

Vedic astrology is another term which fascinates people and captures their imagination about its ancient origin. Actually, there is no mention of horoscope and planetary influence in Vedic literature. It only talks of Tithis and Nakshatras as astronomical entities useful for devising a calendar controlled by a series of sacrifices. Astrology of planets originated in Babylon, where astronomers made regular observations of planets, but could

not understand their complicated motions. Astrology spread from there to Greece and Europe in the west and to India in the east. There is nothing Vedic about it.

It appears that some Indian intellectuals would use the word Vedic as a brand name to sell their ideas to the public. It is imperative that scientists should study ancient literature from a rational point of view, consistent with the then contemporary knowledge.

1. Balasubrahmanyam, S. N. *Curr. Sci.*, 2004, **87**, 9–10.

K. D. ABHYANKAR

'Akashganga',  
1-5-76, Vivekananda Nagar,  
Habsiguda Street, No. 8/26,  
Hyderabad 500 007, India  
e-mail: kda@ouastr.ernet.in

## Shanghai rankings and Indian universities

The editorial 'The Shanghai Rankings' is a shocking revelation about the fate of higher education and a slide down of scientific research in India<sup>1</sup>. None of the reputed '5 star' Indian universities qualifies to find a slot among the top 500 at the global level. IISc Bangalore and IITs at Delhi and Kharagpur provide some redeeming feature and put India on the score board with a rank between 250 and 500.

Some of the interesting features of the Shanghai rankings<sup>2</sup> are noteworthy: (i) Among the top 99 in the world, we have universities from USA (58), Europe (29), Canada (4), Japan (5), Australia (2) and

Israel (1). (ii) On the Asia-Pacific list of top 90, we have maximum number of universities from Japan (35), followed by China (18) including Taiwan (5) and Hongkong (5), Australia (13), South Korea (8), Israel (6), India (3), New Zealand (3), Singapore (2) and Turkey (2). (iii) Indian universities lag behind even small Asian countries, viz. South Korea, Israel, Taiwan and Hongkong, in ranking.

I agree with the remark, 'Sadly, the real universities in India are limping, with the faculty disinterested in research outnumbering those with an academic bent of mind'.

The malaise is deep rooted and needs a complete overhaul of the Indian education system.

1. Balaram, P., *Curr. Sci.*, 2004, **86**, 1347–1348.
2. <http://ed.sjtu.edu.in/ranking.htm>.

H. S. VIRK

360 Sector 71,  
SAS Nagar 160 071, India  
e-mail: virkhs@yahoo.com

## Water storage in *Terminalia tomentosa*

*Terminalia tomentosa*, a member of the Combretaceae family, is a large tree found in deciduous forests. As the tree stands bare during winter (November to February), it can only be identified by its scissored and cracked bark and for this reason is sometimes known as crocodile bark tree.

Two forest watchers at Bandipur National Park had informed me about the tree's remarkable ability to store water in the stem. Some members of this species develop a lateral ridge (called 'wing', sometimes two on the opposite sides) 2–3 feet long and half a foot thick on the stem, 5–10 feet above ground. The wing is an indication for the presence of water in the stem.

Large amounts of water (at least 4 to 6 l) can be collected by making a small hole in the tip of the lateral ridge with the help of a sickle (see Figure 1 *a* and *b*). I believe that the water stored in *T.*

*tomentosa* is not from rains as there are no cracks in the stem.

Although slightly off-flavoured and orange-yellowish in colour (may be due to dissolved phytochemicals), the water



**Figure 1.** *a*, Water rushing out of *T. tomentosa* stems. *b*, Potable water being collected from the stem.

is of potable quality. I consumed a large amount of it during my recent four-day study-trip to the forest and there was no health upset. Tribal people do tap the water to quench their summer thirst. *Caraka Samhita* mentions the use of *T. tomentosa* bark decoction in rheumatism, fever and urinary diseases. However, medicinal uses, if any, of the water stored in the stem are not known.

Plants/trees can transport water to great heights through xylem, much like a pump or heart<sup>1,2</sup>. Coconut palm trees fill their heavy fruit with cocoa water at con-

siderable heights<sup>2</sup>. But it is totally unknown how plants/trees like *T. tomentosa* can actually store large amount of 'free' water in the stem. Many woody scandent shrubs like *Calicopteris flouribunda* and *Hippocratea arnottiana* trickle cool, potable water when the stem is cut at the base. However, this water must be a backflow from the xylem vessel.

Only a small section of the population (roughly 5–10%, probably old trees) is observed to have stored water in the stem. It would be interesting to know how the water is stored in the stem and why only

a small percentage of *T. tomentosa* trees store water.

