whose members had names like Tommy Tomato and Sugar Sweet, danced for good dietary habits. In one skit they sang to the tune of Love and Marriage:

Eggs and cholesterol,
Bacon and cholesterol,
Even butter on toast
Has cholesterol,
And all together, say,
You should have 'em once a week
Or maybe twice,
But not every day.

The kid's cholesterol song, the no-cancer diet, and the *Eater's Almanac* show that the NIH position is far from inflexible, but whether they are conscious concessions to political pressure or just chance occurrences is not clear. Doubts about the diet-disease link have not gone away, and NIH officials, bolstered by the findings of the American Society for Clinical Nutrition, have so far stalled or taken a hard line on the HEW-USDA dietary guidelines. Will it last? If the NIH stance of 2 years ago were in effect today, there would be no doubt. At that time, Fredrickson addressed a hearing on nutrition education held by the House Committee on Domestic Marketing, Consumer Relations, and Nutrition. "I have been concerned about this question as director of the NIH and the Heart Institute and as a scientist in the field for 25 years," he said. "I feel that the problem we still have is that we can't bring you proof that changing the diet for the average American will lengthen his life or reduce his likelihood of having a coronary." One doesn't often hear that type of statement today. In fact, Fredrickson recently told *Science* that he's had second thoughts on the subject. "We've more or less become adjusted to the fact that we probably will never be able to get the ideal proof that we want. . . . The weight of the evidence seems to be strong enough so that we can now direct people toward a kind of set of guidelines." Two years have brought ever-increasing pressure from Congress, from USDA, from consumer advocates. NIH is on the defensive, and it remains to be seen just how far the bottom line will drop.—WILLIAM J. BROAD

Jessica Mathews, NSC Aide for Global Issues

Young biochemist quits White House for local paper

The National Security Council is about to lose its only biochemist in the departure of Jessica Tuchman Mathews. Mathews ran the global issues office, handling such topics as human rights, arms sales, and nuclear nonproliferation.

Though close to the center of power, Mathews saw Jimmy Carter hardly at all. "I know how the President thinks because of his comments on my memos," she says. "Over time you develop a very clear picture of where his concerns are." But, unlike former speechwriter James Fallows, she knows little of Carter's personality: "It is hard to say what kind of a person he is when I don't know him."

Mathews joined Brzezinski's staff in January 1977. The daughter of historian Barbara Tuchman, she did biochemistry research at Caltech and MIT. A Congressional Science fellowship from the AAAS made possible a transition from science to politics. Mathews worked for Congressman Morris Udall, first on energy matters and later as director of issues and research for Udall's presidential campaign, a job which brought her into contact with the foreign policy community.

Mathews was only 31 when she started work in the White House, or rather in the Old Executive Office Building next door. Brzezinski's idea in creating the global issues office was to find a resting place for all issues that could not be solved on a regional basis. With one colleague, Leslie Denend, Mathews found herself in charge of preparing national policy on nuclear nonproliferation, chemical, biological, and radiological warfare, human rights, international environment, international organizations, and Africa. "I was working 80 hours a week at first, staying until 11 or midnight every night," she says.

Even after some issues had been shed, the workload was still heavy. "You get a full in-tray every day and 6 inches of cables. You don't ever have time to learn an issue in depth," she notes. Also Brzezinski is not an easy person to work for. According to Mathews, "He is tough, he has very high standards, and he demands a lot in the way of performance. He will call you at any time and want a certain kind of product done by the next morning. He thinks it is a great honor to work on the NSC staff and that people should take what goes with it."

Mathews' dealings with the President were always through Brzezinski. To an outsider, the lack of more frequent direct contact might seem surprising in that the three main issues she dealt with—human rights, nuclear nonproliferation, and arms sales—are among the most distinctive initiatives of the Carter Administration.

In adopting human rights as an issue, Mathews feels, Carter "lit a match to a fire that was already laid." There was a lot of stored-up interest in the subject both at home and abroad. Memos about human rights, some written several years previously, flooded into Mathews' office from the State Department. "It was like lifting the cap off a hot coke bottle."

Implementing the policy was harder than framing it. One problem was that Congress, in a spell of enthusiasm for human rights, devised what seemed to the White House to be inappropriate enforcing amendments to various aid bills. "It puzzled me that although the intention of the Administration was unmistakably clear, the Congress continued to have the feeling that if they didn't keep pushing, the Administration's commitment to human rights would evaporate," Mathews comments.

She denies that the human rights policy may pose a destabilizing threat to the leaders of the Soviet Union: the aim of the policy is not to change governments but to "make them provide the maximum of human freedom in their existing system." The protests by American scientists in support of their colleagues in the Soviet Union has been particularly effective, Mathews believes. "The Soviets care deeply about scientific exchanges with the United States, so when they are curtailed by the American scientific community, that has an enormous effect, particularly because it is something that government can't turn on and off. The action by scientists here has been enormously important."

