



PASTORALTIMES

Tales of Living & Herding

PEOPLE | Pg. 2



Where Gujjars lay buried

CULTURE | Pg. 4



Arunachal Pradesh: yak milk products bring economic revival to yak pastoralism!

NEWS | Pg. 6



Cow herders find water & feed - through satellite imagery!

EVENT | Pg. 8



A festival of wool, under the warm winter sun!

Woven in the Hindukush: Geeve gatherings of Chitrali shu



By **Adil Iqbal**

In December 2022, as part of the EMKP project, Adil Iqbal and his team visited the valley of *Garam Chashma* in Chitral, northwest Pakistan, to document the preparation of wool for the weaving of the renowned *Chitrali shu* fabric.

With each gathering, the older women would unravel tales as intricate and fascinating as the wool they carded. Their stories, passed down through generations, became the backdrop against which the women worked.

In the past, the women artisans worked together to to sort wool, a practice that has ceased in recent times. On the last day of their field visit, the artisans surprised Adil and his team with a special gift. They gathered under one roof to demonstrate how a *Geeve* would have been practiced in the past.

The following narration is an ode to *Geeve* gatherings, a place of solace for women artisans of Chitral.

In the heart of Chitral's winter landscape in North-West Pakistan, the vibrant art of shu-making comes alive. Each stage of wool processing in the making of the *shu* is not just an action, it is a narrative, eloquently shared by different shu makers of the community. A gentle glow emanating from a lantern lit the aged walls of a dwelling in Royee, a remote village in *Garam Chashma*, where nine or ten young women were gathered. In silent, sacred agreement, the women had joined forces with the elder matriarchs of the village, embarking on an age-old tradition: *Geeve*, the ceremonial sorting of wool. The night was long, often stretching until the quietest hours of twelve or one in the morning. Yet, even in the midst of such toil, there was magic.

With each gathering, the older women would unravel tales as intricate and fascinating as the wool they carded. Their stories, passed down through generations, became the backdrop against which the women worked. These narratives of love, sorrow, adventure,

and mystery wove through the night, binding each woman to the traditions of their foremothers and the symphony of shared work.

But not all nights were filled with just stories and camaraderie. Some brought with them omens, both good and ill. When a woman showed exceptional skill in sorting and carding wool, she was hailed as 'capable', a beacon of good fortune for the entire village. The older women bestowed upon her the title of a 'capable daughter' as a mark of honor. Conversely, the appearance of certain individuals wasn't as welcome. Whispers would float among the group, suggesting that their task's slow progress was due to a particular woman's wickedness. "Because of her, the wool won't separate," they'd murmur. Her presence became synonymous with bad luck, a curse in the otherwise harmonious night. As young women mastered the art of carding, teasing and spinning, their mothers added another layer of mysticism. With deep-rooted belief, they would tie an amulet, spinning it anti-clockwise, ensuring protection, luck, and perhaps a hint of magic for their daughters.

However, wool carding was not easy. Sometimes, the continuous sorting numbed their fingers, turning their nails blue and making them brittle enough to fall off. Yet, the *shu*-makers found joy in the shared rhythm. In a delightful mimicry, the younger women would often imitate the techniques of the most skilled among the elder women, striving to master the art passed down through generations. Since men were not allowed in the *Geeve*, it gave the women more freedom and space to express themselves. *Geeve* evenings weren't just about diligent work; they were also about gastronomic delights. The aroma of boiling black beans from *Gobor* occasionally complemented by the sweet scent of *shupa halwa* filled the air. *Geeve* gatherings celebrated the confluence of craft-making, play and ritual.

However, as seasons changed, the winds of time eroded this tradition. *Geeve*, once the beacon of unity and collective creativity, started fading into the annals of history. Yet, its memory remains indelible in the hearts of older artisans, for whom the love for *shu*-making is so profound that they wish to carry the wool even to their graves.

WHAT'S INSIDE?

PEOPLE

Authors: Satvik Gupta, Iravatee Majgaonkar, Geetakshi Dixit

Where Gujjars Lay Buried

Tree planting in Open Ecosystems has Few Benefits

Raika Women don't just Herd

2,3

NEWS

Authors: Barasha Das

In Arunachal Pradesh, Growing Market for Yak Milk Products Helps Sustain Pastoral Community

4

FILM REVIEW

Authors: Vinod Raja

The Bee, the Bear and the Kuruba

4

COMIC

Authors: Daniel Locke, Alex Tasker and Ian Scoones

High Reliability Knowledge Networks

Make your Camel

5

THEN AND NOW

Authors: John Noble Wilford, Sonali Mishra, Michael Balter, Tim McDonnell

How Sheep Became Livestock

How do Cow Herders Spot Water in the Sahara? With Satellites, of course.

From their Graves, Ancient Nomads Speak

Ghoda Library

6,7

EVENT

Authors: Ramesh Bhatti

Pastoralists Rallied for their Rights

Winter, Wool and Warmth

8

EDITORIAL BOARD

Sarita Sundar
Mahadevan Ramaswamy

Editor: Dhanya R, Tanya M
Designer: Sayali Kute

PEOPLE

Where Gujjars lay buried

“ This is where the Gujjars rest; on top of the world.
Free in death as they were in life.”



By **Satvik Gupta**
Source: Impermanent Earth

It was the middle of autumn in 2018. I was visiting Bhaderwah for the first time. Bhaderwah Valley is the lesser-explored sister of Kashmir in North India. Visiting Bhaderwah in autumn meant two things: having to deal with intense cold, and not having to deal with a multitude of tourists. Naturally, I embraced the cold. I was happy to have Bhaderwah to myself. I hired a taxi in the morning to see *Padri* – a magical hilltop I had heard a lot about. The driver, who seemed only a few years older than me, sat in the front with his younger brother. They barely talked to each other. The younger one fiddled with the ancient music system until he settled on a predetermined tune.

