In this issue

Geological Marvels
A Shaivite pilgrimage

The wonder and awe that the ancients felt when confronted with geological marvels inspired religious sentiments and gave impetus to creativity, provoking people to set up temples to celebrate the creations of gods. A General Article by K. S. Valdiya on **page 987** in this issue examines the sites of most venerated Shaivite temples in India from a geological perspective.

The article takes us on a journey from the spectacle of the *Om* sign in the snow, at Mount Kailas, to its geological significance as the meeting place for the unification of the Indian and Asian plates. From the river systems that originated from this merger, emerged the Indus. And an ancient civilization evolved on its banks.

In mythology, the Ganga originates in Shiva's locks. Geologically, the River Ganges braids its way southeast ward till it reaches the plains. And then it starts meandering its way eastward to meet the Bay of Bengal. But it takes a sudden unexpected turn northwest to gush towards Varanasi, another sacred Shaivite site. The *wow* factor when confronted with geological formation slowly turns into an *aha!* due to the scientific explanations given in the article.

Read on from page 987. The article has more to say – on Kedarnath, Amarkandak, Omkāreshwar … Not only on the merger of two continents, but also about the merger of many peoples.

Monsoon Mysteries
Pulls and pushes between mountain and oceans

The monsoon behaves like a lunatic. Pouring life giving water on the continent – sometimes in plenty, sometimes in deficit; somewhere too much and in too little time…

Flashfloods and droughts can wreak havoc in the agricultural countries of the region. The importance of understanding the monsoon cannot be highlighted without underlining the complexity of the process that sets off the monsoon and the multiplicity of factors that come into play in setting off monsoon circulation.

Meteorologists, like the proverbial blind men and the elephant, focus on various factors. And they communicate to each other. The correlations so far delineated between these factors slowly seem to fall into place like a jig saw puzzle. Unlike the blind men, they are coming closer to having a clearer picture.

Temperature variations in Tibet, in the Equatorial Pacific, in the Indian Ocean, and in the North West Tropical Pacific; these may then be the legs of the proverbial elephant, the four main actors in the drama on the geological stage. Jet streams seem to be the backbone.

On **page 1010**, Sulochana Gadgil and P. A. Francis examine the data of the last two monsoons, putting into context the role of convection in the North West Tropical Pacific in modulating the effects of ENSO on the Monsoon, especially in the month of June. Read the Research Article on page 1010 of this issue.

Adhesive Tape Meets Electron Beams
Biocompatibility in medical applications

Most mothers of young children stock 'plaster' and 'band-aid'. Nurses and doctors, too, use adhesive tapes for various purposes. And so do surgeons. So Material Science has been throwing up alternatives.

But the outer polyurethane based tapes which are adhesive under pressure may leach into surrounding tissues. How can we check that? What are the methods that can be used to assess the cytotoxicity, irritation and sensitization of such materials? A Research Article inquires on **page 1023**.

The story does not end there. Besides analysing the components that go into producing such a tape, the article compares the effect of existing materials on living cells. The article also suggests a technique to make the tape more biocompatible: electron beam.

Taj Imperfect
Symmetry breaking in Architecture?

On **page 996** in this issue, a General Article points out that the dome of the Taj Mahal is asymmetric! Using different methods, the authors establish beyond doubt that the Taj is indeed imperfect in terms of symmetry.

Wonder of wonders. Why is it that we are so enamored by a monument which is not even symmetric?

Physicists have been tackling symmetry breaking phenomena for about a century now. Biologists, too, are puzzled by symmetry breaking in living systems where L amino acids dominate over their equally possible mirror images: D amino acids. Though at the level of organism, radial and bilateral symmetry is the rule, lateralization of heart and brain functions, too, break symmetry. Though investigations into aesthetics reveal that people prefer symmetric faces, symmetry breaking gives character to a face. Artists are fond of breaking symmetry and yet generating a sense of balance and perfection.

But the famous Taj! Asymmetric?

If you don't believe it, read on from page 996.

Man-made canyons of Bengaluru
Aspect ratio to reduce decibels

In the *Diwaan-e-aam* of Agra Fort, the emperor could sit and whisper. All his retinue, aristocrats, and even the common people sitting far away, could hear him. And this was in the times when there were no loudspeakers. This architectural marvel is turned on its head now-a-days where the sound of screaming vehicles on the streets is attenuated by the buildings on both sides. People tend to close windows to cut down the noise and are, therefore, forced to use air-conditioning – which adds to the noise outside, further exacerbating the problem.

But is there a solution?

A Research Communication in this issue examines the canyons of Bengaluru created by urban migration and consequent rise in high-rises, to inquire about the relationships between the width of roads and the height of the buildings on both sides in attenuating the din of decibels on the street. The communication, relevant to city planners and developers is on **page 1072**.

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