

# Editorial

*S Mahadevan, Associate Editor*

The transit of Venus across the solar disc on June 8, 2004, created worldwide excitement. Armed with protective glasses, many of us could witness the celestial event, though the sky was partly overcast. Those who were unfortunate to miss it will have another opportunity eight years from now on June 6, 2012. It is indeed remarkable that two such rare events are occurring within a span of eight years. In the first week of June, one of the newspapers carried on its front page, a report from the Jawaharlal Nehru Planetarium about the forthcoming transit. To the dismay of many, the same report also carried an ominous statement from a local astrologer, warning the world of catastrophic events such as major air crashes, earthquakes, floods and what not, as the two transits are occurring in such close temporal sequence. I wonder why comets and eclipses are always harbingers of calamity; they never seem to portend glad tidings such as peace and prosperity (“When beggars die, no comets are seen; the heavens themselves blaze forth the death of kings”). As a newspaper that runs a weekly science supplement, the least it could have done was to move the doomsday predictions from the front page to the section on zodiacal forecasts (which are usually random permutations of a fixed set of outcomes). In a single stroke, it negated what many have given their lifetime to promote – a rational view of the world and an appreciation of nature.

In the run up to the event, *Resonance* published several articles in the classroom section, inviting its readers to participate in the experiments to record the transit. It is gratifying that many have heeded the call and sent in their data. A list of the participants who took part in the event is published elsewhere in this issue. *Resonance* thanks Nirupama Raghavan for coordinating the activities.



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This issue of *Resonance* honours Werner Heisenberg, the co-founder of quantum mechanics. The life of Heisenberg was remarkable in many ways and his contributions to physics numerous. Articles in this issue cover several of his contributions. The famous uncertainty principle that he proposed in 1927 expounds one of the fundamental and intrinsic limits in the physical world – one cannot simultaneously measure with complete accuracy, say, both the position and momentum of a particle, as the product of the uncertainties in the two measurements is finite. If one is measured with complete accuracy, the uncertainty in the other is infinite. In his own words, “Natural science does not simply describe and explain nature; it is part of the interplay between nature and ourselves; it describes nature as exposed to our method of questioning.” He was also a man of many talents. He was passionately interested in music. One of his beautiful paintings is reproduced on the cover.

Like many great men, Heisenberg also had his share of controversy (regarding his role in the Second World War). In the turmoil during the war, many scientists left Germany fearing for their lives. He decided to stay though there was initial hostility as theoretical physics was generally considered as a “Jewish” science in German political circles. He was eventually made the director of the German nuclear bomb project. Opinion differs as to the exact role he played on the progress of the project. The possible reasons for his famous meeting with Niels Bohr in German-occupied Denmark at the beginning of the war in 1941 are debated even today and form the backdrop for the hugely successful historical play ‘Copenhagen’ by British playwright Michael Frayn. Heisenberg's son, Jochen Heisenberg, in his poignant article, shares his personal reflections that touch upon many of these issues. Heisenberg's essay on natural philosophy of ancient times and modern physics is reproduced in the Classics section. We hope that both the specialist as well as the non-specialist will enjoy the issue.

