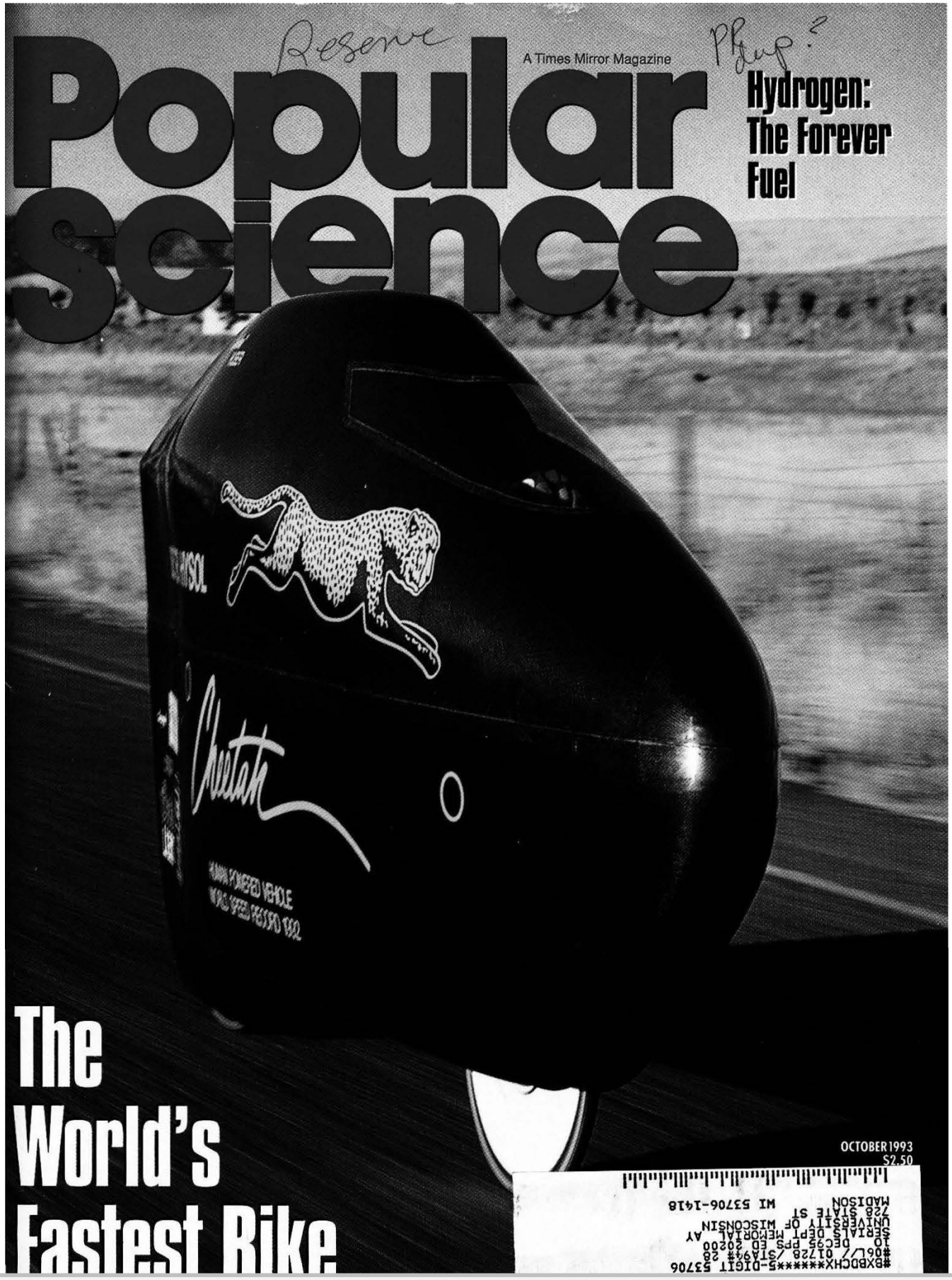
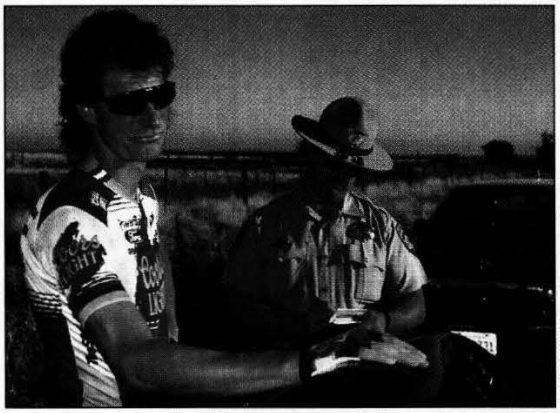


