

doing just that.

William Sackinger, a geophysicist and electrical engineer at the University of Alaska in Fairbanks, has recently received a patent for an "electrical device for conversion of molecular weights"—that is, for transforming small hydrocarbon molecules into larger ones. In experimental prototypes, he and colleagues pump methane into an array of 6 million tiny glass reaction tubes where the gas molecules are ionized and accelerated by an electric field. The ions slam into and combine with other hydrocarbon molecules adsorbed elsewhere in the tubes. So far, Sackinger and his colleague Vidhyadhar Kamath have managed to produce 2- and 3-carbon molecules from the single-carbon methane feedstock. With refinements, Kamath says he anticipates being able to produce larger molecules such as heptane (7 carbon atoms) and octane (8).

The Alaskan researchers aren't the only ones trying to transform methane into its even more useful chemical brethren. Henri Amariglio and colleagues at France's University of Nancy report in the 29 August issue of *Nature* on a two-step technique using a platinum catalyst and hydrogen to form saturated carbon chains up to 6 atoms long.

Both methods are as yet too new and inefficient to compete with a large-scale zeolite-based process that has been converting methane into gasoline for 6 years in a New Zealand plant. But Sackinger's invention could offer a simpler, portable process that could be used even for converting gas from remote oil wells into pipeable liquid fuel.

Disney Discovers

The Walt Disney Company has swooped in to purchase *Discover*, the last surviving popular science magazine.

The magazine's editorial staff will now be divided between Burbank, California, and New York City, according to its editor Paul Hoffman. Hoffman

will move to Burbank to continue in the job he has held since the monthly was purchased by Family Media Inc. from Time Inc. 4 years ago.

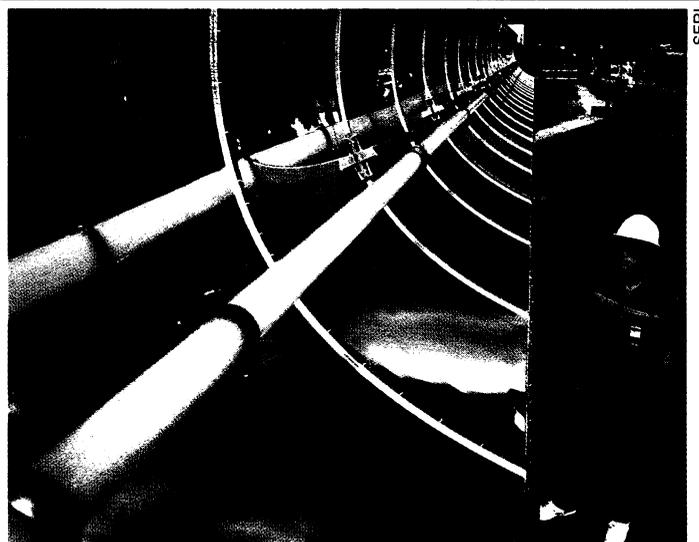
Hoffman says he has some "very exciting" plans, including the launch of foreign editions of the magazine, TV programs on Disney's cable channel, and even a children's *Discover*-type magazine. *Discover*, he says, will also now turn down undesirable advertising, particularly cigarette ads.

Hoffman says he can't reveal the financial details of the transaction. But he says *Discover* was a sought-after property that has continued to be "very profitable" (unlike other Family Media products that it was helping support) through the drop in advertising revenues that has afflicted the magazine industry. It now has monthly sales of 1.1 million.

Children Who Want to Bear Children

There are many theories about why teenagers choose to become parents. Three of the leading contenders from social science: Teen childbearing is part of a pattern of socially deviant behavior; girls see it as a means of "achieving womanhood"; it is compensation for emotional deprivation.

The network of social influences that supports teenage pregnancy is complex, and it has not been easy to sort out these explanations. But now an unusual longitudinal study of women who were teenage mothers and the children they gave birth to lends weight to the third hypothesis. Sarah McCue Horwitz and her colleagues at Yale Medical School's department of epidemiology and public health were able to locate 111 black women 20 years after they had babies in the late '60s. The investigators found that among the 111 children, those who suffered from depression and low self-esteem were more likely to become teenage parents themselves.



Solar water scrubber. Glass pipes and reflecting troughs of Lawrence Livermore's portable detoxification unit.

Let the Sun Shine In

Scientists at the Solar Energy Research Institute (SERI) in Golden, Colorado, claim they have found a workable way to harness sunlight to break down the hazardous chemicals in polluted groundwater.

The idea is simple: Add a photo-catalyst to the water, then pump it through long, narrow glass tubes that are exposed to sunlight. The high-energy photons activate the catalyst, which breaks down the pollutant into nontoxic components. To enhance the irradiation, the tubes are surrounded by reflecting glass troughs.

The technique has been tested at the Lawrence Livermore National Laboratory in California, where groundwater is heavily contaminated with trichloroethylene (TCE), a nasty chemical that was used as an industrial cleaner in the '60s. The water was mixed with titanium dioxide, a catalyst that reacts with H₂O to create hydroxyl-radicals, which, in turn, break down TCE into water, carbon dioxide, and very diluted hydrochloric acid. In the first tests run this summer, the levels of TCE were reduced to well below those allowed by federal water pollution standards.

According to SERI scientist Alan Laxson, the same catalyst should also be effective on other chlorinated hydrocarbons, non-chlorinated ones such as benzene, pesticides, and dyes from textile mills. And by adding more troughs and pipes, Laxson says the installation can easily be scaled up for industrial use.

The relationship was particularly strong for girls.

Four major risk factors for teen parenthood were identified for females: early onset of sexual activity; depression; maternal depression; and having a mother who moved away from home within 2 years after giving birth. Sixty percent of the girls with two or more of the risk factors became teen mothers—compared with only 15% who had none of the risk factors.

Writing in the summer issue of *Family Planning Perspectives*, the researchers report

finding "no evidence" that problem behavior such as delinquency and dropping out of school "predated either the pregnancy or the birth." Nor did they find support for the theory that disadvantaged girls see early parenthood as "a means to establishing adult status."

The authors say their study has "important implications" for interventions—suggesting that programs to prevent teen pregnancy should target girls with depression, early emotional deprivation, and mothers who were themselves depressed.