

In this issue

Biodiversity of Andaman and Nicobar islands: Going, going,

The sordid episodes of developmental activities causing enormous and irreparable damage to natural ecosystems have been described so often in the popular press, that one more tale of woe can hardly be news. Nonetheless, the grim state of affairs of Andaman and Nicobar islands documented by P. V. Sreekumar (page 541) deserves special attention. The many unique and remarkable features of the lifescape of these islands make them one of our most precious and most fragile natural heritages. Highlighting the immense potential of the endemic plant and animal species for enriching our genetic resources, Sreekumar rightly voices apprehensions about their imminent extinction. The most poignant of these statistics refers to the populations of the three primitive tribes – Onges, Great Andamanese and Shompens; these are represented by less than a few dozen surviving individuals. In all probability, not even a single individual will be left to participate in the centenary celebrations of Indian independence (unless the Good Shepherd Ian Wilmot decides to add them to his flock!). See this article, if only to know how much we stand to lose by neglecting the conservation of the Andaman and Nicobar islands.

N. V. Joshi

Women in science

Are women encouraged to take up careers in science? Despite increasing enrolment of women in post-graduate degree programmes and for Ph D degrees in various institutions,

there are relatively few professional women scientists at the major universities and research laboratories across the country. At the higher levels of academia and science management, the balance is tilted decisively in favour of men, although the Department of Biotechnology now has its first woman secretary. There have been many attempts to increase the participation of women in scientific activities which have met with mixed success. Archana Gupta (page 549) analyses the experience of the CSIR extramural programme in funding women scientists. The statistics are hardly impressive, although it must be conceded that this is only a limited analysis. Funding agencies and research organizations need to come to grips with the many difficulties which women scientists face. The unrealistically low age limits for even temporary research positions, often bar women who have taken a break for purposes of raising a family, from returning to pick up the threads of a scientific career. This, coupled with poor working conditions in most laboratories can act as a powerful deterrent. There is little doubt that new initiatives are necessary such that India can benefit from the vast reservoir of talent present in half its population.

P. Balaram

Anisotropy across biological membranes

Membrane proteins have the onerous task of detecting changes in the environment of the cell and generating a first response to such changes as well as supervising all transport across membranes. In the latter role, they

also serve to transmute energy into biologically useful forms. Unfortunately, these proteins have proven notoriously difficult to crystallize and there is a paucity of structural information about them. Genes for several membrane proteins have been cloned over the past decade and the genome sequencing projects underway promise a deluge of such information. Correlating sequence information with the structural and functional features of these molecules is a formidable challenge. A major contribution in this area was made by von Heijne in 1986 with his observation that the intracellular loops of membrane proteins carried more positive charges than the extra-cellular loops. This observation has since been extended to several systems. With many more sequences now available, V. Sitararam (page 562) has now carried out a very extensive analysis looking for asymmetry in several parameters including charge and the tendency to form specific secondary structures. His results essentially corroborate the 'positive inside' rule with exceptions that could have functional relevance. Significantly, histidine residues, whose protonation state is sensitive to pH in the physiological range, appear to be localized close to the membrane-water interface and distributed in a manner opposite to that of the positive charges. Compilations and analyses such as these will lead to hypotheses regarding the functional role of histidines at the surface, including one proposed here. One can thus expect a spate of experiments leading from this report along with more sophisticated algorithms for the prediction of membrane protein structure.

M. K. Mathew