
SMALL IS DUBIOUS

Only the fittest technologies are likely to survive

by Samuel C. Florman

LAST APRIL, while reading the papers the morning after the President's energy address to the nation, I was struck by a statement attributed to Mr. Carter's pollster and adviser, Patrick Caddell: "The idea that big is bad and that there is something good to smallness is something that the country has come to accept much more today than it did 10 years ago. This has been one of the biggest changes in America over the past decade."

Since the nation had just been exhorted to embark on the most herculean technological, economic, and political enterprises, this reference to smallness seemed to me to be singularly inapt. Waste is to be deplored, of course, and inefficiency. But bigness? I had not realized that the small-is-beautiful philosophy had reached the White House.

A few days after the Carter speech, I had an opportunity to attend a lecture by E. F. Schumacher, the author of *Small Is Beautiful*, the book that, since its publication in 1973, has become the Koran of the antitechnology movement. I listened, bemused, as Dr. Schumacher depicted a United States in which each community would bake

its own bread and develop its own resources, a nation of self-reliant craftsmen where interstate transport would practically disappear. The energy crisis could be solved, Schumacher maintained, only by replacing our sprawling network of industrial metropolises with numerous small-scale production centers. Schumacher's audience listened, entranced. It was clear that the energy crisis was giving new life to an idea which otherwise might have died a natural death.

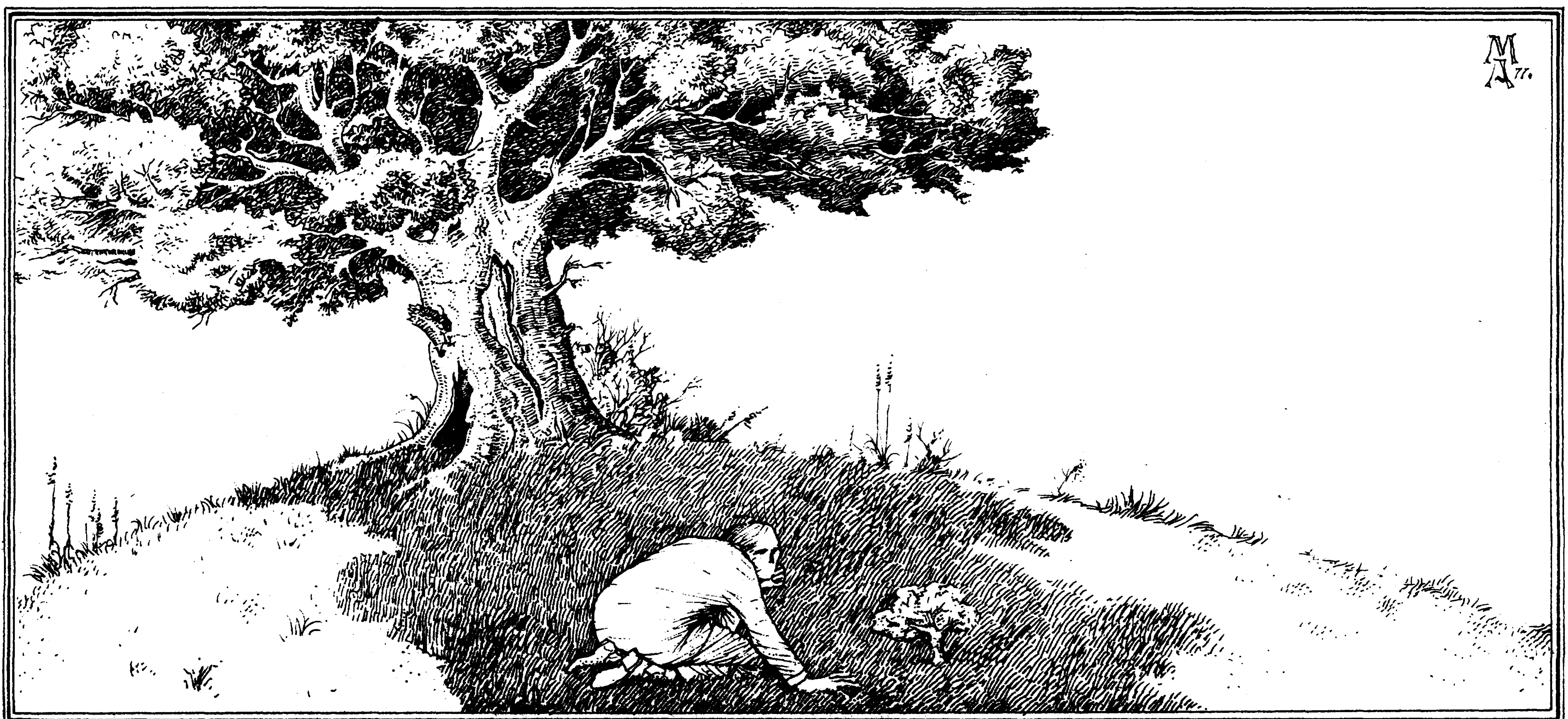
On my way home, I found myself thinking about a telephone call I had received a few weeks earlier from a consultant to the power industry. He was concerned about an article entitled "Energy Strategy: The Road Not Taken?" by Amory B. Lovins, a British physicist, which had appeared in the October 1976 issue of *Foreign Affairs*. The article, which argued the small-is-beautiful position forcefully, had been extensively quoted in the international press, entered into the Congressional Record, discussed in *Business Week*, and been the subject of the most reprint requests ever received by *Foreign Affairs*, surpassing even the famous George Kennan "Mr. X" piece.

