

Calendar set in stone

HERITAGE The stone alignment at Vibhutihalli in Yadgir district was used to track annual events like solstices and equinoxes. **Meera Iyer** visits the site and marvels at the ingenuity of our ancestors.

As you drive down the highway from Shahpur towards Bangalore, about half a kilometre past a town called Vibhutihalli in Yadgir district, you will notice the arid brown landscape suddenly broken by a patch of green. A small and unusual grove of tamarind trees stands here. Unusual because interspersed amongst the trees are row upon row of stones, each a metre or more high. Some are right under the trees, others stand in neat lines between rows of trees. This stone grid, now hidden under the trees, once served as a calendar for the ancients.

The modern history of the Vibhutihalli stone alignment dates back to the 1850s when Capt Meadows Taylor, an administrator with the Nizam's government, discovered this 'curious spot'. He describes how the ground has been marked out in parallel or diagonal lines to form squares, the points of the squares being formed of large granite boulders. He presumes these boulders were rolled down from the neighbouring hills, but, "at what expense of labour, and with what patience!" Taylor speculated that the stone grid was eventually meant to hold cairns and burials, an idea strengthened by his finding of some cairns within the alignment.

But we owe our understanding of the site to N Kameswara Rao, who recently retired from the Indian Institute of Astrophysics. In between publishing cutting-edge research on stellar spectra and buckyballs in space, Rao has also devoted

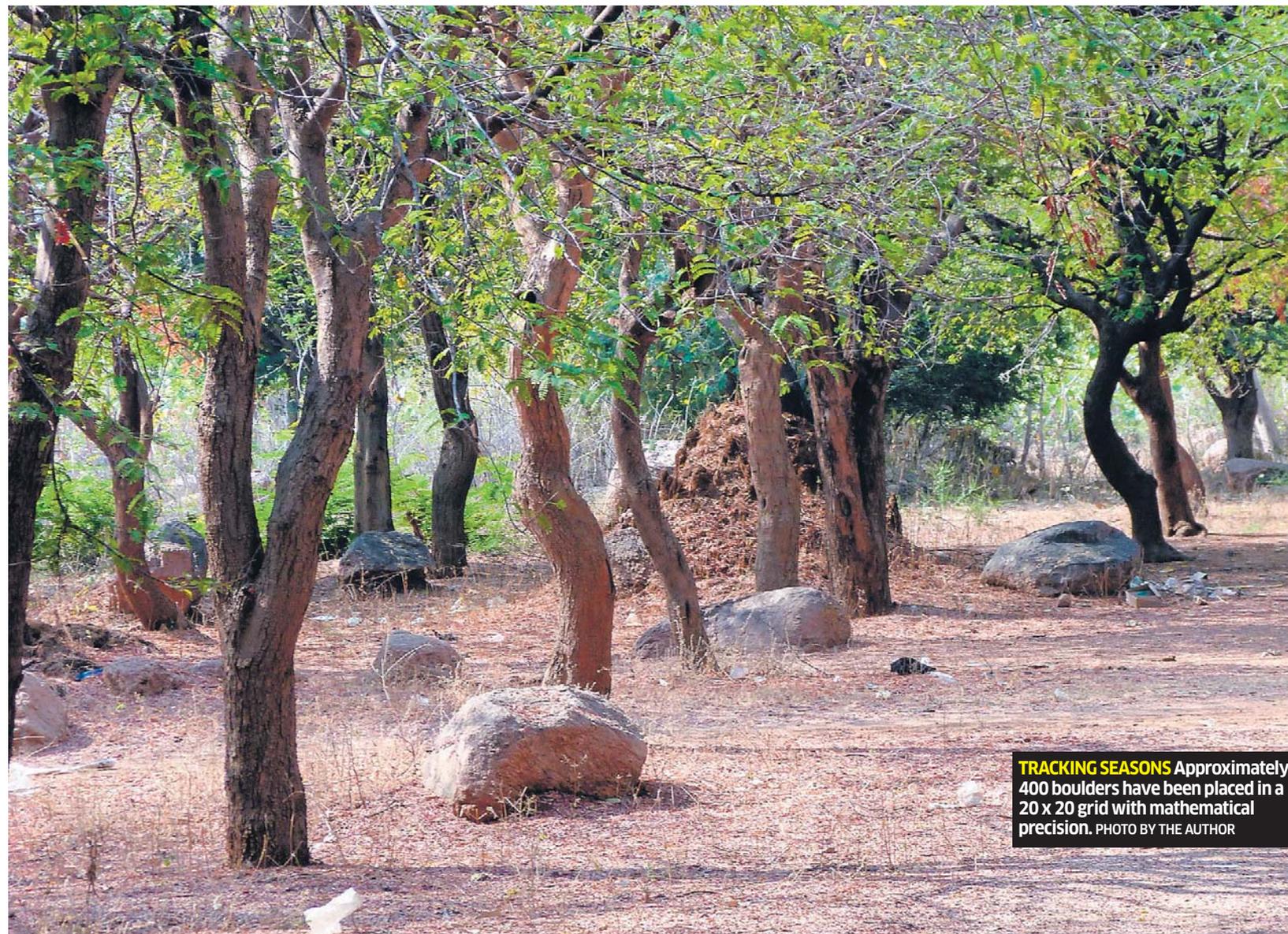
much time to studying astronomy in ancient India.