EDITOR'S NOTE

Fastest Cat

The highway patrolman was enjoying a routine cruise along a farm road outside Tracy, Calif., when he spied an egg-shaped two-wheeler in the early morning light. He didn't know quite what to make of the strange object. It moved fast enough to be a motorcycle, but resembled none he had ever seen before. And why was it preceded by a truck with a hydraulic tailgate bearing a motley group of shouting, arm-waving men?

The officer's bewilderment turned to amusement when he learned he had stumbled on the POPULAR SCIENCE photography crew and the builders and racers of the Cheetah, the world's fastest human-powered vehicle. Beneath the aerodynamic fairing of this bizarre bike was a sweaty rider, Chris Huber, who piloted the Cheetah to a world-record speed last year. We're happy to report that no speeding ticket was issued.



JOHN B. CARNETT

Chris Huber, record-holding rider of the Cheetah, the world's fastest bike, encounters the California highway patrol.

As you read this month's cover story, new contenders for the Cheetah's first-place status are gathering in Alamosa, Colo. Among the betting favorites at the Colorado Speed Challenge, September 13 through 17, are Gold Rush II, a new version of the 65-plus-mph vehicle whose record was shattered by the Cheetah, and the Cutting Edge. The Cheetah crew won't be there. Their record run of 68.73 mph is a personal best they feel will stand up to this year's competitors. We'll have an update on this competition in a future issue.

It's probably not a record, but our intrepid contributing editor Christopher O'Malley has lugged along a portable or laptop computer and various accessories for mobile computing and communications on more than 100 business trips. In his travels, he has broken, lost (and then recovered) sundry computers, forgotten essential power cords, and otherwise endured and enjoyed all the tribulations and triumphs that are the hallmarks of today's world of mobile computing. We asked O'Malley to document a typical roadworking session for us, with an eye toward some practical tips for the newly initiated. "Taking your office on the road," he advises, "also involves some psychology. You have to treat the obstacles like personal challenges to your determination—sort of like driving in New York," says the Florida resident.

Fuel cell entrepreneur Joseph Maceda of H Power Corp., in Belleville, N.J., treats as a personal challenge the decades-old obstacles that have plagued the hydrogen-power faithful. Maceda is just one of the many optimists contributing editor Norman H. Mayersohn uncovered in his report, "The Outlook for Hydrogen." The potential of hydrogen power as an alternative to fossil fuels is vastly alluring. As a source, it is theoretically limitless. It burns clean, leaving water vapor —its primary emission—and no harmful carbon oxides. But separating hydrogen from water is energy-intensive; transporting and storing it is complex and expensive.

Mayersohn suggests that environmental concerns together with disclosures about the real costs of fossil fuels may be the keys to overcoming the economic and technological constraints that make hydrogen doubtful today as a fuel source. "Every gallon of gas we burn does about a dollar's worth of environmental damage," notes Mayersohn. "That fact is not lost on businesses around the world. Everywhere I looked, major corporations have serious hydrogen projects starting up."

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Printed in the U.S.A.