Opposition has not been slow to rally.

The man who called me put together a collection of rebuttal essays prepared by people prominent in the fields of energy, academe, industry, and labor. This imposing pamphlet has been circulated in large quantities wherever its sponsor fears the Lovins article might have made an impression. It appears that the metaphysical struggle between small and big—reminiscent of the argument over the number of angels that can dance on the head of a pin—has become a real issue.

THE SMALL-IS-BEAUTIFUL believers, as exemplified by the Lovins article, commence their campaign with a critique of our existing energy technology, especially our nationwide grid of electrical power. The deficiencies of this system are obvious enough. Electricity is created in huge central plants by boiling water to run generators. Whether the heat that boils the water is furnished by oil, coal, gas, nuclear energy, or even by solar energy, a great deal of energy is wasted in the process, and even more is lost in transmission over

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long lines. By the time the electricity arrives in our home or factory and is put to use, about two-thirds of the original energy has been dissipated. In addition, the existence of what Lovins calls "the infrastructure" of the power industry itself—tens of thousands of workers occupying enormous office complexes—costs the system more energy, and costs the consumer more money.

The proposed solution, which on first hearing sounds fairly sensible, is the creation of small, efficient energy-creating installations in the buildings where the energy is used, or at most at the medium scale of urban neighborhoods and rural villages. Direct solar plants are the preferred system, although Lovins also mentions small mass-produced diesel generators, wind-driven generators, and several other technologies still in the development stage.

Yet, despite the advantages of this system, the new "soft" technologies, to use Lovins's term, would entail the manufacture, transport, and installation of millions of new mechanisms. This cannot but be a monumental undertaking requiring enormous outlays of capital and energy. Then these mechanisms will have to be maintained. We all resent the electric and phone companies, but, when service is interrupted, a crew of competent men arrives on the scene to set things right. Lovins assures us that the solar collectors or windmills in our homes will be serviced by our friendly, independent neighborhood mechanic, a prospect which must chill the blood of anyone who has ever had to have a car repaired or tried to get a plumber in an emergency. As for Americans becoming self-reliant craftsmen, as Schumacher assures us we can, this idea sounds fine in a symposium on the human condition, but it overlooks the enormous practical and psychological difficulties that stand in its way. The recently attempted urban homesteading program, for example, was based on this very appealing concept. Abandoned houses were to be turned over to deserving families at no cost, just as land was made available to homesteaders in the last century. The program failed because most poor families simply were not capable of fixing up the houses.

Another hope of the small-is-beautiful advocates is that great savings can

be realized by eliminating the administrations, or "middlemen" of the utility companies. But in the real world it appears that the middleman does perform a useful function. How else can we explain the failure of the cooperative buying movement, which is based on the idea that people can band together to eliminate distribution costs? The shortcomings of large organizations are universally recognized, and "bureaucratic" has long been a synonym for "inefficient." But, like it or not, large organizations with apparently superfluous administrative layers seem to work better than small ones. Chain stores are still in business, while mom-and-pop stores continue to fail. Local power companies, especially, are a vanishing breed. Decisions made in the marketplace do not tell us everything, but they do tell us a lot more than the fantasies of futurist economists.

