

months were 3–4 times lower than those shown in the record for nearly all the previous years. Disparity also existed in the rainfall record when compared with information noted at the district government office at Kaza, Spiti valley. This place is one of the several locations where climatic distinction should precede the convenience of operating a reliable meteorological observatory.

Since relatively small changes in precipitation regimes may have a major impact in the arid and the semi-arid areas<sup>13</sup>, the desert ecosystem could prove sensitive to small differences in precipitation rates, but requires accurate monitoring over a significant period of time to predict environmental or climatic changes.

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## Drying up of Saraswati

I enjoyed reading A. V. Sankaran's article on the river Saraswati (*Curr. Sci.*, 1999, 77, 1054–1060). He is, however, wrong in supposing that the *Vedas* came into existence more than 8000 years ago; that the decline of the Vedic civilization was caused by the decline of the Saraswati five to six thousand years ago; and that, contrary to what is generally believed, the Harappan civilization succeeded rather than preceded the Vedic Age.

We have an unbroken record of the early Hindus, from the *Rig Veda* on; there is no break in the record. Indeed, this is the thing that makes Hinduism so unique; it is the only religion which has, so to speak, lived a full life, and for which a carefully documented record of its entire life history is available. This literature does not contain a single reference to anything remotely resembling the scale and majesty of the Harappan civilization at its peak. Nor does it refer to the cataclysmic drying up of the Saraswati; or to the demise of the Harappan civilization (which is reliably known to have occurred around 2000 BC). These two events must therefore have occurred many generations before the contemporaneous portions of the *Rig Veda* begin. The Saraswati is, in the *Rig Veda*, essentially a holy river, rather than a mighty one.

It is certain that the puny, rainfed Ghaggar of the present time, popularly identified with the ancient Saraswati, once flowed right down to the Rann of Kutch. Since geomorphological evidence on when the river shrank is subject to a margin of

error running into several thousand years, it is tempting to speculate that the Saraswati must have been in full form when the mature Harappan site of Dholavira (today hopelessly bogged down in the formidable Rann) was constructed; around 2500 BC. This would have given the site easy access to the sea, and to upstream sites like Kalibangan in Rajasthan and Banawali in Haryana; and, of course, an assured supply of water. As a corollary, the abandoning of the three sites about 500 years later, would have coincided with the cataclysmic change in the Saraswati. The supply of water at the three sites would have had to be much more plentiful than it is today for the Harappans to even think of constructing such large cities there. Besides, one must remember that without easy and reliable means of water transport, it is very unlikely that such a commonality of culture could have developed across Harappan cities situated thousands of kilometres apart from one another.

The 'spot where the Saraswati mingleth with the sea' is mentioned as one of the *tirthas* which pilgrims were supposed to visit in ancient times (travelling north from Prabhasa – Somanath? – to the ancient junction of the Saraswati with the sea, south to Dvaravati – Dwaraka – and then, perhaps after a brief sea journey, up the course of the Indus river: *Tirthayatra Parv* of the *Mahabharat*, Sec. 82). The Saraswati probably shrank more than 4000 years ago; but reverence for this ancient and sacred spot would have survived in popular memory.

Mainstream historians dismiss the *Puranas* (and other popular literature such as the *Mahabharat*) as consisting mostly of mythology and claptrap. But a classic written by F. Eden Pargiter in 1922, drew the attention of sceptical scholars to the great difference in content and style between the king lists of the *Puranas* and the rest of their more fanciful material; to the remarkable consistency between king lists taken from a large number of different *Puranas*; and to the way that the genealogies of as many as a dozen different dynasties of ancient India mesh so well with one another in space and time.

Pargiter, an ICS man of the old school, after a careful, critical and painstaking study of the *Puranas* lasting more than thirty years, was able to document the genealogies of these ruling houses of ancient India for about 120 generations before Mahapadma Nanda and his sons (the predecessors of Chandragupta Maurya) came along and 'enjoyed the earth for a hundred years'. This stupendous achievement made it possible, for the first time, to slot Puranic history into the Gregorian calendar, thanks to the fact that the latter has a firm date for Alexander's invasion of India – 326 BC. Pargiter's study made it possible to put together a connected account of early Indian history right from the most ancient times; it was no longer necessary to stop at the Buddha in the 6th century BC. No doubt we still do not have exact dates for earlier events; because we have no way of knowing how long each generation of the king lists ruled. But at

least it is now possible to know what the major events of ancient Indian history were; to arrange them in their proper order; and to assign them to particular periods.