We reached by noon. *Padri* was as beautiful as I had been told, perhaps even more so. I was surrounded by a plethora of mountains meditating under a sheet of ice. I could see the entire valley sprawled across the base of the mountains, slowly dissolving into the horizon. I paid no heed to the unrelenting cold winds and picked a small hillock to climb in search of untainted views of the lower Himalayan ranges. I spent almost three hours frolicking about like a frenzied child.

I headed back to the car upon exhaustion. My driver and his plus-one were waiting for me. They were sitting on a ramshackle bench, the only piece of furniture in that vast mountainscape. He was smoking a cigarette and offered me one. I refused politely. We started talking and soon words took the form of a meaningful con-

versation. He told me that he was an electrical engineer. He graduated from a college that was based in my hometown. I asked him about his work.

“These days there are no jobs,” he lamented. “This country is a factory of engineers. And do you know what these engineers end up doing?”, I indulged him.

“They become bankers and civil servants.” His cynicism amused him.

He took out another cigarette from his pocket and offered it to me again. This time I complied, more out of solidarity than desire. The younger brother sat in silence as the two of us smoked in the silence of the mountains. On one of the mountains, beyond a deep gorge, a shepherd, known as Gujjar in these areas, trod on with his sheep. We could barely see them from such a distance, but their unmistakable bleating echoed restlessly.

“Hell, these Gujjars are better than us engineers,” he said as he observed the commotion in the distance. I smiled in response.

“I mean it. They are men with a purpose. They ascend mountains during the summer along with their cattle and families. At the advent of winter, they descend these mountains. They live in synchrony with nature. These Gujjars have nerves of steel, I tell you. We, you and I, and especially you,” he pointed at his little brother in jest, “are not one percent of what they are.”

He took a long drag of his cigarette and deep in thought, declared, “Gujjars are in perpetual motion, alien to the concept of permanence; nomads, in every

sense of the word. They are born in the mountains and live their lives within these mountains, and when they die, they become a part of these mountains, quite literally so.”

“How come?” I asked.

“Do you know where they rest?”

“No,” I replied.

He led me, along with his younger brother, through the curvaceous hillocks towards the edge of the gorge. Near the precipice, rocks were scattered across the surface. They were laid out in almost rectangular shapes. I realized that they were graves. Some of them had a tombstone with etchings on top in Urdu, and those without lay solemnly devoid of identity.

“This is where the Gujjars rest; on top of the world. Free in death as they were in life.”

We sat there for a while. I looked at the tombstone on one of the graves. I could not understand the lettering in Urdu. But at that moment, I wished that I could. I wished to be able to learn the name of the individual who lay there. I could have asked my driver but I decided against it. It occurred to me that their identity lay in their community. It was better that way; better to let silhouettes be silhouettes.

As we headed back to the valley, I pictured ambiguous shapes and silhouettes, lacking names and faces. But they were there; they were Gujjars who did not own a thing, yet the world belonged to them; they were Gujjars who were cradled in the arms of these mountains, and who rested incessantly in the same embrace.

SCIENCE

Tree planting in Open Ecosystems has few benefits



By **Iravatee Majgaonkar**
Source: Hindustan Times

The idea of restoration and protection of the earth's environment instantly elicits mental images of tree planting. The greener the environment, the healthier it must be. This is also in line with the commitment by the Ministry of Environment, Forests and Climate Change of the Indian government, at the United Nations (UN) Biodiversity Summit in 2020. Here, India promised to bring 26 million hectares of degraded land under restoration efforts by 2030. This commitment comes across as a benevolent social promise when one imagines rural communities planting saplings on barren lands and converting them to lush green forests. Wouldn't this benefit them after all? Meaningful environment restoration however, is not about people greening the environment.

In the natural world, sunlight, water and nutrients are not equally distributed all across the globe. This difference has led to the formation of Open Natural Ecosystems (ONEs) which are naturally tree-less but grass and shrub-dominated areas with

changing water availability. In dry seasons, these ecosystems appear arid and brown (even white in case of high elevation ONEs) and in monsoon seasons, they support short grasses and shrubs. Despite being tree-less and dry however, there is a myriad of wildlife and millions of people who depend on ecosystem services which are provided by ONEs. Some of the most biodiverse regions of the world are tree-less ecosystems (think of the African savannas, Gobi desert and Rann of Kutchh).

'Extensive pastoralism', i.e. herding of animals such as sheep, goats, cows, buffalos, camels, yaks, etc. on open lands is an important livelihood which directly relies on ONEs. The Food and Agricultural Organization of the UN in their report on pastoralism and variability in 2021 describes pastoralism as 'a dry-land protein production system which has learnt to overcome environmental variability which otherwise does not support large scale farming naturally.' So then, if both people and wildlife depend on areas which are naturally devoid of tree cover, why plant trees there? And for whom?

Read the full article on Hindustan Times.

Announcement

Dear Readers,

We are thrilled to introduce our newest feature – the 'Letter to the Editor' column! Here at Pastoral Times, we value your thoughts, opinions, and perspectives on issues relevant to pastoralism. Whether it's a local concern, a global affair, or a personal reflection, we invite you to share your insights with us.

Submit your letters to editor@centreforpastoralism.org and title your submissions in the 'Name/Letter to the Editor' format. Please ensure your submission is concise, respectful, and relevant to our readership.

