In this issue

Fish and silk — the biotechnological thread

Advances in biotechnology promise a great deal for the development of areas of special concern to India. Two articles in this issue examine problems and prospects in the fields of aquaculture and sericulture. P. V. Choudary (**275**) considers new approaches to aquaculture, emphasizing the importance of 'sea farming' in a country with a long coastline. In particular, he examines modern tools of molecular genetics, gene cloning, gene transfer and germline manipulation in the context of aquaculture. Can fish be used as living bioreactors? A distinct possibility, says the author, holding out the advantage of using the antifreeze protein gene promoter for high-level expression of useful genes in winter flounder. Control of diseases in fish and in algal farming are also fields for exploration.

Silk has always been an exotic fabric associated with the East. China, India and Japan are the major producers of this fibre. Sagging production may well acquire a boost if at least some of the potential of biotechnology is realized. K. P. Gopinathan (**283**), provides an overview of the area of sericulture, emphasizing the scope of applications of biotechnology. The agenda for future research includes development of approaches to transfer genes, which may eventually permit incorporation of 'sturdiness genes' and fibroin genes. Inevitably, the possibility of employing silkworms to produce important biomolecules is also examined. Mapping the silkworm genome may provide a 'basic' backdrop, and the fast-developing technologies for genome analysis should undoubtedly find application in furthering research in this area. Silk or fish, the message is clear. The weaponry of modern molecular biology, carefully deployed and professionally used, may indeed provide a means of developing areas of prime importance in the country.

Tagging epithelial cancers

Study of the cytoskeleton is an area of intense research. Modern fluorescence-microscopy methods reveal in detail the cellular localization of the molecules that constitute the scaffolding of the cell. These studies have shown that cell shape, cell motility and the function of many cellular components require the precise placement of elements of the cellular scaffold. Keratin is one of the major components of the cytoskeleton. There are several molecular forms of keratin encoded by different genes. Studies on the pattern of keratin gene expression in normal epithelial cells have shown that individual genes in this gene family are expressed in a precise developmental and tissue-specific pattern. In many cancerous cells, however, keratin gene expression patterns are altered. Specific keratin forms can thus serve as markers for the transformed or cancerous state. Alpana Gupta *et al.* (**288**) review the field and detail specific applications for diagnostics.

Parallel development

Quantum chemists have an insatiable thirst for computer power. Their number-crunching applications have kept pace with the revolutions in computer hardware. Now, parallel computing offers a new opportunity for accurate electronic-structure calculations. However, programs have to be rewritten, sometimes on the basis of different strategies, to take full advantage of parallel processing. Archana D. Bhusari *et al.* (**293**) report their approach of calculating self-consistent field (SCF) and correlation energies (up to second order) on a transputer-based system.