Rao and his colleagues who investigated this stone alignment believe that Vibhutihalli's rows of stones were used to track annual events such as solstices and equinoxes. Rao explains how if you stand facing east at dawn around an equinox, either March 21 or September 22, you will find that the rows of stones running east-west point directly to where the sun rises. You can also find positions in the alignment from where you can look along diagonal stones to predict where the sun will rise and set during the summer solstice. A point I found most interesting: during the equinox, the sun sets exactly in the dip between two hillocks that stand just across the road.

Carefully planned site

This implies that the people who set up Vibhutihalli's alignment chose the site very carefully indeed. Rao agrees: "An enormous amount of planning and previous experience was needed to establish this site." He believes that this was probably not the first attempt at establishing a site to monitor annual events. Corroborating this view is the fact that other alignment sites have been found in the region around north Karnataka and parts of Andhra Pradesh, many of them much smaller than Vibhutihalli. Presumably, some of these were pilot projects.

But what was the purpose of monitoring events such as solstices and equinoxes?



TRACKING SEASONS Approximately 400 boulders have been placed in a 20 x 20 grid with mathematical precision. PHOTO BY THE AUTHOR

“RAO EXPLAINS THAT IF YOU STAND FACING EAST AT DAWN AROUND AN EQUINOX, YOU WILL FIND THAT THE ROWS OF STONES RUNNING EAST-WEST POINT DIRECTLY TO WHERE THE SUN RISES.**”**

"Tracking something that repeats, like seasons, was the basis of ancient civilisations. Survival often depended on being able to predict when the seasons would change... and it all came from keeping an eye on the sky," explains Rao. Harvesting, sowing, hunting, moving to better pastures, moving for shelter – much of ancient humans' lifecycles was closely tied to the changing seasons.

As he spoke, I recalled long-forgotten lessons from my school geography and biology classes. On the vernal equinox in March, day and night are about equal. Days get longer till the summer solstice in June when we have the longest day. Day length decreases once again till day and night are equal during the September equinox and then decreases some more till the winter solstice in December, when we have the shortest day. And day length matters a lot to many plants. Panicles in some varieties of sorghum, for example, form on or around the autumn equinox in September. Barley plants produce leaves at different rates depending on whether it is before or after an equinox. Clearly, the ancients had an eye on the sky but also one on the ground to observe how these changes were inter-related.

Other markers on the horizon

There are other markers on Vibhutihalli's horizon that probably contributed to the site. Just south of the alignment site is a hillock with two distinctive pillar-shaped rocks. Stand facing these and you will find that the north-south rows of stones line up perfectly with the taller of the pillar rocks. Rao thinks it is probable that this rock was used to help line up some of the stone rows.

Perhaps there are other markers on the horizon that would help mark and monitor calendric events here. Investigating this would require a clear view of the horizon. Unfortunately, at Vibhutihalli, the horizon can scarcely be seen because of the trees that were planted here by the Forest Department sometime in the 1970s. I couldn't help but wonder why they chose this particular spot for afforestation. Some of the stones seem to have been moved during the planting while others have been slightly dislodged by the trees growing next to them.

'This is how it has always been'

The ancient site is now under the aegis of the Archaeological Survey of India, which recently put up a fence around the align-

ment. But a Forest Department nursery continues to function inside. I chatted with some of the workers there, asking them if they knew anything about the stone grid. "We have no idea," was the response, a view echoed by a farmer, Hanumanthappa, who added, "I just know that this is how it has always been, even in my father's times."

Of course, the Vibhutihalli stone alignment has been around for much longer than Hanumanthappa's father's times. Rao thinks it might have been established 3,400 to 3,800 years ago, during the time when our ancestors began depending more on agriculture and less on foraging for food.

As I stood looking along the rows of stones, I wondered how people would have gone about planning for this calendar in stone so many thousands of years ago. How did they organise the labour for establishing the alignment with such great care and with such staggering effort? How long did it take them? And who 'read' the calendars? There are no inscriptions to guide us here but perhaps archaeologists will one day uncover the secrets of the stones. Till then, I can only marvel at the ingenuity of our ancestors.