school by ordering it to focus initial energies on producing medical doctors while postponing the original ambitious plans to train nurses, dentists, and many other varieties of health professionals as well. Then, in the most threatening move of all, the Defense Manpower Commission urged that the school be "terminated" because it would cost too much and would be "inflexible" and unable to respond to changing needs.

The commission argued that it would be far cheaper to attract doctors to the military through scholarships and bonus pay; it recommended that the school be abandoned even though several million dollars had already been spent to get it started. Since the commission had been created by Congress for the specific purpose of analyzing military manpower needs, its recommendations were expected to carry substantial weight. What's more, a study by the staff of the House appropriations subcommittee agreed that it would be significantly more costly to obtain doctors through the new school than through an expanded scholarship program.

But the momentum behind the school proved too great for the opponents to overcome. They came very close during floor debate on authorizing legislation in the House, where an amendment to delete the authorization for the school lost by a narrow 221 to 190 vote on 28 July. That loss took some of the vigor out of the opposition, however, and when the appropriations bill was voted on in the House, a similar amendment lost by 255 to 161.

In vain, opponents of the school argued that Congress should listen to the advice of its own manpower commission; should avoid "throwing all this money down a rathole" when it could be better spent in the civilian medical schools; should not increase the number of medical schools at a time when health authorities believe we may already be producing enough doctors; and should not "build memorials" to Hébert.

Backers of the school argued that it should be continued since start-up funds had already been appropriated and spent; a president, dean, and board of regents had been appointed, and the school was set to open in September 1976. They also cited cost figures generated by the school itself which indicated that the institution would be cost-effective. Although backers acknowledged that it would cost the Defense Department less to use scholarships than to build a new school, they argued that the total cost to the government would not be much different, since the scholarship students at civilian schools would be partially subsidized by federal funds from the budgets of civilian agencies.

Perhaps more important than any rational argument, however, was the surprise appearance of Hébert, who left the hospital bed where he was recuperating from an accident to mingle among his colleagues and lobby for the school. One opponent said many congressmen who had voted to deprive Hébert of his committee chairmanship were unwilling to further slap him down by killing his pet project. "They said it would kill him," he explained.

A final effort to terminate the school was made in the Senate on 6 November. An amendment to delete the construction funds was defeated, but then Senator William Proxmire (D–Wis.) got an amendment approved which would have delayed spending those funds for 90 days while the comptroller general prepared a supposedly definitive opinion on the cost-effectiveness of the university as compared to the scholarship program. However, even that delaying action failed when House conferees later refused to accept it and Senate conferees willingly abandoned it.

Proxmire's office is talking about yet another attempt to kill the school, perhaps through some form of budget rescission. But the success of such a maneuver would seem unlikely.

The new school is expected to graduate some 165 doctors annually. Its president is Anthony R. Curreri, former associate vice-chancellor for health sciences at the University of Wisconsin; its medical dean is Jay P. Sanford, former chairman of the department of internal medicine at the Southwestern Medical School of the University of Texas; and the president of its board of regents is David Packard, former deputy secretary of defense. Almost 1000 persons are said to have applied for eight chairmanships in the basic sciences.

In future years, the school, insulated and hidden within the mammoth military budget, may become one of the best-heeled medical institutions in the country. In the opinion of Senator Gary Hart (D–Colo.) it is "a little acorn which will grow into a big, and certainly unneeded, oak tree."

—PHILIP M. BOFFEY

Hazel Henderson: Nudging Society off Its Macho Trip

Who's the handsome blonde woman in the Pucci skirt, carrying on from the speaker's podium in emphatic but well-modulated British tones about corporate obsolescense, society's "Cartesian trip," the second law of thermodynamics, and the "decline of Jonesism"?

That's Hazel Henderson, one of the most voluble, eloquent, and increasingly visible of America's spokespersons for social and economic change.

Henderson, who has helped set up a half-dozen citizen activist organizations, has of late been moving in on the world of science policy. She is the only woman on the advisory council of the Office of Technology Assessment (OTA); she is probably the only non-college graduate on the Committee on Public Engineering Policy of the National Research Council; and she has just been invited to be on the policy advisory committee of the National Science Foundation's Research Applied to National Needs program.

In other words, she has no difficulty working within the system. She simply grabs the available handles and turns them into levers. She is one of those who refuse to be categorized by discipline—indeed, she doesn't have one—who prefer to see themselves as synthesizers of ideas and as advocates not so much of ends as of process. There is an end, of course, which is to see the country undergo a transition into a decentralized, small-technology, resource-conserving, labor-intensive, environmentally sound, recycling, low-growth, democratic society.

The label Henderson is most comfortable with is that of "futurist." "Individual disciplines have become a positive straitjacket," she says, "which is why I like to be in the company of people who call themselves futurists. They've all transcended some discipline—the old disciplines are really not describing reality very well."

Her story is that of a woman who evolved into an activist simply by doing what came naturally. "It all just sort of happened organically, by accident as it were. I just seem to be doing the things that seem to be sensible at the time." Sensibleness, combined with an impressive set of brains and a firm sense of self-worth, have brought her a long way.

