

Coupled Device (CCD) camera. He added that work on the design of INSAT-3E, the last of the third generation satellites had begun and would be launched next year. The INSAT-3D was also in the developmental stage, he stated.

### Other space news

The METSAT, geostationary meteorological satellite is also set for launching by India's PSLV, around mid 2002, said Kasturirangan. A cartographic satellite, CARTOSAT would carry high-resolution cameras having a 2.5 m spatial resolution for mapping digitally the elevation model for the ground. The launch is slated for 2002–2003.

The North Eastern-Space Applications Centre (NE-SAC) at Shillong was created in December 2000 in collaboration with the North Eastern Council. This Centre would render necessary support for natural resources management and developmental communication in the North Eastern States of India, according to Kasturirangan. Groundwater prospect maps on a

1 : 50,000 scale is currently underway in five States, namely Andhra Pradesh, Karnataka, Kerala, Madhya Pradesh and Rajasthan. This is being conducted along with the Ministry of Rural Development under the National Drinking Water Mission. The use of telemedicine to bridge the urban–rural divide in health care would be initiated in Karnataka to begin with and then extended to address the needs of the Andaman and Nicobar islands, etc.

A future mission with ASTROSAT – a multiwavelength satellite to look at celestial phenomena and to understand features of active galactic nuclei, etc. is planned. The project team involves scientists from several Institutes such as Tata Institute of Fundamental Research (TIFR), Mumbai, Indian Institute of Astrophysics (IIA), Bangalore, Inter-University Consortium for Astronomy and Astrophysics (IUCAA), Pune, Raman Research Institute (RRI), Bangalore, Indian Space Research Organization (ISRO) and several Universities, said Kasturirangan. The instrumentation such as X-ray payloads and UV/optical telescope system, etc. to be

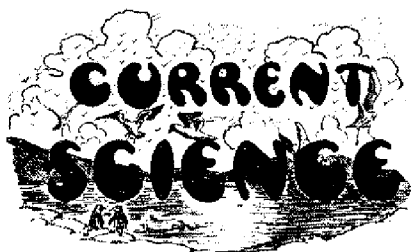
carried on ASTROSAT would be developed.

On the international front, India recently signed up the International Charter on space and major disasters. This is in collaboration with Canadian, European and French space agencies. Signatories are committed to share remote sensing expertise for early warning in disaster management such as for cyclones, etc.

Would the Indian Space Programme sell space for commercial uses e.g. such as on PSLV to other countries? It is premature but DOS is exploring avenues, informed Kasturirangan. 'We are not pushing into the commercial domain as our objectives in India's space programme are for national socio-economic development', he emphasized. Adding that the cost benefits that accrue from national development that space can provide through satellites such as INSAT, etc. 'fully justify space systems pay for themselves'.

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## FROM THE ARCHIVES



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### The Problem of Reality in Physics

By Professor R. Ortvy

Nowadays we often hear the assertion that science is passing through a crisis. Popular works and newspapers speak of a 'Bankruptcy' of science, and even some excellent representatives of science express the opinion that science is developing in a wrong direction. Others declare that the very aim of science, namely, the search for truth, is wrong, or, at least, fruitless; they only attribute a value to purposes of immediate utility. Others, again, fix their attention upon the radical change of the circumstances of life under the influence of technical sciences, and, regarding the

numerous effects of industrialization which have destroyed the equilibrium of social forces, often arrive at sceptical conclusions. And one of the strictest critics of our civilization, the recently deceased Oswald Spengler, is, according to his great work *Decline of Western Civilization*, inclined to detect certain signs of decadence in some of the most glorious achievements of modern science.

While we cannot deny that there exists a crisis in our civilization, manifesting itself in political and social restlessness, we also cannot doubt that in science, too, there is a certain crisis. This may give a justification for devoting a few words to the nature and importance of this crisis.

Many of you may be inclined to reject at once any doubt about the value of science. And I think, to the same group would belong everybody who has merely objectively witnessed the scientific development during the last decades, as well as the majority of those who take part in scientific movements. Science has passed from one triumph to another, succeeded in observing an immense multitude of facts and in explaining them from a unitary point of view; thus we are fully justified

in calling the present time a golden age of science. And, if we consider the innumerable effects of science on practical life, the part steam and electricity play in it, or even the most recent inventions such as broadcasting, the applications of various radiations, aerial traffic, and so on, we likewise arrive at the conclusion that something causing such effects must certainly possess a deep-rooted intrinsic importance. For, even if we do not agree that the value of science is given by its practical availability, we must acknowledge that practical effects are, though rather external, yet the more easily discernible signs of its importance.

Man is inclined to consider the stage he has just arrived at as the revelation of the absolute final truth; this illusion is almost a matter of course. It is good therefore to remember Newton's words: 'I do not know what I may appear to the world, to myself I seem to have been only like a boy playing on the seashore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me'.