ELECTRONICS

EDITED BY MICHAEL ANTONOFF

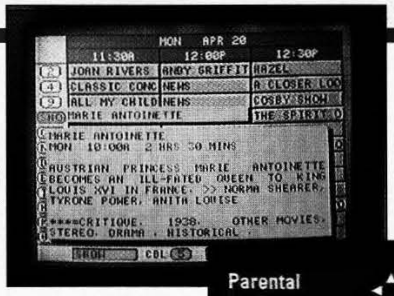
TELEVISION

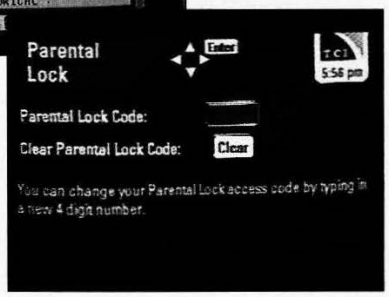
CAPTIONING COULD BE A BOON TO MANY VIEWERS

By law, closed-captioning decoder chips must be built into all new TVs with screens measuring 13 inches and larger. But not only the hearing-impaired are benefiting. Others—such as those studying English or children learning to read—are discovering the value of having a program transcript running across the bottom of the screen.

Creating the closed captions is a time-consuming art. Prerecorded shows, such as a one-hour daytime drama, might require 15 hours of work from a professional captioner. The evening news or other live broadcasts are even more difficult. "As a newscaster's words are spoken, someone in a studio, in real time, types phonetically at 250 words per minute on a stenographic keyboard attached to a computer," explains Donald Thieme, executive director at the National Captioning Institute (NCI) in Falls Church, Va. The keyboard creates phonetic impulses that are downloaded into the computer, where translations are made and fed over a phone line. That data is embedded into the television signal, and within three seconds after the words are spoken, they appear as part of a continuous scroll at the bottom of the screen.

The captioned programming is offered by all major networks and cable stations. The "caption ready" capability, however, raises the cost of a TV about $20. Optional features include the ability to change the colors of the characters, italics, and a combination of upper- and lowercase letters. One manufacturer is offering a special videocassette recorder that routes text directly to a printer or personal computer. The Caption Writer VCR ($995) from Instant Replay in Miami could, for example, enable you to tailor your word processor's search function as an electronic clipping service for news programs.—*Marcelle M. Soviero*





A film summary is viewed on a StarSight screen (left); TV Guide On Screen enables parents to set an access code.

INTERACTIVE TV

EASING CHANNEL GLUT ANGST

With the era of 500-channel television approaching, the notion of lingering even five seconds per program to see what's on adds up to nearly 42 minutes of channel-flipping drudgery. That's one reason several subscription-based, on-screen guides are being rolled out.

An electronic program guide serves as a filter to show you listings that appeal to particular tastes, such as sports, situation comedies, or children's shows. It may also enable you to change the channel by simply highlighting a title by remote control and pressing a go-to button.

TV Guide On Screen of Englewood, Colo., which is testing its system in the Denver area, includes a parental lock that can be used to block any movie rated R or higher. It will also enable you to confirm pay-per-view orders only after a password is entered so that children, for example, won't be able to run up extra charges or order a program without parental approval.

Unlike TV Guide On Screen, StarSight Telecast (formerly InSight Telecast) of Fremont, Calif., enables you to program your VCR by pointing at the on-screen listings. StarSight listings are already being inserted in the vertical blanking interval—the area sandwiched between picture frames—of PBS signals. A future version of StarSight will copy listings to the beginning of each tape and index them so you can find a program quickly.

The StarSight decoder will be built into some of Zenith's TV sets with screens measuring 27 inches and larger beginning this fall. Subscriptions to either service are expected to cost between $3 and $5 a month.

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Text is input and broadcast in synchronization with the audio portion of a prerecorded show or within seconds of a live broadcast. A caption-ready TV set is needed to display the text.