Cheers!
Editorial Team
Pastoral Times

PEOPLE

Raika women don't just herd



Sita Devi spreads the daali around for the animals



Sita Devi gives bajra to the lambs and kids in her baada

By **Geetakshi Dixit**
Source: PARI

All my life I have been looking after animals. This is our work as Raikas: we serve animals. My name is Sita Devi and I am 40 years old. Our community has historically been responsible for taking care of animals – mainly camels, and more recently, sheep, goats, cows, and buffalos. Our hamlet is called *Taramagri* and it is a kilometre from *Kurki* village in *Jaitaran* block in Pali district of Rajasthan.

I am married to Hari Ram Dewasi [46] and we live with our two sons – Sawai Ram Dewasi and Jamta Ram Dewasi and their wives Aachu Devi and Sanju Devi respectively. Aachu and Sawai have a 10-month-old son. My mother, Shayari Devi, 64, also lives with us.

My day starts at about 6 a.m. with a cup of goat milk tea made either by me or my daughters-in-law. Then we cook and head to the *baada* [shed for animals] where we keep our sheep and goats. Here I sweep and clean the muddy floor, and collect the animal excreta and keep it aside for use later.

The *baada* is at the very back of our house and this is where our 60 animals, both sheep, and goats live. We have a small enclosure within it where we keep the lambs and

kids. At one end of the *baada* we store dry fodder – it is mostly dry *guar* stubble. Besides the sheep and goats, we also have two cows and they have a separate shed near the main entrance of the house.

To get anything we need to go to the village *Kurki* – groceries, hospitals, banks, schools, and more. Earlier we used to go up to Jamna ji (Yamuna river) with our herds and camp on the way. Now herds have become smaller and it is not profitable to travel so far, and we are growing old too. So we take the animals to graze not too far away.

As I clean the *baada*, my daughter-in-law, Sanju, milks the goats. Young people need someone to hold the animal as they milk it because goats are clever and wriggle out of their grip. My husband or I help her or milk the goats ourselves; the animals are comfortable with us.

It is my husband who takes the animals out to graze. We have rented a field nearby, and have also bought trees, which is where our herd goes to graze on the stubble. My husband also cuts branches from the trees and spreads them for the animals to eat. They love eating *Khejri* (*Prosopis cineraria*) leaves.

We need to make sure that young ones don't go out with the herd as it's not safe for them. So there is a lot of shushing, clucking, trilling, and hissing we do to guide the

animals in and out of the *baada*. Sometimes if a young one strays out following its mother, we pick it up and bring it inside. One of us stands at the gate of the *baada* and waves our hands and makes sounds to stop the animals from entering the *baada* again. After about 10 minutes, the animals are out of the main gate and ready to leave.

With only the new mothers, sick or young ones left behind, it feels a little quiet. I sweep up the droppings once more and carry it to a small plot of land about 100 metres from our house. Here we gather it until we can sell – it is valuable manure. We manage to sell two truckloads a year. One truckload fetches us between 8,000-10,000 rupees.

Often, women from the nearby houses visit and we sit and work together. On some winter days, we make *kheechiya* and *raabodi*

Other major sources of income for us are from selling sheep – roughly 12,000 to 15,000 [rupees] for one animal. Selling lambs and kids fetches about 6,000 [rupees].

We sell them when we need money urgently. The trader takes them and sells them in big wholesale markets as far off as Delhi. Sheep wool used to be an important-

source of income for us, but prices of wool have fallen to as low as two rupees a kilo in some places, and now we don't see many buyers.

Once I return from dumping the *meengani*, I come back to a *baada* full of hungry little mouths and expectant eyes. I bring out the *daali* (green branch) for the animals. During winter, some days it is neemda (neem, *Azadirachta indica*), and other days it is *bordi* (ber, *Ziziphus nummularia*). I also go out to the field and get fuel-wood.

The *daali* [branches] are cut either by my sons or husband, but sometimes I go and get it. Any work outside the house is mostly dealt with by the men. They are responsible for all the negotiations such as buying trees, renting out farmlands, negotiating manure prices, and getting medicines. On the field, they also have to cut the branches to feed the herd and look after any injured animals.

If there are any sick animals, I look after them. I feed the cows dry fodder and we add the waste from the kitchen to their food too. My mother also joins me in doing this. She also helps out with getting ration from the shop in the village.

Once the animals are fed, we sit down to eat mostly *bajra* [pearl millet] in some form, or wheat (from the ration shop) *moong* or

another pulse or a seasonal vegetable, and *bakri ke doodh ka dahi* [goat milk curd]. We have two *bighas* on which we grow *moong* and *bajra* for our consumption.

I also go to the NREGA [referring to National Rural Employment Guarantee Act] site, like other women from *Kurki* and our camp. We get two thousand rupees a week from NREGA, it helps us meet the household expenses.

This is the time I get to rest and also to finish other chores – washing clothes, and washing utensils. Often, women from the nearby houses visit and we sit and work together. On some winter days, we make *kheechiya* and *raabodi* [flat round crackers made using maize flour cooked in buttermilk].

Many youngsters do not have the necessary skills to carry on this [pastoral] work. I keep telling young children to study well. Eventually, we might have to sell our animals and then they will need to find work. The times are different now. In the evening I cook for everyone and wait for our animals to return. After dusk, our herd comes home bringing the *baada* back to life again. I milk the animals one final time for the day, give them dry fodder, and then my day ends.



Sita Devi and her mother Shayari Devi sweep their baada to collect the animal excreta after the herd has left for the field



Sita Devi walks towards the NREGA site with the other women in her hamlet

In Arunachal Pradesh, growing market for yak milk products helps sustain pastoral community

The yak-rearing Brokpas of the Eastern Himalayas are banking on an additional source of income with climate change threatening livelihoods.