1. Tyree, M. T., *Nature*, 2003, **426**, 923.
2. Kundt, W., *Curr Sci.*, 1998, **75**, 98–102.

R. SHYAMA PRASAD RAO

#227, 'Chaitrashree',  
HIG, 'A' Block, 8th Main,  
Vijayanagara III Stage,  
Mysore 570 017, India  
e-mail: rsprao101@yahoo.co.in

## Secondary succession in the buffer zone of Corbett Tiger Reserve, Uttaranchal

The Corbett Tiger Reserve (CTR) established in 1936 is the oldest national park in the Indian subcontinent. Spread over 1318.54 km<sup>2</sup> in the foothills of Uttaranchal Himalaya, it occupies the Siwalik-terai biotic zone abutting the Himalaya. The reserve is adorned with a unique assemblage of Himalayan flora and fauna.

With the passage of time and increase in animal population, an urgency to expand the protected area was perceived by the forest authorities. With this aim two villages, namely Dhara and Jhirna, which were situated on the southern boundary

of the reserve (Dhara ca. 5 km from Kalagarh and Jhirna ca. 7 km from Kalagarh), were relocated to Firozpur–Manpur area situated on Ramnagar–Kashipur highway (Figure 1) during 1990–93. There were about 25 families in Dhara and 30 in Jhirna, which were mostly dependent on the forest products. These inhabitants were rehabilitated on the Ramnagar to Kashipur road in the village Ampokhra. The areas thus vacated were designated as CTR buffer zones.

As time passed, nature began its secondary succession arising from the destruction of previous ecosystems or the

abandonment of cultivated land<sup>1</sup>, on the abandoned fields and soon they began to show signs of ecological recovery. During this process a tangle of vines, herbs, grasses and small trees arose initially. Such a situation is the primary stage of secondary succession<sup>2</sup>. These were subsequently supported by herbaceous flora, eventually leading to natural forest type. In the CTR, it was noticed that the vacated agricultural fields were soon taken over by grass and the adjoining forest areas started recuperating.

By 1999–2002 several plant species, namely *Abelmoschus crinitus* Wall., *Acacia pennata* (L.) Willd., *Ailanthus excelsa* Roxb., *Albizia lebbek* (L.) Benth., *Alternanthera sessilis* (L.) DC., *Cyperus nutans* Vahl., *C. rotundus* L., *Galium apariane* L., *Heliotropium strigosum* Willd., *Indigofera glandulosa* Willd., *Ipomoea nil* (L.) Roth., *Limonia acidissima* L., *Melochia corchorifolia* L., *Mucuna capitata* Wt. & Arn., *M. nigricans* (Lour.) Steud., *Perotis hordeiformis* Nees ex Hook. & Arn., *Saccharum spontaneum* L. and *Thevetia peruviana* (Pers.) Merr., had already emerged in these buffer zones. It was therefore clear that secondary succession was fast progressing and was on way to acquire a climax.

The newly arisen lush green fields started attracting animal population and subsequently colonization began. The grass-eating animals, mainly deer and elephants, slowly migrated towards these areas and even preferred to stay here throughout the monsoon. These animals,

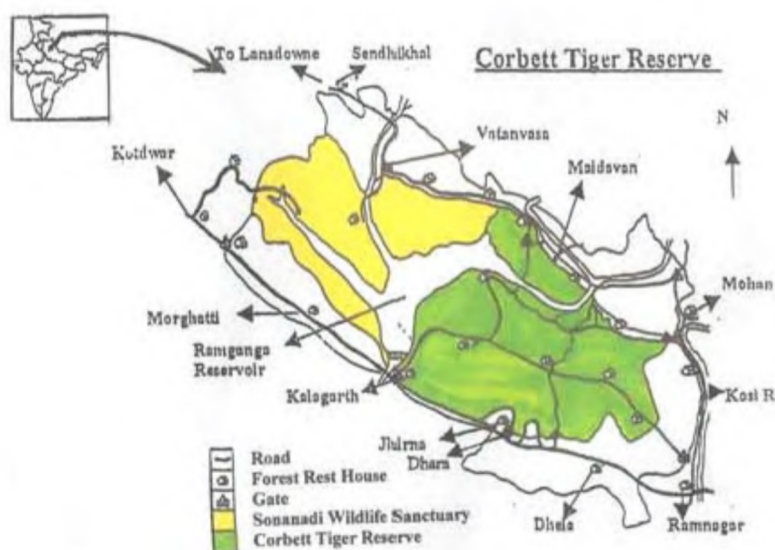


Figure 1. Map of study area.