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On the issue of nuclear nonproliferation, Mathews feels that a great deal of progress has been made. The Nuclear Non-Proliferation Act of 1978 was the result of a year's hard work with Congress, and passed both houses with large majorities. The act set out a rational framework in which the nuclear power industry could make exports in a way that would reduce the risk of other nations using nuclear power facilities and materials as a means for obtaining nuclear weapons.

Perhaps the least tractable issue Mathews handled was that of foreign military sales. Carter announced in May 1977 that the United States accounted for more than half of the world's $20-billion-a-year arms sales, and that in 1978 it would account for less. In 1978 American arms merchants enjoyed a better year than ever, and an atmosphere of widespread skepticism has enveloped the Administration's policy on arms restraint ever since. Members of NATO and other allied countries are excluded from the policy and have generally increased their purchases. Mathews claims that sales to those regions of the world where rising arms inventories posed a particular danger have in fact decreased by a target 8 percent in each of the last 2 years. The Administration's claims of success have been derided in some quarters as creative bookkeeping: to keep within the 8 percent ceiling, the cost of some arms sales has been attributed to future years. "There has been some criticism of phony accounting. It may look phony but it isn't," says Mathews.

Mathews puts her heart into the causes she has been working for. She describes as "really an outrage" the difficulty the White House is meeting in getting Congress to kill the Clinch River breeder reactor, foresworn by Carter in 1977 as part of his nonproliferation initiative. Another frustration has been trying to have the Senate ratify the treaty against genocide: "It will be 30 years this month that it was first sent to the Senate. The failure to ratify is a real blot on the United States."

Mathews says she is leaving the National Security Council because she wants to get into resource management and materials policy: "I think these are really key issues. Another reason is that I really wanted to deal with issues in depth. My personal view is that no one in government contemplates—it just isn't possible. The time to do contemplative thinking is outside government."

She is joining the editorial board of the *Washington Post* to write about science and resource issues.

Mathews is one of at least seven National Security Council aides who have recently decided to leave. Among the reasons suggested for the exodus are the exhausting pace of work and "mid-term blues"—the realization that at this point in the Administration's life the possibility for new initiatives is sharply diminished.—NICHOLAS WADE

Uncontrolled SO_2 Emissions Bring Acid Rain

EPA announces scrubber requirements for new power plants but little is done to stop pollution from old plants

Air pollution has posed a troublesome issue for Congress, the U.S. Environmental Protection Agency (EPA), and the states because solutions worked out by traditional political and economic trade-offs and compromises can easily turn out not to make sense environmentally. The way Congress and EPA have moved to bring about sharp reductions in sulfur dioxide emissions from new coal-fired power plants without also moving effectively to control such emissions from existing plants is a case in point.

On 25 May, EPA Administrator Douglas M. Costle, in one of his most important actions to date, announced final federal standards to reduce SO_2 emissions from new plants to half what would have been allowed under the preexisting standards. Although not as stringent as what the environmental groups had wanted, these "new source performance standards" (NSPS) go far beyond what electric utilities and the National Coal Association have said is acceptable. They represent a major environmental safeguard with respect to the some 350 coal-burning plants expected to be built between now and 1995. Utilities will have to invest several billions of dollars in scrubbers and remove from 70 to 90 percent of the SO_2 from stack gases, with the degree of control to depend upon whether low- or high-sulfur coal is burned.

However, in announcing the NSPS (which set tighter limits for particulates and nitrogen dioxide as well as SO_2), Costle acknowledged that total annual sulfur emissions from power plants will increase by nearly 2 million tons over the next decade and a half. In part this will be due to the threefold increase in the burning of coal expected during this period as new plants come on line. But, principally, it will be due to the fact that the emission standards for the coal-fired plants already in existence today are lax to the point that for many of them SO_2 emissions go entirely uncontrolled.

In 1975 sulfur emissions from fossil-fuel plants totaled some 18.6 million tons. Without the NSPS, total annual SO_2 emissions would be expected to rise to 23.8 million tons by 1995; even with the NSPS, according to EPA modeling studies, these emissions will increase to 20.5 million tons, with about 75 percent of the total attributable to old plants not covered by the new standards.

Sulfur dioxide and the fine sulfate mist into which SO_2 is readily transformed are the principal precursors of acid rain, which is believed to have destroyed fish life in hundreds of lakes in the Adirondack Mountains of upstate New York and now to threaten fish life in thousands of lakes in Canada. Another worry is that acid rain, a phenomenon widely noted as early as the Stockholm environmental conference of 1972, may reduce forest yields and poison soils.

The acid rain problem, together with that of the loss of visibility from the hazy air that now hangs over much of the eastern half of the United States, comes largely from the transport of SO_2 and sulfates over distances of hundreds of miles, from one region to another. Viewed in these terms, individual stack plumes with sulfur concentrations considered too dilute to represent a direct public health or environmental threat lo-

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