By **Barasha Das**
Source: Scroll.in

The marketplaces in Arunachal Pradesh are brimming with an array of local delights, including seasonal kiwis, persimmons, nuts, etc. What's most captivating to the waves of tourists flocking into the state as winter unfolds are the garlands of light brown and white candies hanging in every store. Inquisitive buyers with adventurous palates desire to savour a piece and are often seen enquiring with the shopkeepers.

Despite the resemblance, they are not candies, but hardened cheese, known locally as *chhurpi*, crafted from milk. The white variant is special for it is made from yak milk.

These yak milk products are an exclusive creation of the Brokpa pastoralist herders, a yak-rearing community of the Himalayan regions of India.

On brisk winter days, visitors delight in sipping a steaming cup of Tibetan buttermilk tea, a quintessential beverage in the Himalayan region. But those in the know prefer this delectable concoction to be prepared not with the regular market-bought butter, but with a generous dollop of yak ghee.

These yak milk products are an exclusive creation of the Brokpa (Brok means pastures and Pa refers to man) pastoralist herders, a yak-rearing community of the Himalayan regions of India. In Arunachal Pradesh, the Brokpas are a sub-tribe of the larger Monpa tribe, residing in the West Kameng and Tawang districts in the eastern Himalayan region.

Earnings sustain community

Traditionally, value-addition to yak milk is done using indigenous technology. The skimmed yak milk (called dhara) is fermented using curd inoculums. The soft wet cheese left after churning out the butter is the chhurpi which is for immediate consumption. The dried chhurpi, called churtang with a longer shelf life, is stored in yak skin bags. The butter is clarified to make ghee and preserved similarly. Yak skin bags render a pungent smell to the cheese and ghee stored inside which needs to be removed before they are sold in the market.

Of all the yak milk products available in the market, chhurpi and ghee are the most popular and the demand consistently outstrips supply. Moreover, product availability is largely limited to the markets of West Kameng and Tawang districts, with marginal supply outside.

Value addition

The traditional production method is labour-intensive. The Yak

Centre (National Research Centre-Yak) has come up with various interventions to support the community to tap into the demand for the milk and its derivatives.

“Processing and packaging yak milk products at high elevations where the milk is produced is not always hygienic and outsiders are often reluctant to consume it. To expand the market, we are addressing these issues, providing hands-on training to the Brokpas in hygiene and quality control measures,” Vijay Paul, principal scientist at the NRC-Yak said

To make yak farming more remunerative by popularising yak milk derivatives, the institute has opened a high-altitude yak milk dairy and parlour at Nyukmadung. The Arunachali Yak chhurpi has also recently acquired a Geographical Indication (GI) tag. An assessment of the nutrient composition and physicochemical properties of Arunachali yak milk, reared under farm conditions, by the Indian Council of Agricultural Research-NRC-Yak in Dirang, revealed it is nutritionally superior to other bovine milk.

Dr Vijay Paul, principal scientist at the NRC-Yak said, “In general, yak milk is considered a naturally concentrated milk enriched with a higher nutrient density and loaded with omega-3, fatty acids, amino acids, and antioxidants; it also has vitamins and minerals.” Thick and sweet yak milk is richer in protein, fat, lactose, minerals, and total solids than cow's milk. Additionally, the NRC-Yak has de-

veloped a semi-sedentary model of yak rearing in its Nyukmadung farm, located at an altitude of 9,000 feet. In this model, yak herds are permanently kept at a particular elevation and the rearing needs including breeding, feed development, etc. are scientifically managed to minimise the need to migrate.

It presently has 125 yaks and 17 dzomos. A low-cost silage-making technology has also been developed and is in use at the farm. “We have been working on this successful model for the past 25 years, whereby we can sustain milk production even in the winter months,” Paul said.

The Brokpas are being educated on the semi-sedentary model and a viable bankable scheme has been introduced for profitable yak farming. “This is particularly directed at the younger generation who are reluctant to take up herding. We are also advocating the introduction of tourism to such farms for added economic benefit,” he shared.

Nomadic yak herding relies on ecosystem awareness and inherited traditional knowledge and is crucial for the preservation of both. Yet, with changing times, its subsistence economy is causing its gradual decline. As such, value-addition to yak milk presents a distinctive opportunity for the economic rejuvenation of yak pastoralism.

The Bee, Bear and the Kuruba

Film by **Vinod Raja**
Review from FilmFreeway

The film presents the forest from the point of view of the Adivasis; as their inseparable home, their world, and their sacred space within which co-existence, mutual interdependence and harmony form their view of life. Weaving a story of contradictions and the clash of two diverse points of view, the film reveals their struggles against the co-optation strategies of the state and modern society.

The difference is only a thin line, between looking at a forest as a dwelling, a sacred space for all forms of life, or, a habitat in which nature becomes a resource that needs to be managed or exploited. Rajappa lived in the Sujulu forests deep inside the jungle, now designated as the Rajiv Gandhi National Park. Fifteen years ago, Rajappa and his family were driven away by the forest authorities and they settled in Thattekere, close to the coffee plantations where he now works as a coolie. Chomamma and her husband Chandiah used to live in Masalebetta about two decades ago.

Forest policies forced them out from the forests to the fringes, to live in Byrankuppe, a trade outpost on the backwaters of the Kabini dam. Her family is disintegrated, with all her three children seeking work as laborers in the coffee plantations of Coorg. What emerges finally, is the basic issue of survival of the Adivasi and the forest, both of which are intimately inter-linked.

