by staying as far away from criticism as possible; they therefore exert "very little leadership." If dynamic leadership is needed, he said, it will have to come from outside the political system because the system does not reward boldness. Lamm said he himself sometimes needs a crisis to spur him to act.

* * *

Some of the Western governors seem very taken with the ideas propounded by the British economist E. F. Schumacher, author of *Small is Beautiful* and chief theoretician of the "appropriate technology" movement. That movement seeks to focus attention on technologies that are small-scale, decentralized, ecologically sound, labor-intensive, and "appropriate" to the local setting. Schumacher, who is currently on a 6-week barnstorming tour that will take him through 13 states as part of a drive to attract support to appropriate technology groups in this country, stopped off at the AAAS meeting. Montana's Governor Thomas L. Judge complimented Schumacher on a "good job" in presenting his case when he visited his state a few days earlier. Judge said that science, technology, and the university system too often serve the needs of big corporations and big systems; he viewed appropriate technology as a means to protect sparsely populated states such as his own against the depredations of powerful forces that seek to strip away resources to fuel far-off centralized systems. Colorado's Governor Lamm called Schumacher's book "impressive" and urged the media to plug Schumacher's speech that evening at a college in Denver.

The appropriate technology movement conducted a number of events at the AAAS meeting and other points nearby. For the most part, participants were either true believers or interested onlookers. The most jarring negative view was presented by Joseph F. Coates, assistant director of the federal Office of Technology Assessment, who described the movement as an "intellectually empty" haven for disenchanted middle-class youth who are seeking a "playground" for their hobbies and a new "radical chic" cause now that the Vietnam War is over. Small may be beautiful, Coates said, but the various solar houses and compost toilets built by the appropriate technologists and shown so proudly in a slide show here are actually "ugly" and "unattractive." To expect that the American public would prefer them to the products of our large-scale, centralized, technical system "flies in the face of everything we know about people," he said.

* * *

While the scientific sessions held center stage, an array of committees, councils, and boards were conducting the housekeeping business of the association. It soon became apparent that the AAAS has adopted somewhat more modest and realistic goals for itself. In 1969, the AAAS board resolved to expand the association's membership by an order of magnitude within a decade, and just last year the incoming AAAS president was still talking of a threefold increase or more. But membership actually peaked at 133,000 in 1970 and has since declined to 113,000. This time around AAAS officials expressed relief that the decline was a bit less steep in 1976 than in the preceding 2 years. William D. Carey, the executive officer, said that the drop in membership while expenses continue to rise poses "big trouble" for the AAAS. He noted that a major membership recruitment effort has been launched, with the result that the membership is projected to reach 115,000 by the end of 1977.

—PHILIP M. BOFFEY

Brzezinski: Role of Science in Society and Foreign Policy

"If, after the inauguration, you find a Cy Vance as secretary of state and Zbigniew Brzezinski as head of national security, then I would say we failed. And I'd quit. But that's not going to happen. You're going to see new faces, new ideas."

The now notorious remark made in an interview given to *Playboy* before last year's election has come back frequently to haunt its perpetrator, Carter's all-but chief of staff, Hamilton Jordan. Both Vance and Brzezinski have attained the offices in question. Jordan's remark, made during the populist phase of Carter's campaign, was probably aimed not at Vance and Brzezinski in person so much as at what is known as the foreign policy establishment, the coterie of East Coast lawyers and bankers whose base of operations is the Council on Foreign Relations. Jordan was right in epitomizing Vance as a member of this establishment but not quite so accurate with Brzezinski who, if not a new face, may still prove a source of new ideas.

