

Economics as if Some People Mattered

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S*mall is Beautiful* is the title of a book by E.F. Schumacher. It is also a slogan describing a state of mind in which people clamor for the rural idyll that (they think) comes with primitive energy sources, small-scale production, and small communities. Yet much—perhaps most—of their clamor is not really for what they consider small and beautiful; it is for the destruction of what they consider big and ugly.

That alone shows that there is more beneath this mentality than the slogan might suggest. Indeed, if its adherents wish to retire into a cottage industry powered by solar collectors and windmills, who's stopping them? There are many lonely places from Maine to Oregon to which the alienated can retreat and live the life they recommend to others. And many have, in fact, done so; but Amory Lovins is not among them, nor was Schumacher (he died in 1977), nor the Creative Initiative Foundation, nor Project Survival, nor Environmental Action, nor any of the other organizations fervently devoted to the small and beautiful.

Corporations, the utilities, the military, big business, profits—and whatever else is supposed to be big and ugly—are not big or ugly enough to stop Lovins from moving into the wilderness. In fact, they are not even big or ugly enough to *make* him move there.

It is, on the contrary, the small-is-beautiful advocates who are trying, and very successfully, to impose their will on the rest of us. And they haven't been imposing it on us by the ballot box: They work through the courts, through the federal bureaucracies and regulatory agencies, through regiments of lawyers and PR men who manipulate behind the scenes; but above all, they spread disinformation through the mass media and the schools and universities. That disinformation plays cleverly on people's desire for a healthy environment and on the fears that these same sources have carefully cultivated.

The way they have been promoting the small and beautiful is neither small nor beautiful. Certainly the money the environmental organizations have been spending to stop economic growth isn't small—it runs into the tens of millions a year, funneled into the environmental coffers in liberal amounts by the liberal foundations. The Creative Initiative Foundation bemoans the greed for worldly possessions out of its \$500,000 home in a fashionable San Francisco suburb; a vast literature on the superiority of solar, wind, and tidal power is churned out by innumerable presses, none of which run on solar, wind, or tidal power; the officials

of the Natural Resources Defense Council and other conservationists dart about in jumbo jets to lecture their fellow citizens on the virtues of bicycling and other forms of energy conservation.

Clearly, there is more to the small-is-beautiful slogan than its literal meaning. The larger message comes through in two works by outstanding representatives of the movement: Schumacher's *Small is Beautiful—Economics as if People Mattered* and Lovins's "Energy Strategy: The Road Not Taken" in the October 1976 issue of *Foreign Affairs*.

Both of these are well written but would otherwise present little interest since both utterly disregard any factual evidence. What gives them importance is the gushing adulation heaped on them by the TV networks, the press, and the other workshops of the American opinion-molding industry. It has not been fruitless: Congress has been receiving Lovins's testimony amidst much publicity; in November 1977 President Carter not only consulted with Lovins but shortly afterward repeated a string of his concocted figures; and California's governor, Jerry Brown, openly admires and quotes Schumacher.

The two publications have much in common in several respects, but perhaps the most striking feature is that they are both credos of unquestioning faith, palmed off to the reader as objective analysis. Lovins's piece is, in this respect, the more dishonest of the two, for while Schumacher's book contains little more than shallow technophobia ("What do I miss, as a human being, if I have never heard of the Second Law of Thermodynamics? Nothing. And what do I miss by not knowing Shakespeare? I simply miss my life."), Lovins's piece is adorned with a string of fabricated figures and doctored data.

The tone of Schumacher's book is set in the preface by Theodore Rozsak, who deplores "the phony plebiscite of the marketplace" and condemns economics as a science that "must hope and pray...that people will never be their better selves, but always greedy social idiots." (Note the "science that must hope and pray"—a contradiction in terms that says more about Rozsak than about economics.)

Schumacher himself continues in the same spirit: "The market is the institutionalization of individualism and nonresponsibility. Neither the buyer nor the seller is responsible for anything but himself....To be relieved of all responsibility except to oneself means of course an enormous simplification of business. We can recognize that it is practical and need not be surprised that it is highly popular among businessmen."

Throughout his book, Schumacher gives copious evidence of being utterly unfamiliar with issues of safety in power generation, public health, and technology in general, which is somewhat surprising for one who worked for the British Coal Board until 1971; and his economics shows the same erudition. Schumacher was an avowed socialist, but his argument against the free market is particularly inept and some 200 years out of date.