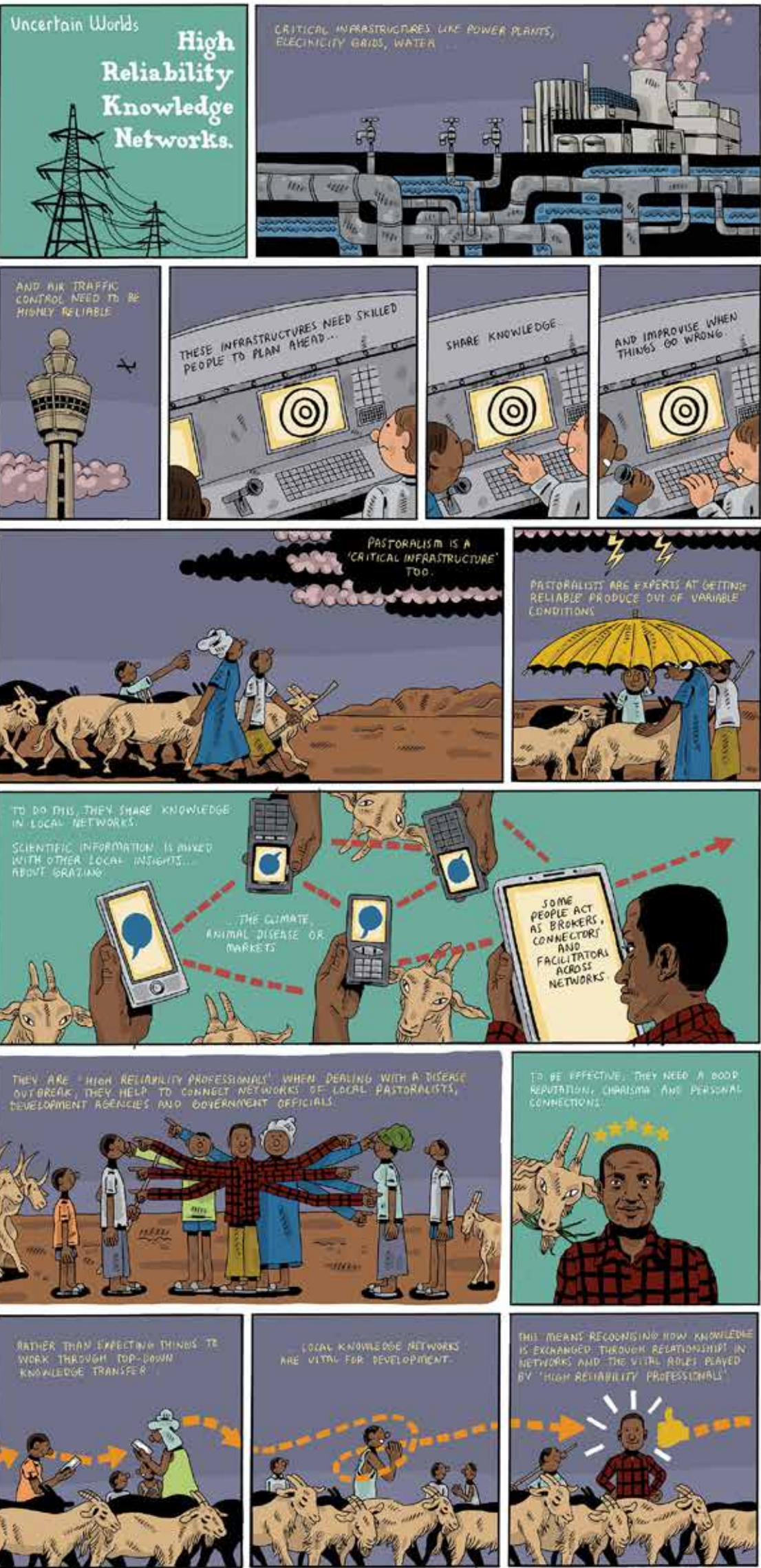
Note from the Director:

In 1996, I accompanied a few lawyers to the core area of Rajiv Gandhi National Park where Adivasis were agitating against the construction of a luxury resort by an established hotel chain, as they faced eviction from their forest homelands in the name of conservation.

I photographed the construction where the chain had already spent over 20 Million, and these were produced as evidence in the lower court, a case the Adivasis won. The hotel group appealed to the Supreme Court and the court battle continued. During this time, I stayed with the Adivasis to become better acquainted, in small settlements across the declared national park area where human habitation is prohibited. The story of the Bee and the Bear, as retold by many elders in the community, inspired me to make this film.

