

## In this issue

### Characterizing silkworm viruses

Viruses which infect insects, baculoviruses, have proved useful vehicles for the production of eukaryotic proteins in insect cell line cultures. Baculovirus expression systems have proved increasingly popular amongst biotechnologists. Viruses, of course, can be potentially damaging to their natural biological host. Locally, the *Bombyx mori* nuclear polyhedrosis virus (BmNPV) is the cause of a disease in silkworms and is often the cause of major economic loss to the silk farmer. The cloud, however, has a silver lining. BmNPV can be developed as a vector for expressing foreign proteins, of commercial value, in silkworm larvae, which in turn can be reared in plenty on a diet of mulberry leaves, doing away with the expense of cell culture and ultraclean laboratories. To realize this hope, an understanding of BmNPV is essential; particularly a clear picture of the viral genome. Palhan and

Gopinathan (page 147) describe the characterization of a local isolate of BmNPV, in a study that uses both electron microscopy and extensive restriction analysis of viral genomic DNA.

P. Balaram

### J. C. Bose

Generations of Indian students have been brought up on the legend of Jagadis Chandra Bose as one of the pioneers of scientific research in the country. The focus in these accounts is usually on his investigations on plants with sensitive instruments that he built himself. But many years earlier, in fact at the end of the nineteenth century, his experiments on the production, propagation and detection of short electromagnetic waves were among the earliest and the best in the world. We carry, following a brief introduction by S. Ramaseshan, extracts from the contemporary literature which bring out the impact of Bose's work (page 172-180). One

marvels at the speed with which he entered this field of research and also the speed with which his own work became known and recognized. At that time, producing wavelength of a few millimetres was an important step in unifying the waves which Hertz had produced with long infrared wavelengths and thereby with light – an important step for physics. It also made many demonstrations possible, as Bose's own papers reprinted here show – double refraction and optical activity, familiar from optics, appear in the domain of Hertzian waves. The care and ingenuity needed to carry out these experiments are well brought out and establish Bose as an experimenter of the first rank. Sociologists of science will of course ask why there was no follow up in India and why even this work is not better known today. But suffice it to say that in J. C. Bose, Calcutta had produced a world champion in experimental physics a hundred years ago.

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