Brzezinski has in fact been a sharp critic of the foreign policy establishment, even to the point of writing its obituary. The "WASP-eastern seaboard-Ivy League-Wall Street foreign affairs elite," wrote the white-Polish-born-Catholic-Canadian raised, Columbia University professor in his characteristically hyphenated style, ". . . enjoyed the institutional backing of the internationally-oriented eastern business-banking community, with which it was in a rather symbiotic relationship, and it was also tied—often by close personal links—to the Protestant tradition and church. . . . The Vietnam war was the Waterloo of the WASP elite. But like Waterloo, a period of decay preceded the final battle."

The period of decay, as Brzezinski tells it was brought on "by the unprecedented plunge of American society beyond the industrial age into a new postindustrial technetronic era, for which there was no prior philosophical or cultural preparation." The reign of the WASP's gave way to the Kissinger interregnum, but "the secretive style and manipulative character of Kissinger's stewardship had the effect of accelerating congressional entry into direct foreign policy making." In these words, written in an article that appeared in *Foreign Affairs* last November, Brzezinski summed up the history of the world of foreign policy-making prior to his fast impending advent.

From Brzezinski's writings and academic career it is hard to divine the future course of his influence on foreign policy, which will doubtless be far less dominant than that exerted by Kissinger. Born in Warsaw, Brzezinski spent most of his early life in Montreal, where his father was the Polish consul general. Graduating from McGill, Brzezinski specialized in Russian studies at Harvard,

where he gained his Ph.D. but not tenure. Professor of government and public law at Columbia University since 1962, Brzezinski conceived and became first director of the Trilateral Commission, a group that had banker David Rockefeller as patron and included Carter, Vance, and Treasury Secretary Michael Blumenthal as members.

The Trilateral Commission grew out of opposition to the bilateral relationship with the Soviet Union on which the Nixon-Kissinger policy was based. Trilateralism stressed relations with allies, not with adversaries, the trilaterality being the interrelationships of the United States, Europe, and Japan. The Nixon-Kissinger foreign policy received rock-bottom grades for its treatment of Japan in a puckish report card drawn up by Professor Brzezinski in 1974, and an equally low mark for its indifference to the less developed countries. Brzezinski called for a new political framework between advanced nations, for giving the oil producing countries a creative stake in the new system, and for not leaving the LDC's out in the cold. Precise details of the new global architecture were not vouchsafed.

Most of Brzezinski's specialist writings deal with Soviet bloc affairs. Perhaps his most ambitious book is *Between Two Ages* (1970), in which he describes America's role in the world during its alleged transition from the industrial to the "technetronic" era. Whatever the merits of the thesis, the book reveals a constantly reiterated belief that science and technology have a central and positive role to play both in shaping American society and in making that society an attractive and influential model for the rest of the world.

"Technetronic" derives from technology and electronics and, as Brzezinski more or less admits, defines little more than the "postindustrial" society described by Daniel Bell—the shift from a manufacturing to a service economy, the rise of a technical-managerial elite, the centrality of theoretical knowledge as a source of innovation and policy formulation. To these criteria Brzezinski adds that of the pervasive cultural influence of television, and coins the term "technetronic" to replace Bell's "post-industrial." The concept is perhaps not particularly illuminating; at any rate the word has not stuck.

Of more enduring interest is Brzezinski's belief that "the impact of science and technology on man and his society, especially in the more advanced countries of the world, is becoming the major source of contemporary change." The premise has lead some to adopt an anti-science stance; Brzezinski, by contrast, believes that scientific exploration "has become the functional equivalent of America's frontier tradition." Those who protest against the dehumanizing aspects of science he derides for their "Dadaist style and . . . Luddite-inspired historical posture." Technology plus wealth will enable the United States to give its people more liberty and more equality. Indeed, "the propensity for scientific innovation cannot be restrained. . . . Americans, instead of trying to flee the problems of science, are attempting to balance their fascination with science and their reliance on it as a tool for dealing with human problems by a more intense concern for the personal qualities of life. . . ."

Brzezinski, like Kissinger, sees an important role for science and technology in foreign policy, but for somewhat different reasons. In Brzezinski's view, America "remains the globally creative and innovative society. It impacts on the life-styles, mores, and aspirations of other societies to a degree not matched today by any other system. . . . Contemporary America is the world's social laboratory."