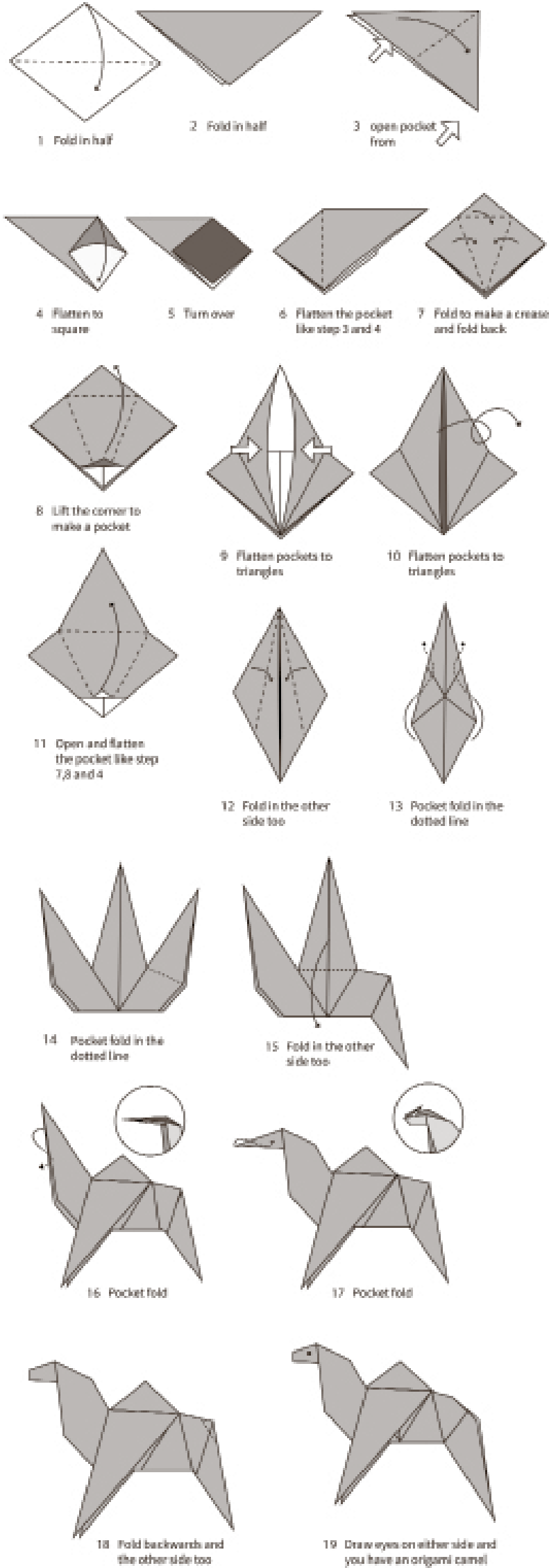
High Reliability Knowledge Networks

Designed by **Daniel Locke**
Research by: Alex Tasker and Ian Scoones



Make Your Camel

And start your year by celebrating the International Year of Camelids with us



How sheep became livestock



By **Michael Balter**
Source: Science

The domestication of plants and animals was one of the most important events in human history, but rarely have archaeologists been able to catch the process in the act. Research at an 11,000-year-old settlement in Turkey shows that some early farmers kept wild sheep penned up in the middle of their village—thus setting the stage for the dramatic change that led to today's domesticated animals.

Archaeologists studying the origins of farming have hundreds of sites to choose from across the Middle East, but few of them tell the full story. That requires a spot that spans the transition between a hunting and gathering lifestyle and a farming lifestyle, a period from about 10,500 to 9500 years ago. Researchers have long had their eyes on just such a site: Aşıklı

The hunting of smaller animals appears to fall off to insignificant numbers, while the percentage of sheep—which outnumber goats by three to one—steadily increases.

Höyük, located on the banks of the Melendiz River in central Turkey—a land of idyllic streams and dramatic volcanic formations.

Earlier work had suggested that Aşıklı Höyük might be a center of the earliest stages of animal domestication. The new study, led by zooarchaeologist Mary Stiner of the University of Arizona in Tucson, confirms this. The team looked at an archaeological layer radiocarbon dated to between 10,400 and 10,100 years ago. The botanical remains from this level show intensive cultivation of cereals, lentils, and nuts, meaning that crop farming was already under way; but the spectrum of animal bones in the earliest parts of this

layer reflects the hunting of a wide variety of wild animals including hares, tortoises, and fish, along with larger animals such as goats, wild cattle, deer, and sheep. The most abundant large animal was sheep, although they represented less than half of the total animals.

Moreover, the sheep bones from these early levels were clearly those of wild animals, which can be distinguished from domesticated animals by their larger size and the distribution of ages and sexes: Wild herds, left alone by humans, tend to include more older animals and a roughly equal number of males and females.

Beginning about 10,200 years ago, however, the proportions of wild animals in this layer began to change. The hunting of smaller animals appears to fall off to insignificant numbers, while the percentage of sheep—which outnumber goats by three to one—steadily increases. And about 9500 years ago, sheep represented nearly 90% of all animals at the site. Moreover, the researchers say that the age and sex pattern of the bones indicate active management, or herding, of the sheep: Only about 11% of the females died before the age of 6 to 7 months, whereas 58% of the males did, a typical pattern that reflects farmers' desire to preserve females for breeding.

So where were these herded-yet-still-wild sheep kept? The archaeological smoking gun for animal herding is dung deposits in or near a village, and the team found ancient dung in bountiful quantities between the closely packed houses of the settlement. Moreover, under the microscope, Stiner and her colleagues were able to confirm that the dung—rich with traces of grasses, sedges, rushes, and other things that sheep like to eat—came straight out of the animals, rather than being mixed with other ingredients to make mud bricks, mortar, or fuel for fires. That means the dung was the result of stabling rather than reuse by humans for other purposes.

The team concludes that the sheep were kept captive in the village itself, even though the animals were still "morphologically wild"—that is, they had not yet undergone the reduction in size typical of domestic animals.

mestic animals. They probably remained "behaviorally wild" as well; that is, they had yet to become the docile, sheeplike animals we know today—although the team suggests that some animals might have been introduced into the village while still very young, as pets for children.

So why did the villagers need to pen up sheep when they were already successfully hunting them? Stiner and her co-workers suggest that Aşıklı Höyük's location by the Melendiz River, in a region with fertile soils ideal for crop farming, tempted early farmers to settle down and establish a permanent village. The downside of settlement would have been less time for roaming farther away to hunt the meat they still needed in their diet. That "scheduling conflict" between hunting and farming was best solved by bringing the sheep to the village rather than villagers going out to find the sheep, the team says. Thus, the findings provide a new glimpse into the ways that early farmers might have inadvertently begun to domesticate animals, possibly by choosing to stable less aggressive animals and thus favoring genetic variants that eventually led to domesticated varieties.

