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Making light of model building

In spite of the remarkable progress made in computer graphics, physical three-dimensional models remain indispensable for many applications. In an exciting new technology called stereolithography, polymer chemistry, photochemistry and lasers are used with computer graphics to generate plastic models of complex objects rapidly. G. Sudesh Kumar (page 498) describes the basic methodology and presents spectacular engineering and medical applications. He also discusses current developments aimed at improving the technology. In particular, he highlights what photochemists and polymer chemists can contribute in this frontier area.

Novel regulatory peptide

'Big ET' is an endothelin which is a regulatory peptide. This family of vasoactive peptides which seem to take part in many biological events. Some what resembling the sarafotoxins of a snake venom, these peptides seem to participate in smooth muscle contraction, vasoconstriction, and the physiology of

heart, lung and kidney functioning. In their article on endothelin, K. Shivakumar and C. C. Kartha (page 513) review the synthesis of these peptides by mammalian endothelial and epithelial cells, their physiological activity and biochemical mechanism of action. While a considerable literature on endothelins has been built up in the last three years much more remains to be done. The role of these vasoactive peptide may not always be beneficial. Discovered by Masashi Yanagisawa, endothelins promise to repay rich dividends for detailed study as they have a wide-ranging physiological action from asthma to vasoconstriction.

Commercial plant micropropagation

Plant tissue culture is a laborious and highly empirical technique. But the advantages for propagation of plants are enormous. Commercial exploitation of established tissue culture methods for species of horticultural or other interest is limited by the technology of the operation. Navin K. Sharma (page 507) reviews the status of plant tissue culture technology, and points

out the advantages and disadvantages of liquid media, bioreactors and automated systems. A given system may work only for a few species. For instance, bioreactors work only for species for which the technique of somatic embryogenesis is available. Other methods, for mass culture of shoot explants, exist, and automated systems for handling the operation have been devised. Elimination of contamination and development of photoautotrophic cultures are other important problems.

Landslide factors

The Himalaya region is prone to heavy landslides. The problem is accentuated by the thoughtless felling of trees, indiscriminate extension of cultivation along steep slopes, and extending network of roads, irrespective of considerations of slope stability. A scientific study of the various aspects of landslides is therefore of vital importance. Martin J. Haigh and others (page 518) make a careful analysis of landslides in a select region of Kumaun Himalaya. They conclude that factors like slope angle, vegetation and geology are effective indicators of landslide incidences.