In the picture that emerges, we find the various kingdoms already welded together into one vast community; on, so to say, speaking terms with one another despite the vast distances that separated them – scattered about as they were, intermittently, over a territory covering several thousand square miles; around the middle portions of the Gangetic valley, and in the territory north of the Vindhyas.

Both the *Puranas* and Pargiter's book on them were written before anyone even suspected the existence of the Harappan

civilization. And yet the map put together by Pargiter, on the basis of information gleaned from the *Puranas*, left blank all of the desiccated Harappan area in Sind; an area which seems to have remained uncolonized for more than a thousand years after the demise of the Harappan civilization, even as the Aryans spread pretty much everywhere else in the sub-continent.

The first contact of the Aryans with the rest of the Harappan territory in Punjab, Haryana, north Rajasthan and Gujarat, occurred long after the Harappan civilization had peaked, during the late or post Harappan phase. In short, both Puranic history and Puranic geography survived the sudden discovery of the Harappan

civilization in the early 1920s. The 'Aryan invasion' theory failed miserably on both counts. Though its proponents seem not to have noticed it as yet, the fact is that this theory was dealt a death blow by these discoveries from which it has yet to recover.

Ironically, although Pargiter's findings survived the discovery of Harappa, his book itself was swept away by the deluge of findings about the Indus Valley Civilization that commenced almost before his ink was dry – and has continued unabated ever since.

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## Who should be credited for the discovery and first reporting of arsenicosis in Koudikasa in Madhya Pradesh?

This has reference to our research communication 'Arsenicosis and deteriorating groundwater quality: Unfolding crisis in central-east Indian region' (*Curr. Sci.*, 1999, 77, 686–693) and a scientific correspondence entitled 'Arsenic groundwater contamination and sufferings of people in Rajnandgaon district, Madhya Pradesh, India' (*Curr. Sci.*, 1999, 77, 502–504).

The first article bears the date of receipt as 26 December 1998 and the date of acceptance as 26 May 1999. The second correspondence does not carry any date as per the practice of *Current Science*. Let *Current Science* disclose the

date of receipt of the scientific correspondence.

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### Editors' note

The research communication entitled 'Arsenicosis and deteriorating groundwater quality: Unfolding crisis in central-east Indian region' (*Curr. Sci.*, 1999, 77, 686–693) by Piyush Kant Pandey *et al.* was received on 26 December 1998 and accepted on 26 May

1999 and published in the 10 September 1999 issue (77, 686–693) of the journal.

The scientific correspondence entitled 'Arsenic groundwater contamination and sufferings of people in Rajnandgaon district, Madhya Pradesh, India' (*Curr. Sci.*, 1999, 77, 502–504) by D. Chakraborti *et al.* was received on 1 April 1999 and accepted after revision on 27 April 1999 and published in the 25 August 1999 issue (77, 502–504) of the journal.

We regret that the policy of not indicating receipt dates on scientific correspondence and different scheduling has led to an apparent dispute on priority. Henceforth, all scientific correspondence items will bear date of receipt.

## NEWS

### China's new basic research strategy designed to eschew 'blind following of developed countries'

China intends to create a highly efficient national 'crack team' for basic scientific research by the year 2010, according to a Chinese media report. A national conference held in Beijing during 27–29 March on basic research deliberated upon the issues relating to this strategy. Major objectives of the strategy are: (i) To attract leading world

scientists by establishing state-of-the-art facilities, offering high salaries and taking care of housing and education for their children; (ii) To foster research teams comprising scientists of very high quality; (iii) To provide incentives to Chinese scientists taking part in major national basic research programmes in the form of raising their

annual salaries, etc.; (iv) To emphasize real innovation 'rather than blindly following the path of developed countries'.

The Chinese Ministry of S&T is expected to financially support about thirty-five thousand (35 K) basic research scientists under this programme.