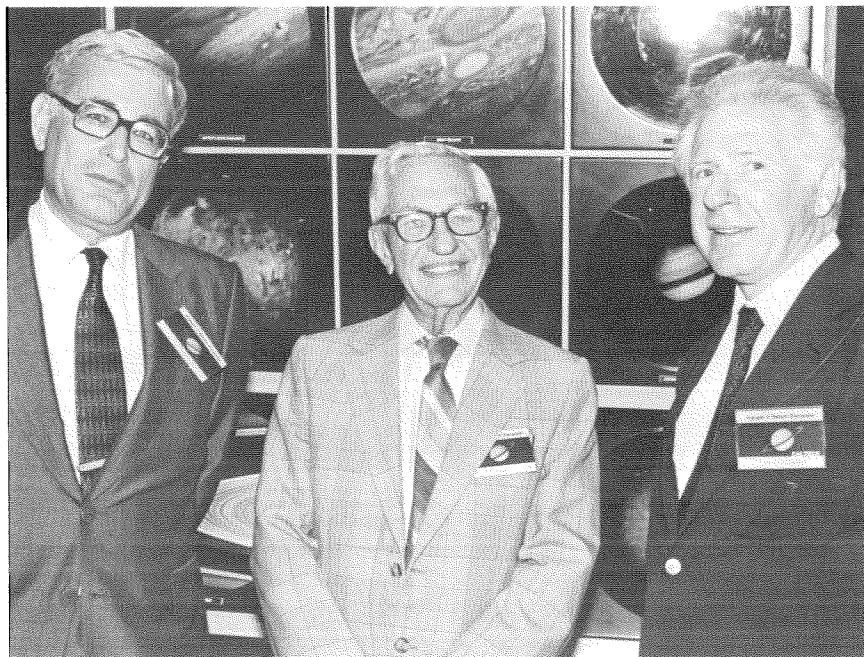


# Random Walk

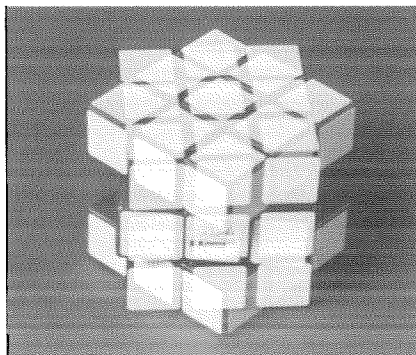
## Summit Meeting



The Voyager 2 Saturn encounter in late August attracted a crowd of scientists, journalists and public officials to Caltech's Jet Propulsion Laboratory. And it provided the occasion for an unprecedented meeting of three Caltech presidents, past and current. From left to right, Harold Brown (1969-1977), Lee A. Dubridge (1946-1968), and Marvin L. Goldberger, president since 1978.

## Cube Root

Manipulating the nine small cubes on each of the six sides of the Rubik's Cube until the big cube has a different color solidly covering each face is a "game" that has had millions of people going around in circles for months. Since there are more than 43 quintillion potential color combinations on the cube, a certain amount of mass vertigo isn't surprising. But Caltech alumnus James Nourse (PhD '74), who is now a research associate at Stanford, has come up with a solution — and written a how-to book about it. Nourse, a chemist, visualized the cube as a molecule and the moveable cubelets as atoms, and then applied mathematical methods of research in his field to figure out a procedure. It took 4½ hours for his first — and successful — try and approximately a minute for each go-around since. Impressive as this accomplishment is, he is also to be commended for his skill as a modern-day alchemist. His book, *The Simple Solution to Rubik's Cube* (Bantam Books) has sold nearly 1¼ million copies in its first three months, making it, he says, "a sideline that has turned into a gold mine."



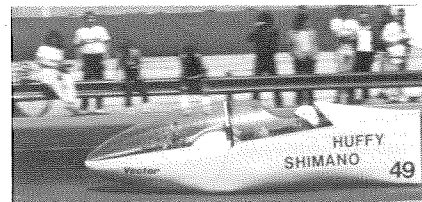
Going around with Rubik's Cube?

## Coming Events

The Watson Lecture series for the first half of the 1981-82 academic year has a stellar cast. Leading off on October 28 will be William Bettes, a member of the professional staff in aeronautics, whose topic is "The Aerodynamic Drag of Road Vehicles — Past, Present, and Future." On November 18, Jeremy Brockes, associate professor of biology, will talk on "Nerve, Myelin, and Multiple Sclerosis." Thomas Tombrello, professor of physics,

## Energy Saver

Almost everybody has heard about the achievements of Caltech's distinguished alumnus Paul MacCready (MS '48, PhD '52) in developing two man-powered flying machines — the *Gossamer Condor* and the *Gossamer Albatross* — and about his latest success, the sun-powered *Solar Challenger*. None of these, says MacCready, has any direct practical applications, but they may yield indirect benefits. These peculiar aircraft stimulate thinking about what is achievable in doing many



This human-powered vehicle was developed in the U.S. MacCready is working on something similar but not necessarily so racy.

kinds of jobs with less energy and less material — and thus less cost in dollars, pollution, and consumption of resources. Now, in addition to his work on environment and alternative energy techniques at his Pasadena company, AeroVironment, MacCready is exploring the development of safe, low-cost surface transportation devices. There have been for some years streamlined human-powered vehicles in which people have propelled themselves at 60 mph. MacCready's goal is vehicles of more modest performance, which, for safety, would be limited to "commuter speeds" of under 35 mph, and which might even augment human power with battery or liquid fuel. Right now he is trying to coax others into carrying on similar efforts, but he is also simultaneously working on his own version.

will discuss "Particle Tracks in Solids" in his lecture on December 9. After time out for the Christmas holidays and getting second term started, the series picks up again on January 6 with Leon Silver, professor of geology, speaking on "The California Crustal Shuffle." And the series winds up on January 20 with Bruce Murray, professor of planetary science and director of JPL, asking "Where Do We Go Next in Space?"