The free market does not, of course, eradicate human greed, but it directs it into channels that give the consumer the maximum benefit, for it is he who benefits from the competition of "profit-greedy" businessmen. The idea that the free market is highly popular among businessmen is one that is widespread, but not among sound economists. It was not very popular in 1776, when Adam Smith's *Wealth of*

Nations was published, and it has not become terribly popular with all of them since—which is not surprising, for the free market benefits the consumer but disciplines the businessman.

If the free market is so popular with business, what are all those business lobbies doing in Washington? The shipping lobby wants special favors for U.S. ships; the airlines yell rape and robbery when deregulation from the governmental CAB cartel threatens; the farmers' lobby clamors for more subsidies. What all these lobbies are after is not a freer market but a bigger nipple on the federal sow.

And responsibility? It is the welfare bureaucracy that robs homo sapiens of responsibility: If someone dies after eating detergent, who is responsible? In currently fashionable wisdom, the manufacturer who failed to provide a warning label "not for internal consumption"; the FDA, OSHA, EPA, and dozens of other regulatory agencies; government and society at large, which failed to train, coerce, and watch over its helpless, moronic subjects—everybody and nobody. In contrast, the free market indeed breeds individual responsibility.

As a statement, "small is beautiful" is senseless. The small-is-beautiful people will quickly confirm this. They prefer the big bus of collective transit to the small automobile; they love solar power even if it involves collectors on hundreds of square miles; and they hate the nuclear plants that can produce the same power on tiny sites.

Much as they would love to have size and everything else decreed by those who know what is good for us, size is something that evolves to its own optimum, at least in the fields where the Schumachers and Lovinses have not been able to interfere. In nature, for example, species evolve to the "right" size. Warm-blooded animals living in the cold must be a minimum size. There are polar bears, but no polar mice; penguins, but no polar sparrows.

Buildings cannot grow beyond a certain size—skyscrapers significantly taller than the Sears Tower or the World Trade Center would waste too much space on elevator shafts for all those people in the upper stories, and the building would become uneconomical, even though technically it would be feasible to make it taller.

Quite often it happens that a technology develops toward increasing sizes of the product because twice the size will cost less than twice as much; this is called economy of scale. Typically, an oil tanker brings in revenue proportional to the volume of oil carried; but its investment costs are (roughly) proportional to the amount of material used, and its operating costs are partly determined by the fuel needed to propel it. If the linear dimensions of the tanker are doubled, its cargo space increases eightfold, but its surface area only fourfold, and the required propulsion power only threefold (all in very rudimentary theory; the actual figures are slightly different, but the principle and savings remain). Oil tankers, therefore, become more economical with increasing size, which is why they have recently grown to as much as 500,000 tons displacement.

In other cases, of course, economy works in exactly the opposite direction. Typically, semiconductor technology and integrated circuits have *reduced* the size of electronic equipment to an astounding degree. Electronic watches, for example, now worn on wrists and available for under \$20, are not fundamentally new. Electronic, quartz-controlled watches have been around since the 1920s, though

only central radio stations and astronomic institutions were able to afford them. When made with vacuum tubes, they cost many thousands of dollars, produced great amounts of waste heat, and usually needed a whole (air-conditioned) room to house them. So the modern digital watch might be a case where small is beautiful (but Schumacher and Lovins, presumably, would prefer sundials or hourglasses).

But they are wrong in the case that interests them most—that of energy sources, particularly electric-power plants. Largely through economies of size—larger central power plants—the price of electricity declined from a high of 13.3 cents per kilowatt-hour in 1922 to a low of 3.4 cents in 1974 (both in constant 1967 dollars). Main reason: *Large systems waste less energy*. And unlike skyscrapers, electric-power plants do not yet seem close to a limit. In fact, looking centuries ahead, some analysts have suggested that our present “energy cells,” in which electricity is transmitted over a few hundred miles, will be replaced by far larger “cells” in which hydrogen will be piped over thousands of miles with far smaller losses. The hydrogen, of course, must be produced by investing energy to extract it from water—on a scale for which nuclear energy is the only currently viable candidate.

