

In this issue

Insects – Survivors *par excellence*

Insects are in many ways the most remarkable of Nature's wonders. As a group, they are about 350 million years old but during the last 65 million years or so, they have diversified very extensively. Today insects are spectacularly successful. They are to be found everywhere, from snow capped mountains to the oceans, although they seem much more comfortable in terrestrial environments. There are undoubtedly more insect species than those of all other animals and plants put together. Indeed, an attempt to estimate beetle species diversity in the tropical forest canopy, some 14 years ago, led to a major revision of the estimate of the number of species of life forms on earth from 10 million to 30 million. Insects are not merely diverse but they are extremely abundant. Ant biomass has been estimated to be about 4 times the biomass of all vertebrates put together in Brazilian forests. Insects have employed every conceivable means in their struggle for existence in the face of hostile physical and biological environments.

Recognition and documentation of all these wonderful qualities of insects and persistent canvassing by entomologists will hopefully begin to create some measure of admiration and sympathy for insects in the minds of the general public. The article by T. Ananthakrishnan

(page 271) is perhaps the maiden Indian effort in this direction. In these busy days, the first problem is to attract and hold the attention of readers. The photographs accompanying Ananthakrishnan's article should go a long way in circumventing this problem. We must realize however that all this is just the first step and still a very far cry from putting insects high on the agenda of conservation and protection – conserve the Tiger yes, but conserve the bug? How can we ever hope to get people at large to accept this? Reading through Ananthakrishnan's article suggests that insects themselves can effect this seemingly impossible attitude change. Insects have in them such a combination of amazing qualities that, one wonders how any one can not vote for insect conservation? All it needs is for people to be aware of these magical qualities of insects and that is precisely what Ananthakrishnan's article so successfully does.

R. G.

NMR of an oncogene product

NMR has emerged in recent times as a major structural tool in biological research. A cursory scan of the major journals will reveal a rapidly increasing number of protein structures, in solutions, which are being derived by application of multidimensional

NMR techniques. Methodological limitations place an upper limit on the sizes of protein structures which can be established in detail by NMR. Most applications in the literature focus on proteins with less than about 150 amino-acid residues. P. K. Radha *et al.* (page 287) from the Tata Institute of Fundamental Research, report an NMR study of a 160 residue fragment (19.5 kDa) of *c-myb* protein, an oncogene product that binds to DNA in a sequence-specific manner. The conserved DNA binding segment of the protein from *Drosophila melanogaster* has been overexpressed in *E. coli*. Most often in NMR studies of proteins, the first battle is to establish conditions under which analysable spectra are obtained. Radha *et al.* demonstrate that this barrier has been successfully breached for the *c-myb* protein as evidenced by the data reported in this issue. A battery of NMR experiments permit amino acid spin system correlations, including identification of all nine Gly residues. In conclusion, the authors provide a tantalizing glimpse of a 3D-NOESY-TOCSY experiment, which will provide the base for future development of sequence specific assignments and eventual three-dimensional structure determination.

P. B.