Though he stops short of saying that America has a civilizing mission, Brzezinski observes nevertheless that the United States "is the principal global disseminator of the technetronic revolution." In terms of foreign policy, this means that America and Europe are a constant magnet for Eastern Europe, which recognizes that it cannot get new science and technology from its Soviet patron. In *Between Two Ages* Brzezinski sees science and technology as a force promoting a community of nations: "Under the pressures of economics, science and technology, mankind is moving steadily toward large-scale cooperation." The United States cannot shape the world single-handedly, but "by jointly attempting to make deliberate use of the potential offered by science and technology" it could help build a more cooperative structure among nations.

This thought applies particularly to the question of détente with the Soviet Union. Brzezinski suggested that technological assistance and other common projects with the Soviet Union "could help stimulate a sense of common purpose and the growth of a rudimentary institutional framework." That was written in 1970; by 1974 Brzezinski had reached a more pessimistic conclusion about using science and technology as a sweetener for détente. Access to U.S. credits and technology, he wrote in an

Point of View

Carter on Agricultural Research

President Carter has been going the rounds of the major government departments for question-and-answer sessions with their employees. During his session at the Department of Agriculture on 16 February he was asked whether agricultural research can be strengthened in its competition for funds with other kinds of research. Carter replied:

The answer is certainly yes. This is one of the questions that came up quite often when I was campaigning for President among agricultural groups. I have seen in my own farm life the tremendous benefits that were derived from very small expenditures of funds in basic research.

When I was first home from the Navy, back in the early fifties, the average production of peanuts, for instance, was about 800 to 1000 pounds per acre. Now the average in our state is 2500 pounds to 3000 pounds per acre. It is almost directly attributable to basic research that discovered that the more you plow peanuts, the lower the production is. So, when we quit cultivating our crops, we not only saved a tremendous amount of energy and expense but we also derived tremendous financial benefit, and so did the rest of the world in getting cheaper food.

Well, I know you are experimenting, for instance, with minimum tillage for the production of our crops. And this is the kind of thing that can be done. I am in the process of choosing a scientific adviser for the President. The first six nominations I got were all physicists. I turned them all down. I am going to choose an earth scientist as my number one scientific adviser. That will be another insurance to my own interest that agricultural research will not be ignored in the future.

article in *Foreign Affairs*, "significantly increases Soviet bargaining power with West European and Japanese business and banking circles, and hence it provides an extra dividend. . . . The modernization and rationalization of the Soviet economy will be undertaken with de facto U.S. aid, thus reducing domestic pressures in the Soviet Union for needed reforms—which reforms eventually would have also had a political impact. Thus we are not only helping the Soviet economy but we are also buttressing the Soviet political system." As to the purely scientific exchanges, Brzezinski "suspects that Soviet access to American science is already much wider than the American to Soviet science."

The implication of these remarks is that too much is being given away by the United States; whether Brzezinski as national security adviser will recommend a restriction in the flow of science and technology to the Soviet Union remains to be seen. Another indication of a hardening attitude toward the Soviet Union is suggested by Brzezinski's remarks about arms control, a subject in which in his writings he shows relatively little interest. In *Between Two Ages* he states that nuclear parity with the Soviet Union is acceptable because "American technological sophistication is sufficient to provide the necessary degree of ambiguity to the qualitative and quantitative power relationship between the two states."

But by 1974 he is criticizing the SALT I agreement for having conceded numerical superiority to the Russians "on the spurious argument of U.S. technological superiority," a remark which seems to contradict his earlier statement. Once the Russians have erased their technological inferiority, Brzezinski goes on to say, the only possible incentive for them to accept real parity "will be a massive and very costly U.S. arms program."