Henderson was born in Clevedon, a small fishing village in Somerset, England, the daughter of the director of a paper company in Bristol. She developed her verbosity at an early age in long debates with her father, who also sought her opinions on business matters. Her mother imbued the four children with the belief that there was nothing they couldn't do if they wanted to.

Young Hazel, well schooled but with no university education, went off to New York to seek her fortune in 1957, when she was in her early 20's. There, after a couple of years working as a ticket agent for Pan American Airlines, she met and married Carter F. Henderson, who had just returned from a job in London as bureau chief of the *Wall Street Journal*. After several years absorbed in wife- and motherhood (they have a 14-year-old daughter, Alexandra), Henderson emerged to find that she definitely didn't like the quality of New York City's air, and set about to do something about it. "Most of the things I've done I've done because I didn't know that you couldn't do that," she says, "As long as you don't know it can't be done it becomes easier."

Having been struck by the hypnotic power of the mass media in America, Henderson read up on the parts of the communications law that relate to the public interest. She also found out there was such a thing as the air pollution index. So she wrote the Federal Communications Commission (FCC) and the presidents of the three major networks suggesting that it would serve the public's "convenience and necessity" to have the index broadcast along with the weather report. Xerox copies of this were sent to every relevant public servant she could think of. She received an encouraging reply from an FCC official which she promptly xeroxed and sent to the network presidents—within 5 weeks, she says, all three were broadcasting the air pollution index. "I thought, Wow!" says Henderson. "This is too much. This is too easy!" So, of course, she contacted a city councilman who was interested in sulfur oxide levels, a meeting was held in his office, and Citizens for Clean Air (an organization that now has 24,000 members) was launched. Next, thought Hazel, What we really need is an all-media campaign.

Hazel Henderson

So she cruised up and down Madison Avenue knocking on the doors of all the advertising agencies until at last she found a young one willing to do ads for free. They were so good, says Henderson, that she then wrote to Norman Cousins who was chairing Mayor Lindsay's air pollution task force and asked if she could show them to him and another member, William Bernbach of the advertising giant Doyle Dane Bernbach. The TV ads were screened in Bernbach's office. Everyone was impressed, so Henderson asked them to write letters to various media people requesting that they air the ads as a public service. Naturally she knew that Bernbach's name would have an effect since he was also buying millions of dollars worth of paid advertising. This tactic resulted in $350,000 worth of free time and space for the campaign. "That, I guess," she says, "was my first experience in finding how you could logroll powerful people into helping you." The campaign brought enormous public response, with people sending money and writing letters expressing their private concerns about air quality.

The success of the campaign illustrates Henderson's apparent instinct for latching on to hidden public concerns before they are publicly recognized. "People in a complex society like this have a lot of privatized perceptions about what's going on and it requires some sort of catalytic analysis or concept to make them realize that they're not crazy, that it's real."

Having cut her teeth on clean air, Henderson turned her attention to Campaign GM (General Motors)—the automobile companies, after all, being a root cause of the air problem. Campaign GM, a Ralph Nader enterprise, was trying to get some consumer-minded people on the company's board. Henderson took it on herself to try to round up owners of big blocks of stock to side with them at GM's annual meeting. She took some of the Nader lawyers to some of the big insurance companies where "we told them that it was kind of anomalous that they would have their policyholders' money invested in the stock of a company which was producing 35 percent by weight of all America's air pollution at the same time that their emphysema disability payout rates had gone up 70 percent." Gee, they hadn't looked at it that way, but they would think about it. Henderson sees the GM campaign as primarily a consciousness-raising matter, since even with enormous effort they could only round up tiny percentages of the total stock owned.

But it had become clear to her that with almost all the societal problems she was concerned about, "all roads led to the corporation." Auto pollution, for example, was "simply colonialism from Detroit." It was corporate America, and not City Hall, where the money and knowledge and power lay. The natural progression, then, was joining the board of the Council on Economic Priorities, formed in 1970 (*Science*, 5 February 1971) to evaluate how corporations are rising to their new environmental and social responsibilities. As the consumer movement has expanded and diversified, Henderson has gotten involved with more and more groups. She helped set up the National Council for the Public Assessment of Technology and the Public Interest Economics Center, both of which try to match needy citizens' groups with public-interest-approved experts.

In Henderson's view, corporations are

not only central but are symbolic of what's wrong with the way we think about things. When she speaks of the "Cartesian trip" she refers to the constellation of values and structures that have directed "progress" in this century—centralized, hierarchical, huge organizational structures, the commitment to "big-bang, capital-intensive technology," the belief that science and technology are value-free, and overemphasis on linear, objective, reductionist thought—or, dipping into psychology, what she regards as reliance on the brain's left-hemisphere thinking as opposed to the output of the right hemisphere, which is supposed to be the source of spontaneous, intuitive, emotional impulses.

She believes that recognition that all choices are based on values has fallen out of this rigid and highly compartmentalized system, and that the springing up of public interest groups is one of the signs that the system is beginning to crumble because of its increasing inefficiency in meeting peoples' needs and the growing social costs incurred. We are still very new at documenting the social costs of our production, transportation, energy, and other systems, says Henderson. Once an accounting is made of their "disamenities" and "diseconomies"—what economists call "externalities" but which she sees as central to the whole picture—net benefits, if any, become marginal.