But whatever the future may hold, the past development of energy sources has shown a consistent trend to more efficient and bigger power plants. The alternative Lovins proposes is energy waste on a gigantic scale: diesel engines in your back yard, fluidized-bed coal furnaces in your basement (they haven’t been developed yet—better men than Lovins are still working on them). And why not do it the efficient, clean, and safe way—with centrally generated nuclear power? Because, says Lovins, in a metaphor that has since been adopted by every sensitive and aware cocktail hostess, that would be like using a chainsaw to cut butter, for the electricity is made in reactors at temperatures of millions of degrees. This type of agglomeration of words into a meaningless string can be traced back to Barry Commoner, a Marxist biologist who believes thermodynamics can be abused for political ends. But the Commoner-Lovins wisdom is both false and irrelevant. It is false, because the temperature in a reactor, at its hottest point at the axis of a fuel rod, is about 4000F (600F at the surface of the pellets); and it is irrelevant, because for what is the energy of the uranium conserved if it is left in the ground?

A discussion of the economic and technological blunders in Schumacher’s *Small is Beautiful* could fill a whole book; in Lovins’s case, it *has* filled a whole book, mainly devoted to his outsized technical errors (*Soft vs. Hard Energy Paths*). There are less obvious, but equally distasteful, aspects of the small-is-beautiful mentality. One of these is its deeply antidemocratic, authoritarian undertone.

The energy sources recommended by Schumacher, Lovins, and the other small-and-beautiful people have been tried before—on the feudal manor. Not only are they technologically similar or even identical, but their “softness” consists partly in their small capacity: no more (and, practically, very much less) than needed by a single home.

What exactly constitutes “soft” energy is mushy and ill-defined in the small-and-beautiful literature; *soft* seems to mean *primitive*, *pitiful*, and often *unavailable*. But to Lovins, who rejects solar energy converted in large, centralized

(and more efficient) plants, it seems to be determined by the feudal feature of everybody producing his own goods for consumption.

Large-scale division of labor is something that has come about only with large-scale industrialization. It has not always been true that some organizations make only shoes, while others make only cloth, and that the man who makes only shirts is rewarded with a salary, some of which he exchanges for shoes, shirts, both, or neither, at his choice. Only a few hundred years ago there was no (significant) division of labor; every family made its own shoes, wove its own cloth, and sewed its own shirts. Families also provided their own energy. Most of it came from muscle power—animal muscles or their own. What little other energy they harnessed came from the type of sources Schumacher and Lovins advocate—solar, wind, water. The sun, in those days, gave approximately one kilowatt per square meter at the best of times, just as it does today; and whether amorphous semiconductors will eventually become available to replace medieval forms of harnessing solar energy will make precious little difference to the general idea.

But the absence of the division of labor is not, by itself, what made the feudal system. The vast majority of people were serfs, bound to the land with which they were bought and sold, working for the owner of that land, the seignior or lord of the manor, and completely at his mercy within the harsh code of the medieval Church. Economically, the manors were virtually self-sufficient and in peacetime only loosely tied to the “central” authorities—king, emperor, bishop, pope—who were too far away to make much difference to the local authoritarian system.

Now to go back to feudal energy sources and feudal methods of production *could* merely be inept; it does not necessarily follow that it would have to be authoritarian, too. Perhaps not, although probably it would.

In any case, the small-and-beautiful people leave us with little doubt as to their attitude toward authority: They worship it. The Creative Initiative Foundation’s *Primer for Living* is full of it. Schumacher’s admiration for Marx, Mao Tse-tung, and what amounts to feudal technology will make the wary reader think, “Next thing he will do is bemoan people’s mobility compared to the good old times when they were bound to the land.” Next thing he does is bemoan people’s mobility compared to the good old times when they were bound to the land. “A highly developed transportation and communication system...makes people *footloose*,” he writes (his italics). “Everything in this world has to have structure, otherwise it is chaos....Before the advent of mass transport, the structure was simply there, because people were relatively immobile....Before this technological intervention,...people and things were not footloose; transport was expensive enough so that movements, both of people and of goods, were never more than marginal....The basic requirements of life had of course to be indigenously produced.”

That is the type of system, along with feudal energy sources and feudal technology, whose praises are sung by Schumacher; and lest there be any misunderstanding, the point is driven home repeatedly. The automobile and jet plane have, to millions in the West, fulfilled man’s ancient dream of mobility, and physical mobility has resulted in social upward mobility as well. But to Schumacher, this spells the “footloose society,” and he laments the passing of the times when “the movement of populations, except in periods of disaster, was confined to

persons who had a very special reason to move, such as the Irish saints or the scholars of the University of Paris." These idyllic times have not, of course, passed away everywhere. In some countries, movement of populations is still confined to persons who have very special reasons—in the USSR and mainland China, for example.