But Melinda Zeder, a zooarchaeologist at the Smithsonian Institution's National Museum of Natural History in Washington, D.C., questions some details of the study, including whether the team was able to accurately determine the sex of the sheep—which was done by examining their pelvis bones—especially in young animals. Zeder also disagrees with the team's contention that the herding of sheep was a response to a scheduling conflict once the people at Aşıklı settled down; rather than facing a conflict, Zeder says, they may have found a new way to take fuller advantage of both the rich plant and animal resources available in the region around Aşıklı Höyük.

And although Russell agrees that "scheduling conflicts would have been a major issue in the transition to agriculture," she questions to what extent herding sheep would have helped solve them. "Herding would have required new kinds of labor and posed its own scheduling and labor allocation issues," she says.

How do cow herders spot water in the Sahara? With satellites, of course.

Climate change makes it even harder to find water on the edge of the Sahara. Now herders in Mali rely on images from space to direct them to the nearest watering hole.



Review by **Tim McDonnell**
Source: MIT Technology

For most of his 50 years, Abdoul Ag Alwaly, a cattle herder in northern Mali, used the same way of finding water for his cows. He would pay a motorcyclist or camel driver to roam the desert surrounding the city of Gao and check the levels of scattered creeks and wells. The process was expensive, time-consuming, and risky—sometimes he'd march his herd for days only to find that he'd received a bad tip, or that another herd had gotten there first.

In recent years climate change has made the search even harder, Alwaly says. Where he lives, in the Sahel, the vast strip of arid scrubland south of the Sahara Desert, temperatures are rising faster than the global average, droughts are more frequent, and vegetation is scarcer. Erratic rainfall has made traditional watering holes unreliable. Animals frequently perish during the search, Alwaly says, and competition for water can easily turn violent.

So he's trying a new approach. Over the last year, Alwaly, who leads a local union of livestock herders, has started to look for leads in satellite images. "With your phone and 25 francs"—about four US cents—"you'll know, and can move with a lot more certainty," he says.

Alwaly uses an experimental service offered by the telecom

From their graves, ancient nomads speak

By **John Noble Wilford**
Source: The New York Times

Ancient Greeks had a word for the people who lived on the wild, arid Eurasian steppes stretching from the Black Sea to the border of China. They were nomads, which meant "roaming about for pasture." They were wanderers and, not infrequently, fierce mounted warriors. Essentially, they were "the other" to the agricultural and increasingly urban civilizations that emerged in the first millennium B.C.

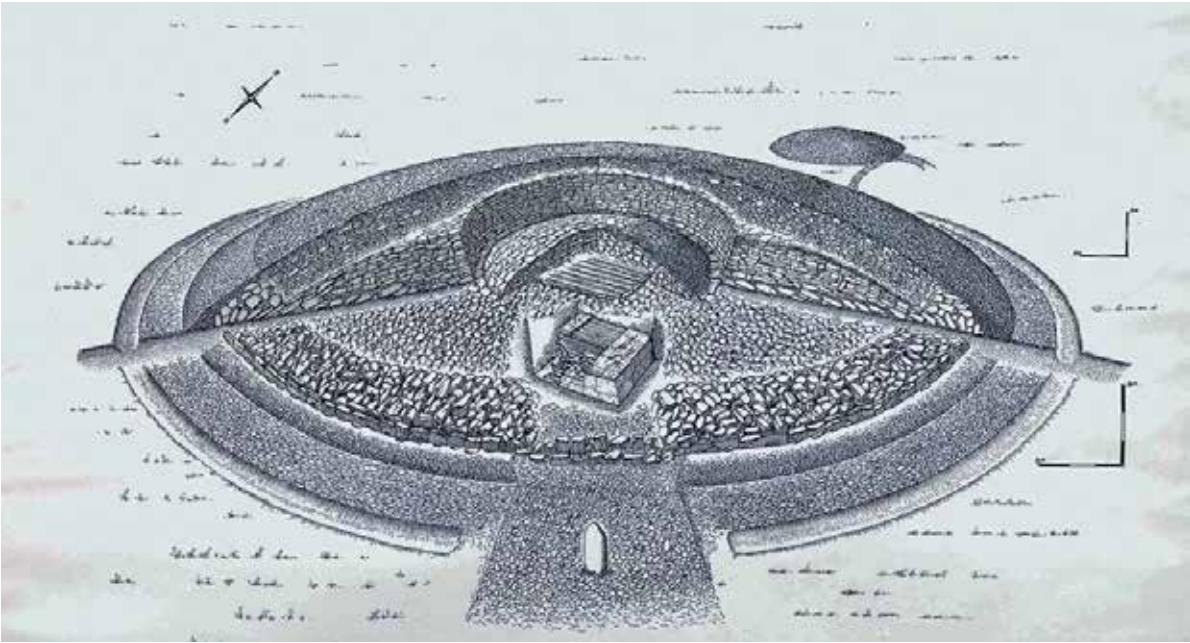
As the nomads left no writing, no one knows what they called themselves. To their literate neighbors, they were the ubiquitous and mysterious Scythians or the Saka, perhaps one and the same people. In any case, these nomads were looked down on — the other often is — as an intermediate or an arrested stage in cultural evolution. They had taken a step beyond hunter-gatherers but were well short of settling down to planting and reaping, or the more socially and economically complex life in town.

But archaeologists in recent years have moved beyond this mind-set by breaking through some of the vast silences of the Central Asian past.

These excavations dispel notions that nomadic societies were less developed than many sedentary ones. Grave goods from as early as the eighth century B.C. show that these people were prospering through a mobile pastoral strategy, maintaining networks of cultural exchange (not always peacefully) with powerful foreign neighbors like the Persians and later the Chinese.