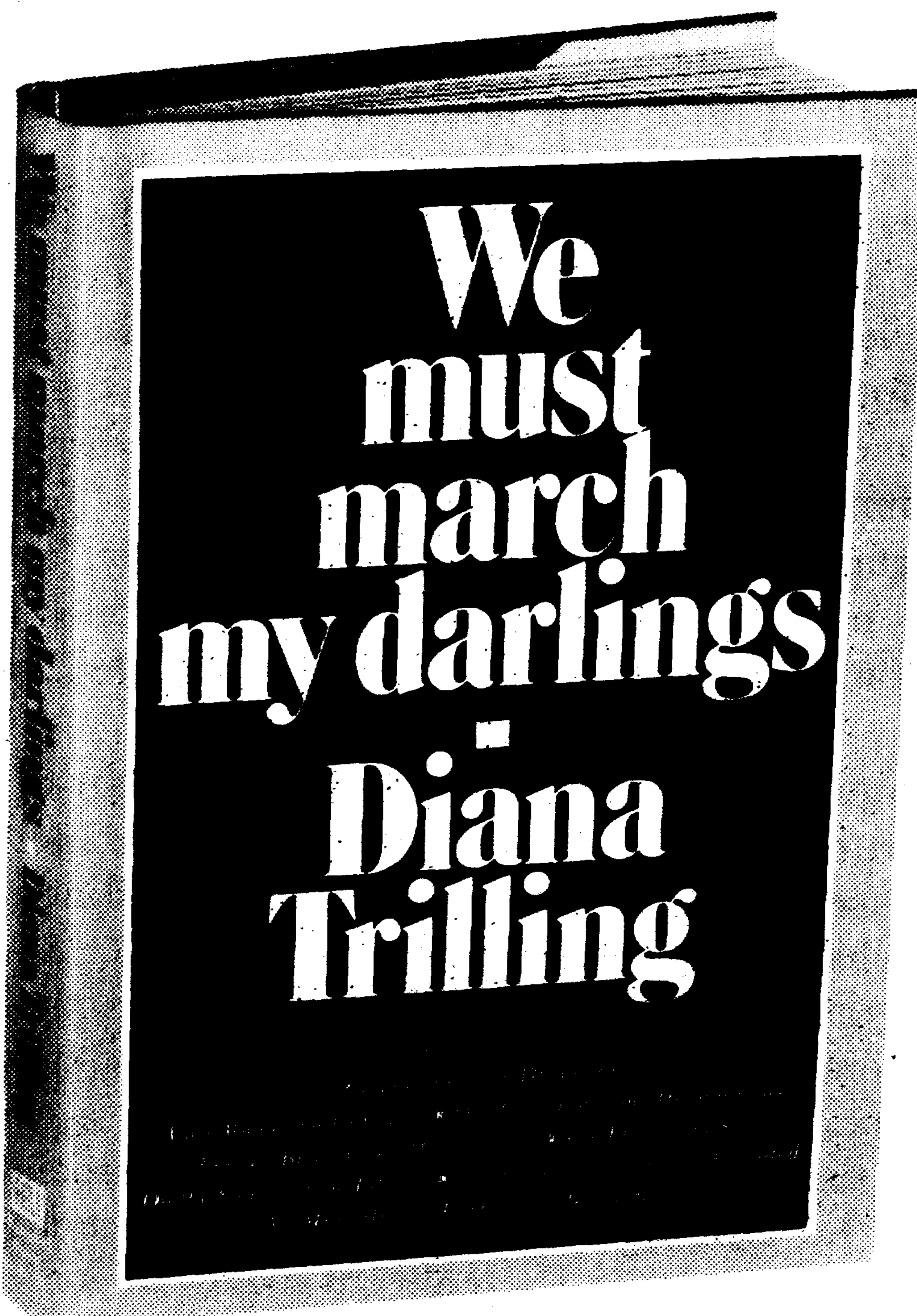
This is not to say that the situation cannot change. If a handy gadget becomes available that will heat my house economically using wind, water, sunlight, or moonlight, I will rush out to buy it. On the other hand, if the technological breakthroughs come in the

power-plant field—perhaps nuclear fusion or direct conversion of sunlight to electricity—then I will be pleased to continue my contractual arrangements with the electric company.

Such an open-minded approach has no appeal to Lovins. Quoting Robert Frost on two roads diverging in a wood, he asserts that we must select one way or the other, since we cannot travel both. The analogy is absurd, since we are a pluralistic society of more than 200 million people, not a solitary poet, and it has been our habit to take every road in sight. Will it be wasteful to build power plants that may soon be obsolete? I think not. If a plant is used for an interim period while other technologies are developed, it will have served its purpose. If it is never used at all, it will still have been a useful component of a contingency plan. When billions of dollars are spent each year on constantly obsolescing weapons which we hope we will never have to use, it does not seem extravagant to ask for some contingency planning for our life-support systems.

Our resources are limited, of course, and we want to allocate them sensibly. At this time it is not clear whether

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the most promising technologies are "hard" or "soft" or, as is most likely, some combination of both. The "soft" technologies are not being ignored. The Administration's energy program contains incentives for solar heat installations by individual homeowners. Research and development funds are being granted to a multitude of experimental projects. At the same time, we are working on improvements to our conventional systems. What else could a responsible society do? We must assume that the technologies which prevail will be those which prove to be most cost-effective and least hazardous. Improper political pressures may be a factor, but these have a way of cancelling each other out. A new product attracts sophisticated investors, and before long there is a new lobbyist's office in Washington. The struggle for markets and profits creates a jungle in which the fittest technologies are likely to survive.

