

“Sun Day” someday soon

“Earth Day,” one of the catalysts for getting the environmental movement off the ground in 1970, will serve as a starting model for “Sun Day,” next May 3. Denis Hayes, former Illinois energy director and now a researcher at the Worldwatch Institute in Washington, says the purpose of the event is to draw attention to the many already available uses of solar energy. Hayes, who is spearheading plans for Sun Day, hopes for international participation by citizens’ groups, environmental groups, labor unions, students, merchants and farmers.

A nonprofit group to coordinate and organize the event has opened a Washington office at 1028 Connecticut Ave., NW. Called Solar Action, it will send representatives around the country drawing support for the solar-awareness day. Its diverse “board of directors” includes the president of the United Auto Workers, director of the Sierra Club (an environmental group), mayor of Los Angeles, president of the International Solar Energy Society and associate secretary-general of the National Council of Churches.

Sun Day can’t solve the energy problem, but Hayes and colleagues hope it will provide the momentum for grassroots development of solar power.

Reducing nautical drag with mucus

Among nature’s engineering marvels is the slippery streamlining of fish. Ship designers who could parrot nature could also improve ship speed and conserve fuel. DEUTSCHER FORSCHUNGSDIENST (a German news service) reports that engineers at Berlin Technical University’s Institute of Measuring and Control Technology are attempting to do just that.

Years ago, experiments with polyethylene oxide showed that although the agent suppressed drag by trapping power-devouring eddies in its long molecular threads, it didn’t adhere long enough to be useful. As a result, hull designers experimented with continuous injection of artificial slimes through small hull-side openings. Since then, BTU researchers have found that fish mucus, a natural antidrag agent, adheres readily to fish, thereby eliminating the need for constant replenishment. BTU’s research now concentrates on identifying how natural mucus adheres to its host in hopes of designing an artificial equivalent for nautical applications.

Gasohol takes to the road

Nebraskans just completed two million miles of on-road testing of Gasohol—a trademarked blend of 10 percent ethyl (or grain) alcohol and 90 percent unleaded gasoline. Although using ethyl alcohol in internal-combustion engines is not new (N.A. Otto, father of the internal-combustion engine, is thought to have used it in the first Otto-cycle engine), alcohol fuels are not available at your local service station pump. For grain-belt states, however, that may soon change. State Gasohol coordinators in Nebraska will host a conference in November to discuss, among other things, production, transport and marketing strategies to speed the six-year-old program to commercialization.

At a predicted cost of 67 to 75 cents a gallon (based on state and proposed federal tax breaks), Gasohol is economically competitive with unleaded gas. But that’s not its only advantage. It can be used in any internal-combustion engine, has a higher octane rating than the unleaded gas with which it’s mixed, is more efficient than unleaded gas and burns cleaner, according to Todd Sneller of the Nebraska Gasohol program. Grain-belt states see Gasohol as a way to stretch fuel with surplus grain, but Sneller says that ethyl alcohol from other agriculturally-based products, wood or potatoes for example, may permit more widespread commercialization.

Eavesdropping on vascular blow-outs

Radioastronomers can distinguish between stars millions of light years away by noting subtle differences in their radio wave patterns. For years destroyer captains have identified submerged submarines by the unique sound patterns emanating from their engines. Now, researchers at the University of Cincinnati are applying the same concept with a computer-stethoscope system that can hear the “acoustic signature” of cerebral aneurysms—swellings in weak-walled blood vessels that often precede fatal strokes.

Neurologist Charles P. Olinger and mechanical engineer Jack F. Wasserman report their ultra-sensitive electronic stethoscope can detect the sound blood makes as it swirls abnormally through a weakened vessel; a ballooning spot produces a musical tone, while a vessel constricting—or spasming—is recorded as a hum. The audio readings are amplified, filtered from peripheral noise and recorded on magnetic tape. The computer then analyzes the acoustic patterns graphically—isolating as “spikes” the near-imperceptible sounds emanating from the bag-like contours of aneurysms buried as much as three inches within the brain.

The scientists suggest the device will help cardiologists detect over-stressed blood canals early, leading to life-saving cerebral surgery before the vessel ruptures. Vascular hemorrhage of the brain, or stroke, is the third leading killer in the United States.

Angiography—X-rays that detect aneurysms by the flow patterns of isotope-tagged blood—is the only method now available to diagnose intracranial blockages and swellings.

Steroids: Added risks for older women

Ever since oral steroids hit the contraception market in the early 1960s, health officials have warned that the pill may pose special risks for older women. More recently, researchers have reported circulatory side-effects, particularly high blood pressure and stroke, among users 35 years of age and older (SN: 4/9/77, p. 233).

Now an ongoing study, begun nine years ago in Britain on 46,000 women (half of whom began taking the pill in 1968), reveals circulatory dysfunction among pill users may be more pervasive than previously realized. A report of the British study, published in the Oct. 8 LANCET, concludes that pill users face at least a 40 percent higher death rate than do women the same age who never used the pill. The heightened risk, the report noted, is attributable not only to stroke and high blood pressure, but also to heart attacks, blood clots and other circulatory disorders.

The study, based on an analysis of 101 deaths among the 46,000 women, indicates natural steroid hormone levels may be thrown out of kilter for an indefinite period of time after pill use. Even those who had discontinued the pill (mostly for nonmedical reasons) had a rate of fatal circulatory illnesses about 4.3 times that of nonusers. An editorial in the same issue of LANCET noted that women smokers older than age 35 were especially susceptible, but that there was no significant risk to nonsmoking younger women.

In a separate development here in the United States, the Food and Drug Administration recently began requiring pharmaceutical manufacturers to include warning brochures along with estrogen prescriptions. Beginning Oct. 18, brochures advised that women who use the steroid for more than a year (in the post-menopausal stage) are 5 to 10 times more likely to get uterine cancer and two and one-half times more likely to develop gall bladder disease than similarly aged nonusers. The brochure also advises there is no evidence the drug—used by some five million American women during and after menopause—alleviates depression and nervousness, or keeps skin soft.