Schumacher, it should be said, does not *consciously* advocate feudalism. But his vision of cottage industries in small communities with primitive technology, and his call for discipline and authority, are so suggestive of feudalism that just about the only thing missing is the *prima noctis* (the right of the lord of the manor to bed any serf girl on the night before her wedding).

Lovins's ideas are no less feudal than Schumacher's. "In an electrical world," says he, "your lifeline does not come from an understandable neighborhood technology run by people you know are at your own social level, but rather from an alien, remote and perhaps uncontrollable technology run by a faraway, bureaucratized, technical elite who have probably never heard of you."

True enough for electricity. But how about your shoes (or anything else but homemade doughnuts)? They don't come from an understandable neighborhood technology, either, and certainly the people who made them "have probably never heard of you." The implication of this disturbing state of affairs is clear: We must go back to the times when every family made its own shoes. At least, that is what Lovins concludes in the case of electricity.

But it is not merely feudal economics that Lovins finds attractive; he also emerges as a firm believer in authority and the proper place for the common rabble. The "soft," that is feudal, path is incompatible with the "hard" path of efficient and central energy conversion, he asserts. Is it because there is only enough capital for one but not for both of these paths? If so, there is a simple and time-honored way to find out how capital is best allotted: from the investors who allot that capital. The reason they know so much more about it than Lovins is twofold: One, they study the question with all the zeal that comes with putting one's own money on the line; and two, there are so many of them that the great majority is never permanently wrong—snake-oil stocks do not soar for long. But for the small-and-beautiful, economic decisions are not to be made by those who risk and therefore understand; the economy must be legislated, decreed, regulated, and regimented.

Considerations of capital, however, do not seem to be the only reason why Lovins has ruled the two paths incompatible. The capital investments possible with conservation, says he, are far less than those needed to increase "most" kinds of energy supply, and "a largely or wholly solar energy economy can be constructed in the U.S. with soft technologies that are now economic or nearly economic." And elsewhere: "An affluent industrial economy could advantageously operate with no central power stations at all." Not to mention that "in the soft path, conversion and distribution losses have been all but eliminated" (with this claim, Lovins not only revolutionizes economics but revokes a basic law of physics) and that domestic fluidized-bed coal furnaces (not yet invented) have combustion efficiencies of over 80 percent.

That is a lot of good news all at once. The puzzle is that the "greedy" princes of capitalism are not yet trampling each other to death in the mad rush to exploit

these fabulous technological innovations. Obviously, they are too stupid to know what is good for them. But Lovins's home team, the Friends of the Earth, together with a dozen other well-heeled organizations, will coerce them for their own good. Not, of course, via the ballot box—a diabolical institution that should never have been given to the rabble—but by the courts, the regulatory agencies, the federal bureaucracy, by guerrilla tactics that price “hard” technologies out of the market, and by whatever other forms of coercion, intimidation, and misinformation are available to them.

Some of the present “soft” technology already carries the seeds of coercion. Gigantic windmills that produce pitifully small amounts of power but cost millions of dollars are paid for not by the consumer's free choice but by the taxpayer, whose money is being squandered by reckless politicians. The “100 billion dollar bail-outs” and “oligopolies” with which Lovins charges the energy industry are entirely mythical, but billions of dollars of taxpayers' money are to be handed out by the government in the form of tax credits, rebates, subsidies, and incentives to a solar industry that might not make it on its merits. Indeed, the many sensible, if limited, applications that solar energy does have will not emerge as the best that were filtered out by a free market; they will be hidden, and perhaps smothered, by the lemons and rackets kept alive with the subsidies from the governmental sun worshippers.

But the small-and-beautiful crowd's love for coercion and contempt for the ballot box is best illustrated by the case of nuclear power. In the 1976 elections, in seven states representing 20 percent of the U.S. electorate, the small-and-beautiful placed on the ballot what was in effect a ban on nuclear power. These states were picked by the nuclear opponents as the most likely to approve such a ban. Instead, they defeated it by an average margin of two-to-one!

