In this issue

Cold fusion

A few months ago the editor received a manuscript from M. Srinivasan (Bhabha Atomic Research Centre, Bombay) entitled 'Nuclear fusion in an atomic lattice — An update on the international status of cold fusion research' for publication in *Current Science*. This put him in a quandary, for he had read a series of alarming articles about cold fusion. Apparently, a review committee had been appointed to investigate whether some of the fusion cells in the laboratories of the distinguished scientist Prof. Bockris (one of the vocal proponents of cold fusion) were intentionally spiked with radioactive tritium to fabricate evidence (June 15th *Science*), an article appeared with the headline 'Cold fusion—Utah pressures Pons and Fleischmann' (*Chemical and Engineering News* January 14); Sir Brian Pippard, reviewing Frank Close's book (7th March *Nature*), expresses the view that the cold-fusion episode will hardly be a footnote to history, and was greatly upset as the traditional process of scientific publication had been bypassed by Pons and Fleischmann.

As regards Srinivasan's article there were two views expressed by those whom the editor consulted—some strongly in favour and some strongly against publication.

The editor has decided to publish the article (**page 417**) as the potential importance outweighs the potential damage. Pippard points out that '*the institution of science is robust*; small mistakes, by their triviality may long survive undetected in a literature that is no longer consulted; but mistakes on major issues will be picked up quickly'.

In an accompanying letter Srinivasan stated that his belief in cold fusion was not based on blind faith but arose from results of experiments done by him and his group in BARC.

The editor does not express any view as to the existence or otherwise of cold fusion but he knows that the article comes from an experimental group of established competence and integrity.

The editor reiterates that he does believe in the refereeing process but when there are problems of this type where referees disagree, the journal should not act as a censor but must allow the scientific community to decide for itself. In this spirit, we look forward to a lively scientific (not polemical!) correspondence triggered by Srinivasan's article.

High pressure physics

Bridgman, the high priest of high pressure physics, commenced his remarkable experiments in the early part of this century and demonstrated to the world the importance of high pressure to science. This field came into India only in the early seventies with the setting up of high-pressure facilities first at the National Aeronautical Laboratory (Bangalore), and later at the Raman Research Institute (Bangalore), Indian Institute of Science (Bangalore), Indira Gandhi Centre for Atomic Research (Kalpakkam), and others. However, high pressure physics came to the Bhabha Atomic Research Centre with a bang—owing to the Pokhran experiment of 1974 The energy of plutonium equivalent to 12 kilotonnes of TNT, released in less than a microsecond, vaporized 640 tons of rock and generated a pressure of about 1.6 million atmospheres (160 gigapascals), which is almost half that at the centre of the Earth.

R. Chidambaram, who played a major role in this experiment, went on to set up a gas-gun device to generate very high dynamic pressures. A projectile travelling at 1.2 km per second impacts on the experimental target to generate peak pressures of about 40 GPa for an extremely short interval of time. All the necessary instrumentation for this gas gun was built; and for other studies—a diamond anvil high-pressure generator together with its accessory X-ray instrumentation, as also high-pressure Raman spectroscopy equipment were constructed; making BARC the best equipped laboratory in the country for high-pressure research. It is gratifying to note that almost every item of the precision equipment was fabricated in India by Chidambaram's group.

Chidambaram tells us this story (**page 397**) and presents many of the results that flowed out of his laboratory on a variety of studies: on the equation of state, materials at dynamic pressures, stability of solids, structural and electronic transformation in dielectrics, semiconductors, metals, rare earths, actinides, etc. He conveys to us the excitement of this field.

Salvador Luria

'What quantum mechanics was to science for a quarter of a century between the World Wars, molecular biology has been for the past thirty years.' Salvador Luria was an 'authentic pioneer' of molecular biology. Genetics too became 'molecular' due to him and it is said that 'he was cunning in the choice of experiments—almost prophetic'.

Obaid Siddiqi writes (**page 393**) about this man who died recently. His writings (*A Slot Machine, A Broken Test Tube*—an autobiography—and *Life: The Unfinished Experiment*) reveal that not only was he an outstanding experimental biologist, but he wrote lyrical prose as well:

'Perhaps our evolution has programmed man with a subtle wisdom to tap the innermost sources of optimism—art and joy and hope, confidence in the powers of the mind, concern for fellow men and pride and pursuit of the unique human adventure.' Siddiqi says Luria was a superb teacher. One is tempted to quote Christopher Marlowe in *Doctor Faustus*: 'First I'll instruct thee in the rudiments and then wilt thou be perfecter than I.' Two of his students were Nobel prizewinners. One of them (J. D. Watson) says in humility, 'There were few who did not feel better by being in his presence.'