# Notes on "Soft Tech"

## Fifth Estate Collective

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For those who may argue an "appropriate," "soft" technology characterized by solar, wind and water power against the massive nuclear and coal-burning forms taken by "hard" technology, the photograph below should raise some problems. Pictured is a machine designed and built by Sharp-ECD Solar, Inc., a joint venture of Japan's Sharp Corporation and the Troy, Michigan based Energy Conversion Devices. The machine mass-produces rolls of one-foot-wide solar cells, which will be used in Sharp solar-powered calculators. ECD describes the machine as a breakthrough in reducing the price of solar Cells, which could lead to wider use of solar power.

A quick glance at the machine will reveal that it is not and could never be the result of freely self-organized, cooperative association nor of humane, decentralized, convivial technical activities. It is a highly complex, technologically produced machine, which could only be the product of an authoritarian and hierarchical division of labor, high-tech industrial and mining techniques, and bureaucratic administrative and distribution systems.

A recent article makes the same point from the perspective of the hard-tech managers who presently administer capitalism. Henry Petroski, a civil engineering professor, argues in the April 1982 issue of the very pro-technology *Technology Review* that "even early prototypes" of windmills being designed and produced by the likes of the Department of Energy, NASA and the National Science Foundation "are pointing up the critical role engineers and other hard technologists will have in charting viable soft paths into an unmapped energy future."

The windmills which are the subject of Petroski's article, "wind energy conversion systems" (WECs) in engineeringese, would be supported by giant steel structures, have blades which would span a football field and which would turn at more than 200 miles per hour at their blade-tips if they rotated at the relatively slow rate of 20 revolutions per minute. Such blades and the potential problems they would create (accidents due to metal stress, interference with bird migration patterns, to name two), reveal a more sinister side to the blithe calls for alternative energy sources and soft-tech paths pushed by entrepreneurs and liberal "reindustrialization" advocates.

## A Crystal Palace Designed by Managers and Technicians and Administered by Bureaucrats

As Ivan Illich argues in his 1981 book *Shadow Work* (a penetrating and profoundly radical book which we hope to discuss in more depth in the future), the popular call for alternative technology is ambiguous because while it contains a possibility for a society of decentralized, autonomous communities which create the means for their own subsistence, it can also suggest an authoritarian "honied beehive" in which the same forms of wage labor and commodity production/consumption, are spread out in different organizational structures: a crystal palace designed by managers and technicians and administered by bureaucrats and planners who man the computer terminals and the distribution points for the solar panels, high tech instruments and silicon chips produced in ostensibly "self-managed" production communes (factories) spread out over the landscape in a more "ecologically sound" or "ecotopian" manner. There is nothing in such a scenario that would threaten the inner mechanism of either private

capitalism or state socialism; after all, it is easily arguable that "investments are more secure with windspinners than with oil derricks." Illich points out that "For the traditional right and left, for managerial democrats or socialist authoritarians, soft process and energy become the necessary rationale to expand their bureaucracies and satisfy the escalating 'needs' through the standardized production of goods and services."

As we have pointed out in the past, technology is more than this or that isolated machine, a simple means by which an end is achieved. (Which is why the notion of "technologies" in the plural, be they "appropriate" or "inappropriate," blurs the fundamental nature of this phenomenon.) As Jacques Ellul noted in his most recent book, *The Technological System*, "Technology is in itself not only a means, but a universe of means—in the original sense of Universum: both exclusive and total." It is not a choice between one "technology" and another, but a fundamental choice between a world in which human beings create their own subsistence and culture in their own back yards with convivial tools, in which technical matters play only a miniscule and sporadic role in their lives and where nature looms large; or a world of technology and planning, in which technology becomes the central mediation between human beings and nature, between communities and between individuals.

## A Restructuring of Present Day Forms of Domination

Many of the people presently involved in projects in which "appropriate technology" is being developed or advocated are indeed involved in some of the practical activities which will help to make our escape from technological civilization a reality. In fact, much of the appropriate tech vision is explicitly anti-high tech. But there is also an ambiguity in the notion of alternative or appropriate technology which, by focusing solely on the machines and not on the social relations which they reflect and which they come to shape, could also allow a restructuring of the present day forms of domination without challenging their foundations. (Even Illich is to some degree guilty of this error.) Hence, some schemes, such as recent calls for reindustrialization as a solution to economic malaise, or calls for more humane or rational planning, or the desire for universal computerization as a prelude to decentralization, may provide more "access" to the machine and restructure the forms of hierarchy which constitute it, but they will only further the trajectory of mass society and dependency by human beings on the machine, its institutions, and its functionaries.

"Appropriate technology," in the form of a technological universe streamlined to avoid the dysfunctions caused by obsolete industrial forms, may be possible. What can never be possible, however, is a technological world free of hierarchy and domination. No small community could produce on its own the machine pictured below. That could only be the product of capital—the organization by small, powerful coteries of technological/ political priests, of the activities of drones incapable of directly creating the means of their own subsistence. That social system, that culture must be abolished by free communities. Whether or not such communities decide, say, to turn into windmills the automobiles left behind by this civilization, is ultimately a secondary, local and technical problem. But until we can abolish the power of technology over our lives—a power characterized by a complex division of labor and wage work, mass distribution, and planning by experts, we will remain its captives, and finally, its victims.