The tactic that was then adopted, and proved more successful, was to price nuclear power out of the market by abuse of the legal system and forcing artificial delays. But such obstructionism, supported by a broad assault of horror fiction in the mass media, was still not enough. In the summer of 1977, the small-and-beautiful met in Salzburg, Austria (the conference was attended by both Schumacher and Lovins), and decided to “raise the social and political costs of nuclear power” by acts of lawlessness, such as occupying construction sites of nuclear power plants. In Europe, these tactics provoked large-scale violence, with at least one dead and hundreds injured. In the United States, the small-and-beautiful openly admire such violence and have tried hard to instigate it in New Hampshire, California, Oregon, and other places.

The way of the small-and-beautiful does not lead through the ballot box; it is the way of the rope puller and manipulator, and it is not averse to the way of the storm trooper.

Another ill-defined concept pervading Schumacher's and Lovins's writings is that of vulnerability, a disadvantage attributed to “hard” but not to “soft” energy sources. Vulnerable to what? To war, to routine outages, to sabotage, to industrial strife, to fuel shortages? It never quite comes through the mush. But though Lovins uses the term *vulnerability* flexibly to boost the varied aspects of his far-out theories as needed, the main use seems to be reserved for propaganda against nuclear power,

the use of which would allegedly lead to a police state. Constant repetition will not make this inept argument any better: Thirty years of shipping large quantities of nuclear bombs, not harmless fuel assemblies, have not turned this country into a police state; ensuring the security of hydroelectric dams, which are more difficult to guard, more easily sabotaged, and far more lethal than a nuclear plant in the disaster they could cause, has not done so either. The idea that nuclear *power* could lead to proliferation of nuclear *bombs* is just false.

In general, nuclear power is safer, cleaner, and environmentally more benign than any other source of electricity. The fact that the advocates of the small-and-beautiful, and typically Schumacher and Lovins, consistently ignore the comparison with other power sources should tell us clearly that they have very little interest in safety or a clean environment.

The idea that a small, community-wide electrical system would be less "vulnerable" than the interstate power grids is laughable. The very idea of a grid is the pooling of resources, so that a local net in trouble can receive aid not only from its own but also from other utility systems, often in other states. The Lovinsian mini-system of windmills and chicken manure could probably never be tested in sabotage, war, or industrial strife: It would scarcely make it through the first snow storm.

And yet the U.S. energy system is indeed horribly vulnerable in a way that the Lovinsian fantasies not only ignore but help to exacerbate.

In 1976 the United States imported oil and petroleum products at the rate of 7.12 million barrels a day, 40.6 percent of its total demand. New oil and gas is being kept underground by price controls; both digging and burning of coal is hamstrung by environmentalist obstructions; nuclear power, which with breeder technology could provide this country with its electricity for 1,000 years, is being hounded and harassed by an unholy alliance of the mass media with the environmentalist zealots in the Carter administration.

Now take a look at the world map of major oil fields, 60 percent of which lie in the crescent-shaped area inside the USSR or dominated by it. The USSR is now the world's biggest oil producer (bigger than Saudi Arabia), and its production is rising; that of the United States is declining. The USSR is moving into a position of control of the world's oil spigots and of sea lanes from them, and that control means economic, military, and possibly political control of the nations that must import their oil from that crescent-shaped area of the world—the United States among them.

Only the utterly naive would fail to recognize the signs that the USSR is, in fact, actively pursuing such a goal: the feverish build-up of the Soviet navy; the all-out effort to dominate the Middle East; the effort to control the oil shipping lanes to Europe and the United States, including the political campaigns against Israel and South Africa; the effort to dominate the African horn; the conquest of Angola—these are some of the signs of a consistent Soviet foreign policy.

But for those who are blind to these signs, there is also documentary evidence that the Soviets are pursuing a deliberate policy of making the West more pliable by disrupting its energy supplies. Andrei Sakharov, the courageous dissident scientist who, as father of the Soviet hydrogen bomb, was high up in the Soviet establishment in 1955, has given this testimony:

"I often remember how in 1955 a high official of the Soviet Council of Ministers spoke to a group of scientists and told them that now (Shepilov, a member of the Presidium of the Central Committee of the Communist Party, had just returned from Egypt) the principles of a new Soviet foreign policy in the Middle East were being worked out. He said that the long-term aim of this policy was using Arab nationalism to create difficulties in the oil supply of European countries and thus to make them more pliable."

That was in 1955. Twenty-three years later, it is clear the Soviet policy has been spectacularly successful. And we may safely assume that it is no longer limited to making the West more pliable by disrupting its energy supplies but that it is aimed at controlling the West by being able to interdict them.

