw rugs, and making sure electrical cords are tucked out of the way." The poll, based at the University of Michigan Institute for Healthcare Policy and Innovation, receives support from AARP and Michigan Medicine, the University of Michigan's academic medical center.



THE WALL



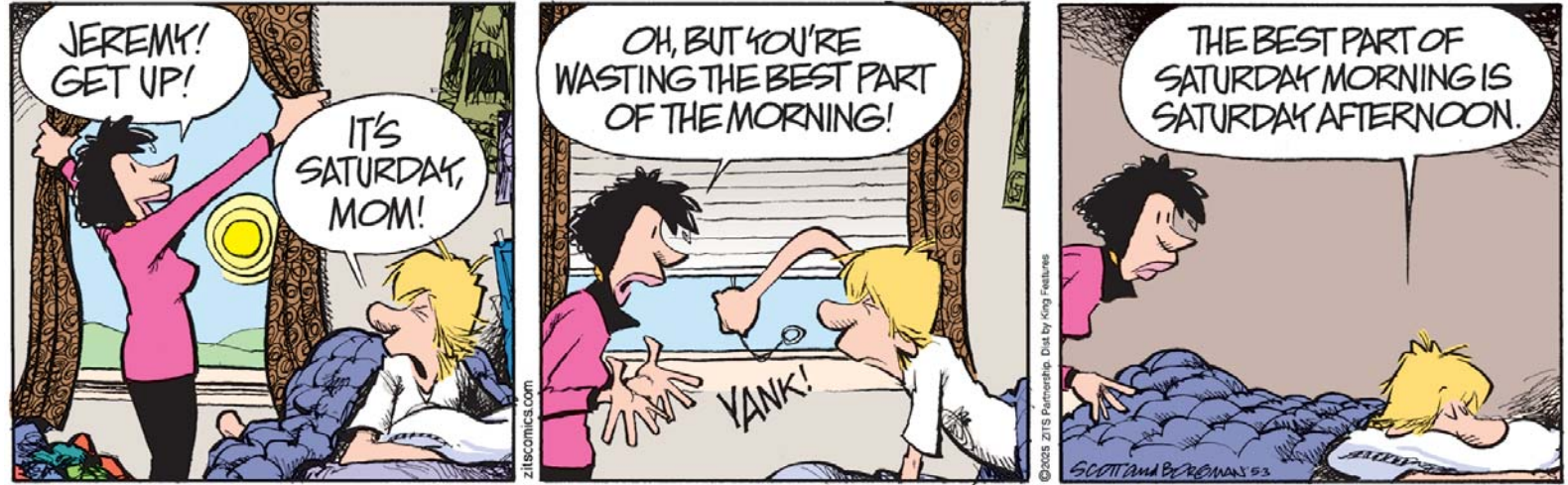
BABY BLUES



By Rick Kirkman & Jerry Scott



ZITS



By Jerry Scott & Jim Borgman