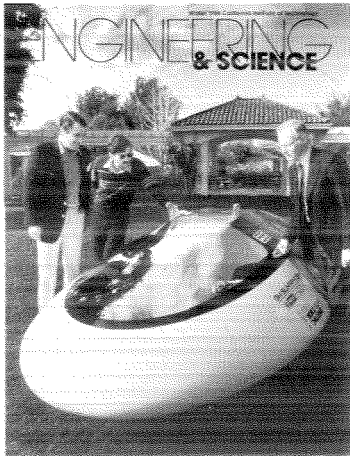


In This Issue



Sun Run

On the cover—the solar-powered GM Sunraycer, which outdistanced all competition in a recent race across Australia, rests on the grounds of Pasadena's Tournament House before undertaking the less strenuous chore of leading the 1988 Rose Parade as the "pace car of the future." With Sunraycer are (from left) Peter Lissaman, Alec Brooks, and Paul MacCready, who played leading roles in the vehicle's development; all hold PhDs in aeronautics from Caltech. In addition to these three, there was a strong Caltech component in the whole project—with alumni at GM and Hughes, as well as at AeroVironment and among its consultants.

MacCready (MS 1948, PhD 1952) is president of AeroVironment, Inc., a firm whose staff specializes in environmental and alternative energy projects but is perhaps best known for creating unusual aeronautical vehicles powered by muscle, batteries, or solar cells. So the small Monrovia, California, company was a natural place for GM to turn to for meeting the Pentax World Solar Challenge.

MacCready's story of how the car was conceived, designed, and built (beginning last March) in time for the November 1 race appears on page 2. "Sunraycer Odyssey" also gives an overview of some of the vehicle's advanced technology as well as an account of the race itself and the strategy that contributed to the victory.

Light Fantastic

A little over three years ago the American Physical Society appointed a study group of scientists to look into the technological aspects (not the ethical or philosophical ones) of the Strategic Defense Initiative and to present a report to the society's membership. That report was released last April. One of the 17 members of the study group was Caltech's Amnon Yariv, the Thomas G. Myers Professor of Electrical Engineering and professor of applied physics. In "Star Wars Technology: Will It Work?" beginning on page 29, Yariv describes some basics of lasers and missiles and then sums up the study group's conclusions. The article was adapted from a Watson Lecture.

Yariv came to Caltech as associate professor of electrical engineering in 1964. His BS (1954), MS (1956), and PhD (1958) are all from Berkeley. He has been a pioneer in integrated optoelectronics—marrying lasers and electronic circuits on a single semiconductor chip—and in phase conjugate optics—a technique for correcting atmospheric distortion, which could provide a solution for one of the problems of beaming lasers over great distances.

But Not Escher or Bach

Olga Taussky-Todd met Kurt Gödel in 1925 at the University of Vienna where they were both students. Gödel went on to prove the existence of undecidable mathematical statements and to become one of the giants of 20th-century mathematics.

Although she hasn't starred in any bestsellers, Taussky-Todd also went on to become a famous mathematician (algebraic number theory, topological algebra, matrix theory). After earning her doctorate in 1930, she taught at Bryn Mawr College, and Girton College, Cambridge, and worked for the English Ministry of Aircraft Production during the war. She and her husband Jack then worked at the National Bureau of Standards in Washington, D.C. for 10 years (with a year off at the Institute for Advanced Study) before coming to Caltech in 1957. Taussky-Todd has been professor emerita (a term she doesn't care for) since 1977. In 1980 she was awarded a Golden Doctorate from the University of Vienna—50 years after the original. Taussky-Todd recalls the earlier times in "Remembrances of Kurt Gödel," beginning on page 24. The article was adapted from a talk given in Salzburg in July 1983.

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