TECHNOLOGICAL efficiency, however, is not a standard by which the small-is-beautiful advocates are willing to abide. Lovins makes this clear when he states that even if nuclear power were clean, safe, and economic, "it would still be unattractive because of the political implications of the kind of energy economy it would lock us into." As for making electricity from huge solar collectors in the desert, or from temperature differences in the oceans, or from solar energy collected by satellites in outer space—these also will not do, "for they are ingenious high-technology ways to supply energy in a form and at a scale inappropriate to most end-use needs." Finally, he admits straight out that the most important questions of energy strategy "are not mainly technical or economic but rather social and ethical."

So the technological issue is found to be a diversion, not at all the heart of the matter. The *political* consequences of bigness, it would appear, are what we have to fear. A centralized energy system, Lovins tells us, is "less compatible with social diversity and personal freedom of choice" than the small, more pluralistic, approach he favors.

But diversity and freedom, at least in the United States, are protected and

encouraged by strong institutions. Exploitation thrives in small towns and in small businesses. Big government and big labor unions, for all their faults, are the means by which we achieve the freedoms we hold so dear.

When big organizations challenge our well-being, as indeed they do—monopolistic corporations, corrupt labor unions, et al.—our protection comes, not from petty insurrections, but from that biggest of all organizations, the federal government. And when big government itself is at fault, the remedy can only be shake-ups and more sensible procedures, not elimination of that bureaucracy which is a crucial element of our democracy. Does it not seem absurd, and quite late in the day, to speak of losing our political freedom through the growth of federally supervised utility companies, when we long ago agreed to give up our individual militias, and entrust the national defense to a national army? The small-is-beautiful philosophy makes just as little sense politically as it does technologically.

The next argument that Schumacher and Lovins present is the social one. Even if large organizations "work" technically and politically, it is claimed, they do not work socially. The subtitle to *Small Is Beautiful* is "Economics As If People Mattered." Only in small social groups, apparently, is it possible for people to "matter." Schumacher and Lovins would not appear to have read such books as *Winesburg, Ohio*, *Spoon River Anthology*, and *Main Street*, with their picture of the American small town as a petty, cramped, and spiteful community. Cities and small towns will always have their defenders, but the constantly discussed question about whether it is "better" to live in the city, the country, or the suburbs is a matter of taste which cannot be settled by self-appointed intellectual mandarins.

Perhaps what lies at the heart of the new worship of smallness is an increasing revulsion against the ugliness of much of industrial America. Dams, highways, and electric transmission lines, once the symbol of a somewhat naive commercial boosterism, are now depicted as vulgar. But this association of bigness with lack of taste is not warranted. The colossal works of man are no more inherently vulgar than the small works are inherently petty. We

prize robustness in life as well as delicacy. Rousseau, coming upon a Roman aqueduct, had this to say:

The echo of my footsteps under the immense arches made me think I could hear the strong voices of the men who had built it. I felt lost like an insect in the immensity of the work. I felt, along with the sense of my own littleness, something nevertheless which seemed to elevate my soul; I said to myself with a sigh: "Oh! that I had been born a Roman!"

Economic and social arguments aside, Schumacher and Lovins maintain that their philosophy is founded on a base of moral conviction, of thrift, simplicity, and humility. We have sinned by being wasteful, ostentatious, and arrogant. Thus smallness becomes a symbol of virtue.

For a moment, as at every step along the way, we are inclined to agree. The message has an appeal. The problems of our age—the environmental crisis, the energy crisis, the depletion of our natural resources—are, we suspect, caused by our profligacy. Improvidence, it would appear, has become the cardinal sin.

But even the most useful moral precepts—such as patriotism—often have a dark underside. In the present instance, the thrift being preached lends itself to a smallness of spirit. (The day after President Carter's first energy message I heard the radio commentator Paul Harvey question the "waste" of gasoline for busing school children.) The humility proposed evokes those Oriental attitudes which counsel the masses to accept their wretched lot. Such fatalistic beliefs may be useful in adding a measure of serenity to our private lives, but they are insidious elements to inject into debates on public policy.

Much of the debate over big versus small recalls the Lilliputians going to war over the question of whether eggs should be opened at the big or little end. *Smallness*, after all, is a word that is neutral—technologically, politically, socially, aesthetically, and, of course, morally. Its use as a symbol of goodness would be one more entertaining example of human folly were it not for the disturbing consequences of the arguments advanced in its cause. ■■■

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