WOOD AND FIBER

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LETTER TO THE EDITOR

The energy crisis is at hand! Popeye is out of cheap spinach! Oil reserves are being depleted rapidly. The prices of petroleum products are expected to double or triple in the next few years. The balance of payments is upset from increasing reliance on foreign oil and natural gas supplies. Coal strip-mining and nuclear power plants are being opposed by an increasing number of aroused citizens. So—we appear to have a serious energy problem. But what has all this got to do with wood, which has supply problems and environmental concerns of its own?

Solar energy research appears about to take off in view of fossil fuel shortages. A recent analysis of research potentials for solar energy[1] indicates exciting uses for wood. The growing of woody plants for fuel may well become one of the largest scale methods for capturing and storing energy from the sun. To accomplish this, potential research areas are wide open and cross many disciplines. Some of these are: plant genetics, planting, fertilization, harvesting methods, drying, transportation, handling, combustion techniques, chemical conversion (hydrogenation and pyrolosis), and development of associated hardware for industry, home, and centralized power stations.

Consider marginal farmland planted with closely spaced, fast-growing tree species fertilized with treated sewage and/or animal wastes. Yields of 6 tons per acre per year of oven-dry wood have actually been obtained from fertilized black cottonwood planted with 1-foot × 1-foot spacing, and harvested on a four-year rotation.[2] By chemically reducing this wood to oil, sufficient fuel to operate a 15-mpg car for 10,000 miles can be produced from one acre of land. The technology to do this exists today.[1] The same acre can produce the wood required to power that car for as long as the sun shines.

In some areas, process heat, steam, and electricity are already being economically produced by industrial companies from wood and bark residues, and more companies are planning to incorporate facilities for the generation of power from wood "wastes." Future economies look promising in the face of continuing rise of fossil fuel costs and increasing opposition to the unhappy alternatives of creating an environment that includes acid waste-polluted streams and ravaged landscapes from coal-stripping, and potential poisoning from the not-yet-nor-likely-to-be achieved safe management of long-lived (24,000 year half-life) radioactive nuclear wastes. Energy produced from the sun may soon power our civilization.

This application is not without problems, as there are limits to the growing of fuel wood. The question of land alienation is one: How much land do we set aside for production of fuel wood vis-à-vis the production of food or wood fiber for other uses? These are, ultimately, political questions and must be dealt with in a manner that involves value judgments of the citi-

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[1] NSF/NASA Solar Energy Panel. 1973. Solar Energy as a national resource. Dep. Mech. Eng., Univ. Md., College Park.

[2] Debell, D. S.; Heilman, P. E.; Peabody, D. V., Jr. 1972. Potential production of black cottonwood and red alder at dense spacings in the Pacific northwest. Proc. TAPPI-6th Forest Biology Conf., May 1–3, 1972. Inst. Paper Chem., Appleton, WI.