Brzezinski's views of the value of American science and technology will probably lead him to follow Kissinger's policy of using technical assistance as a major implement of foreign policy (*Science*, 17 May 1974). But he could conceivably favor a break with the Kissinger policy of including science and technology in the détente package, just as he and Carter have abandoned the policy of making no comment on Soviet abuses of human rights. Brzezinski's views on the importance of science in social change and international relations, combined with Carter's background as a nuclear engineer, indicate that the new Administration will at least be predisposed to accord close attention to science and technology in its conduct of foreign policy.—NICHOLAS WADE

Briefing

Hopes for the Airbag on the Rise

Brock Adams, the new Secretary of Transportation, has given evidence in both word and deed that the department may throw out the cautious compromise on the airbag question that was worked out by Adams' predecessor, William T. Coleman, Jr.

Coleman in December ruled out mandatory installation of the safety devices in automobiles. He later approved a 2-year demonstration program involving half a million automobiles. He explained that, although airbags were effective in preventing injuries in car crashes, he didn't think the public was yet prepared to invest in the new technology.

But Adams said in a February appearance on "Meet the Press" that he intended to reexamine the Coleman decision, which he found hard to "rationalize." He observed that we will have to be building smaller, lighter cars in the future, and they will not be very safe without built-in safety measures.

Adams has since selected an ardent airbag advocate, Joan Claybrook, to be head of the National Highway Traffic Safety Administration. Claybrook, a lawyer who logged 4 years at the Transportation Department in the 1960's as assistant to former auto safety director William Haddon, has been associated with the Ralph Nader organization since 1970. For the past several years she has lobbied for environmental and consumer legislation as the head of the Nader group, Congress Watch. The *Wall Street Journal* billed the appointment (assuming it is confirmed by the Senate) as Nader's "first major victory" in the Carter Administration. It could also very likely portend a major victory for the mandatory airbag.

—C.H.

Science Advisers Helped Avert Use of "Nukes" in Vietnam

The value of the White House science adviser may sometimes be debated, but one deed of indisputable merit is too little known. In February 1968, two former science advisers to President Eisenhower, George Kistiakowsky and J. R. Killian, helped avert a possible threat to use tactical nuclear weapons in Vietnam.

The occasion was the heavy siege by a North Vietnamese force of American troops at Khesanh. Amid rising concern for their safety, General William Westmoreland was quoted in the *New York Times* as saying that, if the situation got really tough, tactical nuclear weapons would be used to extricate the Marines.

Fearing that this was a trial balloon by the military, Kistiakowsky got Killian and physicist I. I. Rabi, both good friends of Eisenhower, to join him in sending a telegram to Eisenhower urging him to intervene.

Kistiakowsky, who first referred to the incident in an article in the *Bulletin of the Atomic Scientists* last March, told *Science* he sent the telegram "because I knew from my own experience in the 1960's that Eisenhower was extremely emotionally involved against using nuclear weapons on the continent of Asia.

"We sent the telegram to Eisenhower who, not surprisingly, was playing golf at Palm Springs. It was incredible luck for us that Johnson was visiting Eisenhower a few days after our telegram.

"Apparently Ike lectured Johnson, because within 24 hours I and Rabi and Killian had a personal telephone call from [Secretary of Defense] McNamara, who said, 'I have been personally instructed by the President to assure you that there are no plans to use nuclear weapons.' We later had a letter from Eisenhower thanking us for the telegram."

Asked if the idea of using tactical "nukes" was nevertheless in the air, Kistiakowsky said, "I think it is solid enough that there were no contingency plans approved by the President. That the military brass had such plans there is not the slightest doubt."

What might have been the outcome if the telegram had not been sent? "Oh, I think probably nothing would have happened because the siege was relieved by B-52 area bombing," Kistiakowsky remarks. But even if the chances of a resort to nuclear arms were small, it was the small chance of a large disaster that the cable from the two science advisers and Rabi helped to avert.—N.W.