Henderson believes that what must happen is a "devolution" of all things big and complex, like cities and corporations. Huge corporations, she believes, are obsolescent, spending more and more on just transacting with themselves. Big institutions are all suffering a 10-year time lag. "Corporations are producing all the things we thought we wanted 10 years ago"; the lag is evident in education, where students are rushing to study economics (which is becoming irrelevant in its present form) and agriculture (high-technology, non-labor-intensive). It also shows in the women's movement. "The battle is won, almost, at the individual level ... but the Cosmos Club just voted again to exclude women!"

Mega corporations, says Henderson, are justifying their antiquated structures on the basis that their continued existence supplies jobs. But when they use their roles as employers to justify themselves, "they paint themselves into a corner ... We can then say: Okay, if we [the taxpayers] have to bail you out so as to produce jobs we have a right to say 'Jobs producing what?' At what social cost?" By artificially keeping them alive, says Henderson, we are choking innovation, preventing the new growth of institutions more fitted to future needs.

Henderson is very keen on debunking the idea that a rising gross national product is necessary to keep down unemployment. On the contrary, she believes that the obverse of high technology and heavy resource depletion is underuse of human resources. "An environmentally benign economy is also a labor-intensive economy." To purvey this message, she has recently helped set up a new organization in Washington called Environmentalists for Full Employment.

Big Is Not Beautiful

Henderson also sees the influence of bigness in the way science policy is made—both government and corporations tend to finance research that goes in the direction of "big-bang capital-intensive technology." She sees the difficulty in getting money for solar energy research as an example: "It is in the interests of all the companies to see solar development as a big technology so it will fit into the production configuration of the utility industry ... a centralized technology so that it will fit into the distribution system." Yet solar energy is best suited as a decentralized thermal technology. The two approaches also illustrate to her the difference between producer-oriented and consumer-oriented technologies. Nuclear power fits into the former category. Henderson would fault a nuclear power plant not only for its potential hazards but because it "dictates" its own social configuration, its centralization makes it vulnerable to sabotage, and it "makes technology more and more inaccessible to the average individual so that he becomes more and more dependent." This kind of technology "concentrates power and wealth and knowledge in fewer and fewer hands at the expense of making the rest of us poorer and more stupid and more powerless." One begins to see why Henderson says, "I fear economic totalitarianism much more than I fear political totalitarianism."

Henderson believes the only way to incorporate awareness of social ramifications into technology assessment is to bring representatives of "impacted" groups into the evaluation process. She sees it as her mission at OTA and in her other advisory positions to open up decision-making processes for some of this common-sense thinking to come through. Boosted to the OTA council through the efforts of a pack of public interest groups, she has succeeded in ensuring that environmentalists, poor people, minorities, and so forth are in on OTA studies from their conception. The OTA has been pretty responsive, she says, much more so than the National Academy of Sciences which is still hung up on the "value-free objectivity of science." Yet "values is the only ballgame in town. We have exhausted the limits of empty techniques," she says.

It is difficult to sum up Hazel Henderson's corpus of thought, because no matter what topic you choose to tap in on—and there is nothing about which she does not have an opinion—you will find it connected to everything else. "I work a great deal out of my right brain hemisphere," she says. It is the mode of thinking that has been labeled "female"; indeed, she says that most of the social change agents she has met have been women.

Her thinking is supplemented by the work of her husband, Carter, who left a job at IBM some years ago to found the Interracial Council for Business Opportunities which supplies counseling for minority businesspersons. The Hendersons, who moved from New York to Princeton 3 years ago, have incorporated themselves as the Princeton Center for Alternative Futures under whose aegis they carry on as they please, he as an international financial consultant and writer, she as "intellectual gadfly." When not traveling they play host to a stream of kindred souls who sit around and talk all night in their large brown-shingled house. They live handsomely but temperately, do all their own household and clerical work, pick up their furniture cheap at auctions, and are planning to put some fruit trees and easily tendable vegetables in the backyard. Bicycles and jets are their primary modes of transportation.

Hazel Henderson attributes much of her enormous productivity to her freedom, both from routine—she likes to intersperse some bread making or upholstery between "head trips" at the typewriter—and from institutional categorization. Someone offered her an honorary M.S. but she declined. "What I would do is pick up a peer group and they would be telling me what to say, wouldn't they? ... society at this point needs a few wild cards." Being a foreigner, she believes (she became a U.S. citizen in 1962), gives her a fresh eye for perceiving the absurd. She likes to "take any discipline that is becoming prideful and poke fun at it." Economists are no longer fair game because the discipline is in shambles, but she has noticed of late that the psychologists need to be deflated a bit, what with their notion of subjecting political leaders to psychological testing.

Although the positive feedback Henderson seems to get from every new thing she tries would be enough to make anyone's ego balloon, she doesn't seem to have anything out of proportion. She does not see herself as a crusader, "just a human being trying to act sensibly," and also having a lot of fun.—CONSTANCE HOLDEN