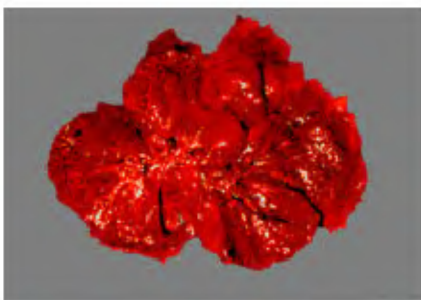


In this issue

The Bhopal gas tragedy

Termed as the largest industrial disaster in history, the Bhopal Gas Tragedy (BGT) of 3 December 1984 has been an emotive issue for the past two decades. The event raised many social issues, chiefly the culpability of multinational businesses. Some of these issues have been resolved in a manner. The medical effects of the gases that escaped from the storage tank



of the pesticide production plant did not have a precedence. A few dedicated workers struggled under serious logistic and technical constraints to study the pathological effects. S. Sriramachari has been associated with the investigations *ab initio* and devoted a substantial part of his career unravelling the pathogenesis of the maladies associated with BGT. In the exhaustive review he describes (page 905) the changes seen in the various organ systems of the human body. The effects have been well studied. However, it is evident from the article that there are still some unsolved issues. The paper highlights the unresolved issues, which may yield some research leads.

Satellite gravity anomalies of Central Indian Ocean Basin

The Central Indian Ocean lithosphere evolved by the India–Antarctica and Wharton Ridges has responded to the continuing collision of India with Asia by folding and cracking at different time periods in the past. The lithospheric deformation in the middle of the Indo–Australian plate is peculiar to the Plate tectonics concept and led to add a new paradigm to the theory. Seismic investigations on correlation to Ocean Drilling Program Leg 116 sites revealed that the lithosphere was deformed mainly at three different geological ages: Miocene (8.0–7.5 million years ago), Pliocene (5.0–4.0 Ma) and Pleistocene (0.8 Ma). The deformed blocks are in various dimensions reaching up to 320 km long and 3 km

rise and are terminated by spreading-related fracture zones. The satellite derived free-air gravity anomaly data and seismic reflection profiles revealed 23 deformed blocks, aerial extent of the deformation and several other crustal features, which led to understand the architecture of the deformed blocks and infer kinematics of the deformation. Change in rheology of the crustal rocks in the eastern side is attributed to high heat-flow inside the crust, continued ridge push and plate boundary forces. The geological processes have controlled the physical state and architecture of the northeast oriented crustal blocks. See page 948.

Valuation of medicinal plants

With the promulgation of Convention on Biological Diversity (CBD) in 1992 at the global level and the Biological Diversity Act, 2002 at the national level, the sustainable use of biodiversity and subsequent benefits sharing by different stakeholders, command special attention. Uses of biodiversity for medicinal purposes and developing lead for new drug discovery from this provide substantial benefits to the society although the magnitude of benefits derived is not away from controversy. Pushpam Kumar reviews (page 930) some of the significant studies that estimate the economic value of biodiversity for bioprospecting purposes. The author scrutinizes the methodologies adopted; evaluates the findings and examines the policy recommendations. The economic value of a medicinal plant varies from \$ 0.2 to \$ 340 million per annum. Since these studies were meant to address different concerns in different contexts with motivation of varying degrees and connotations, it is difficult to arrive at a general conclusion. However, it is obvious from the article that a conservation strategy on the basis of the benefits of bioprospecting alone, will need detailed area-specific study instead of a general and large landscape valuation.

Composition of the solar atmosphere

The knowledge of chemical composition of cosmic as well as laboratory plasmas is of universal importance. The plasma composition plays a key role in our understanding of physical processes that transport, accelerate and heat the plasmas and the wind. It must also be known to interpret plasmas' spectral signature, density,

temperature, emission measures, radiation losses, etc. Unlike the uniform composition of the Sun's photosphere, the composition of the Sun's atmosphere is not well defined. Systematic differences do exist between the composition of the solar corona and the photosphere. Spatial and time variability in the composition of various coronal features have also been reported.

Chemical composition data concerning the solar outer layers above the photosphere, obtained from the ground and from space during the last three decades, revealed a great variability from one layer to another, and from one event to another. Despite these variabilities and sometimes large differences with photospheric results, these data play an important role in defining the solar chemical composition and, more importantly, in explaining the physical processes that allow these outermost layers to exist. Early indications of anomalous coronal composition were seen in low speed solar wind and energetic particle data. Elements with first ionization potential (FIP) ≤ 10 eV were found to be overabundant by about a factor of 4 relative to elements with FIP ≥ 10 eV as compared to the photosphere (FIP effect).

Mohan and Dwivedi review (page 921) the spectroscopic techniques used and the progress made in recent years to derive the plasma compositions of various structures in the solar atmosphere.

Influenza virus strain

Epidemics of influenza occur every year worldwide and cause enormous morbidity and mortality. The continuous changes occurring in the major surface glycoproteins lead to emergence of new strains of influenza virus causing frequent epidemics and periodic pandemics. In view of the above, the World Health Organization has initiated a global influenza surveillance program for early detection of new variants of influenza virus. During continuous surveillance, the National Institute of Virology at Pune, one of the National Influenza surveillance centres in India, detected re-appearance of an influenza type B strain (B/Victoria/2/87 like) in Pune in 2002 after a gap of nearly 12 years. This study (page 966) emphasizes the need for regular influenza surveillance, since early detection of newly emerging strains would be the key factor for proper and effective implementation of control measures if a highly infectious variant were to arise in the community.