

SCIENCE & TECHNOLOGY

that TV commercials, newspaper columns, and fund-raising propaganda by "disease agencies" (e.g., the Heart Fund) have fostered a "national obsession" with disease. In turn, "unsupportable demands" have arisen for illusory preventive medicine; seeing the doctor has become a "cultural habit." Redesigned for use only when really needed, Thomas contends, the health system would probably cost much less; new investment should be for research to move future health technology beyond the "halfway" point.

RESOURCES & ENVIRONMENT

Can We Do As Swedes Do?

"Efficient Energy Use and Well-Being: The Swedish Example" by Lee Schipper and Allan J. Lichtenberg, in *Science* (Dec. 3, 1976), 1515 Massachusetts Ave., N.W., Washington, D.C. 20005.

The per capita gross national product in Sweden was only 10 percent below that of the United States in 1971. Yet, for every dollar of GNP, Sweden required only 68 percent as much energy as this country. Schipper and Lichtenberg, both energy researchers at Berkeley, studied the Swedish economy in great detail and found that Sweden uses less energy per capita in all sectors, while enjoying a standard of living rapidly approaching that of the United States.

Swedish passenger transportation relies more heavily on subsidized rail and bus systems than on automobiles and aircraft. (In Stockholm, Gothenburg, and Malmo, where 25 percent of Sweden's population lives, mass transit, motor bikes, and pedal bikes account for 75 percent of all commuting.) Swedish building codes require homes and offices to be far better insulated than in America, and 19 percent of the country's residential heating needs are met by highly efficient district heating stations. Swedish factories generally operate with higher energy efficiency than U.S. factories, in part because of more modern equipment. For example, lumber by-products provide 60 percent of all fuel used in the paper industry (which consumes 15 percent of all energy in Sweden) as against 35 percent in the U.S. paper industry.

The most important factors shaping Sweden's energy consumption patterns, the authors note, are government policy and "the relative price of energy with respect to other resources." Heavy taxes are levied on gasoline for cars, and government loans favor conservation-minded builders. The writers suggest that similar initiatives in the United States, especially those favoring smaller cars, better structures, and more efficient use of process heat by industry, "would result in savings of 30 percent in the total energy used."