The prospect of the United States losing control over its economic—and therefore ultimately political—destiny is the most ominous and acute threat of the U.S. energy crisis. And what is the answer of the small-and-beautiful people—in particular, Amory Lovins—to this paramount threat? The deindustrialization and ruralization of the United States.

It does not follow, of course, that the small-and-beautiful advocate deindustrialization *in order* to help the Soviets. Far more likely than helping the Soviets, they are trying to help themselves.

It is conceivable that Lovins and the other spokesmen of pseudo-environmentalism kid themselves that they are motivated by the desire to live in harmony with nature and to do mankind a good turn. This may be highly interesting to the psychologist, but is utterly irrelevant to the issues. If Lovins were a genuine safety advocate, he would support the type of energy that is safer than any other, which is nuclear (see my *Health Hazards of Not Going Nuclear!*) He would not advocate diluting the dangers of energy by millions of windmills, hundreds of millions of solar collectors, and energy storage in every home, which *per energy produced* would lead to carnage unheard of with any large-scale source of electricity.

If he were a genuine environmentalist or conservationist, he would know that breeding nuclear fuel can provide the world's electricity for the next millennium, the volume disrupted by mining being 5,000 times smaller than that for coal yielding the same energy. And if he were genuinely interested in preventing proliferation, he would not conceal the fact that making bombs via the nuclear power fuel cycle is the most time-consuming, expensive, dangerous, and inept way of the *eight* available methods.

But it does not matter all that much what motivates Lovins personally. There are people who think the earth is flat and people who think they can communicate with the dead; a man who doctors his data to show that an industrial giant can run on windmills and chicken manure is not all that interesting.

The real point about the Lovins phenomenon is that he is received by a president of the United States who parrots his fantastic figures, that the mass media adulate his piffle, that many professionals (and their spouses) in academia and business are in ecstasy over it, and that the politicians who have discerned the vote-garnering powers of this naive dream are drooling in transported rapture.

But who is it that *doesn't* swoon? The common man, for he would be the big loser.

The blue-collar worker, for one, knows the worth of a home energy system that substitutes an investment of thousands of dollars for the purchase of electricity at a nickel a kilowatt-hour. Neither he nor the labor unions are willing to go back to brute muscle power after central power plants have been abolished, large-scale industry crippled, and jobs eliminated by the millions.

The American farmer, with the world's highest per-acre yields, knows the worth of energy; it goes, not just into his tractor fuel, but above all into his fertilizers. He sells food not only to Sweden and Switzerland (whose small energy consumption is quite falsely held up by Lovins) but also to countries where most of the inhabitants go hungry—because they still have a Lovinsian economy.

And the poor? Lovins goes through the obligatory ritual of saying that they suffer most from energy shortages, whereupon he proceeds with details of the energy sources that only the affluent can afford. His concern for the poor is heartbreaking; but how many chapters do his Friends of the Earth have in Harlem or in Watts? Evidently the poor do not yearn for Lovins to be so good to them.

Lovins's soft-headed energy paths are, in fact, popular only among a very small section of the American people. The members of this tone-setting elite, no matter how much they may kid themselves about environment and ecology, resent the common man, for he is crowding "their" highways, beaches, national parks, and airlines; but even more bitterly, they resent technology—"vulgar," "gone berserk," and "equivalent to war"—for it has enabled the common man to crowd them and needs a population of engineers, technicians, and workers who understand it, when the world should really be dependent only on the sensitive who ponder the mysteries of the transcendental. They resent the free enterprise system because it lets people buy and do what they want to, when they really should buy and do what they *ought* to. And what they ought to do should be planned by the tone setters who know what is good for the people. They know technology is bad, for it has wounded them with the ultimate insult: They don't understand it anymore.

The influential social position of this elite, then, is threatened by the mass prosperity that is bred by technology and free enterprise. What better way to keep the riff-raff in its place than to kill both by abolishing all but feudal energy sources? The gospel taught by the small-and-beautiful, the ecologists, the population controllers, the antinukes, the no-growth crusaders, the regulators, and the other regressionists comes in many versions; but its fundamental commandment is, *There are too many of you others.*

Schumacher subtitled his book *Economics as if People Mattered*, but what the small-is-beautiful mentality amounts to is economics as if only *some* people mattered; and what it advocates can only be achieved by coercion. Small for you is beautiful for Lovins.

FREE MINDS & FREE MARKETS

TWENTY-FIVE YEARS OF REASON

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