For all their networking, the nomads of the first millennium B.C. never failed to apply imaginative touches to the foreign artifacts they acquired. Dr. Chi, the curator, said the nomads trans-



A drawing showing the construction of a kurgan. Credit- V. Efimov/A. Kh Margulan Institute of Archaeology

Of the 24 Berel kurgans investigated so far, Dr. Samashev said in an interview, the two he started with were among the largest. The mounds, about 100 feet in diameter, rise about 10 to 15 feet above the surrounding surface. The pit itself is about 13 feet deep and lined with logs. At the base of Kurgan 11, he said, the arrangement of huge stones let the cold air in but not out.

This and other physical aspects of the pits created permafrost, which preserved much of the organic matter in the graves — though looting long ago disturbed permafrost conditions. Still, enough survived of bones, hair, nails and some flesh to tell that some of the bodies had tattoos and had been embalmed. Hair of the buried men had been cut short and covered with wigs.

1. A teardrop-shaped gold plaque is one of the objects that shows the strong social differentiation of nomad society, Central State Museum of the Republic of Kazakhstan, Almaty
2. An embroidery of a winged bull. A. Kh. Margulan Institute of Archaeology, Almaty

Ghoda library' trots up to remote Uttarakhand villages



By **Sonali Mishra**
Source: Times of India

It was just good old-fashioned horse sense — to trot up ponies laden with books for children in the remote hills of Uttarakhand with little access to either roads or libraries. And the kids seem to be loving both — the reading materials that come right up to their villages and their four-legged "librarians".

..ponies with a placard around their neck that says 'Ghoda Library' surrounded by excited children who pick books of their choice from the horse's back..

In parts of Kumaon, for instance, it is a common sight these days to see ponies with a placard around their neck that says 'Ghoda Library' surrounded by excited children who pick books of their choice from the horse's back, sit around in a circle on the green grass and read loudly together.

The initiative, begun by Nainital resident Shubham Badhani, 29, himself a librarian by training, is slowly picking up. A few others have evinced interest in the project that aims to instill reading as a habit among impressionable children, many of them poor and deprived.

"I thought, why not a moving library on horseback," said Badhani. "There are these remote areas with schools that often remain closed. Road access, too, is restricted."

Local communities quickly bought into the idea, saw what his team was trying to do and readily offered their horses for the service. "Our volunteers not only dis-

tribute books, they also organise reading sessions that draw children and parents alike," Badhani said.

With the issue of horses resolved, two NGOs, Himotthan and Sankalp Youth Foundation, pitched in with books and funding.

The volunteers go from village to village, identifying kids who want to read and let them keep the books for a week. They make a second round after that to collect the books, giving new ones for them to pour over.

"That way we can cover a wide area with a limited number of books that we have as of now. We rely on donations and are looking for investors to fund our drive," one of the volunteers said. "Right now we have books for children up to 15 years of age. Once we start getting funds and more logistical help, we will increase our distribution area and get books for all age groups."

What has made the effort even more gratifying is the keen interest village women have shown in studying. "Due to many factors, they are almost barred from studies. They, too, participate in our activities and we hope to encourage them," Badhani said.

The villagers are grateful. Nathu Ram, 32, a resident of Talla Jalna in Nainital district, smiled, "We all take part in the reading sessions. It helps us gain knowledge. We leave our work early for this."

A little distance away, Pushpa Devi, 30, said, "I have four daughters. Jyoti, my second child, is the most involved. She loves the ponies. And the books, of course."

Asked about it, Jyoti, who is in class 5 at a local government primary school, simply said, "Earlier I just played after school. Now I read. The ponies are also very sweet."

NEWS

Pastoralists Rallied for Rights in Kutch



“ The forest should be protected and used by us, we know how to live with forests. The authorities should work with us and not against us.”

By **Ramesh Bhatti**

On the 9th of October, 2023, more than hundreds of pastoralists from Kutch rallied for forest rights in Bhuj. Pastoralists under the Other Traditional Forest Dwelling (OTFD) communities reached the District Collector's office (held by Shri Amit Arora) to demand a response on their long-submitted forest rights claims under the Forest Rights Act, 2006 (FRA). Almost 82 claims from Gujarat have been filed since 2015 and there is no response from either the Sub-District Level Committee (SDLC) or the District Level Committee (DLC).

Led by the Camel Breeders Association (KUUMS) and Sheep Goat Breeders Association (GBMS) of Kutch, 26 Forest Rights Committee representatives gathered and

marched towards the Collector's office in Kutch.

The FRA 3.1 (d) states that grazing rights are given to the nomadic and pastoralist communities to access grazing and traditional seasonal resources. Within 90 days of filing the claim, the communities can ascertain rights over their grazing resources. In the wake of continuous violation of pastoralist rights, protestors assembled from Bhachau, Abdasa, Lakhpat, Nakhtrana, Mundra, Rapar, and Bhuj.

The group has asked the collector to correct the delay and negligence by the SDLC and DLC within a month. If not, then the pastoralists have shown preparedness to mobilize at an even greater scale and make themselves heard by the state as well as the national government.

EVENT

Winter, Wool and Warmth

Desi Oon - Hamara Apna: The Fibre of Our Past and Future celebrated the versatility and innovations around Desi Oon, turning the biting cold winter into a memorable experience.



The revamped Desi Oon logo retains its typographical style with enhanced compactness, featuring a reinterpretation of the wool thread wound around a spindle. Symbolizing **craftsmanship and tradition**, it reflects the Desi Oon Hub's commitment to preserving heritage.



Annual winter festival at Triveni Kala Sangam, New Delhi, between 7th -11th December, 2023



A bustling Desi Oon market showcasing products from across India's pastoral landscapes



Visitors engaging in artisan led craft workshops