Jump in Funding Feeds Research on Nutrition

But the dollars also fuel a departmental turf war that threatens to sap the field of its newfound nourishment

An increasingly loud clamor on Capitol Hill has kicked some new life into an old area of research. Its name is human nutrition, and in the past 2 years it has become a hot political topic. Congress, appalled by the rising cost of health care, has suddenly seen prevention as a new panacea. It now wants scientists to explore the link between diet and such chronic diseases as diabetes, hypertension, heart disease, and cancer. The upshot has been a host of new programs, a swell in the ranks of bureaucrats, and a jump in the federal dollars dished out for research on human nutrition. In 1977, according to the Office of Management and Budget, research into human nutrition was fed some $50 million by the entire U.S. government. In 1979, the National Institutes of Health (NIH) and the U.S. Department of Agriculture (USDA) alone claim they are going to spend more than $170 million.

It is no small sum to bestow upon an area of science that in the recent past was not considered very nourishing—and, indeed, not everyone is happy about it. Some criticize the increases, saying the diet-disease link is at best simpleminded and in some cases incorrect. Others fear that another War On Cancer is in the works—that the payoff from increases in nutrition research will fall short of what the dollars promise.

And as if doubts about the results of research were not enough, the past 2 years have seen a sharp rift open up in the federal bureaucracy over the ground rules for nutrition research—it amounts to a turf war. The Department of Health, Education, and Welfare (HEW) as a whole and NIH in particular have long considered research into the role of diet in the prevention of disease as part of their purview (though they have done little about it). Then, almost 2 years ago, Congress named USDA "lead agency" in the area. Now, HEW and USDA each claim to be, in one sense or another, big boy on the block. Each has programs that are growing. Some say the competition is healthy and will result in better research. Others call it a waste, saying a needless duplication of effort will ensue. To top things off, the turf war has brought a new high to the art of bureaucratic bickering, with mud being flung from both sides of the fence. This petty squabble may be the biggest waste of all. The fighting began back in 1977, and the story of its origin elucidates the politics of an evolving area of research.

This is the first of a two-part series on the politics of nutrition.

It was a hot afternoon in August, and the small conference room atop Capitol Hill was packed with people. In the last-minute rush before summer recess, members of the Senate and House committees on agriculture and their staffs—in all some 70 people—were pounding out the farm bill of 1977. The bill was unusual. It spoke not only of rice, wheat, peanuts, and price supports but also of disease. "Congress," it read, "hereby finds that there is increasing evidence of a relationship between diet and many of the leading causes of death in the United States; that improved nutrition is an integral component of preventive health care; that there is a serious need for research on the chronic effects of diet on degenerative diseases and related disorders. . . ." Much of the language had come from *Dietary Goals for the United States*, a controversial document that had been published that February by the Senate Select Committee on Nutrition, chaired by Senator George McGovern (D-S.D.). It claimed that an "epidemic of killer diseases" such as stroke, obesity, heart disease, diabetes, and cancer were linked to changes during the past 50 years in the eating habits of Americans. It called for a more "natural" American diet and for more research into the role of diet in the prevention of disease—an area that HEW had long overlooked.

To fill the gap, the farm bill named USDA "lead agency" in this area. HEW, however, was not about to give up turf without a fight. The White House came to its aid that summer and made a few discreet phone calls, telling all departments to maintain the status quo. There was even a letter of agreement, signed in July by HEW Secretary Califano and USDA Secretary Bergland, saying, in effect, that HEW should keep the whole show. Weeks of lobbying were now past, however, and the action focused on the conference room. "There were pieces of paper being floated by various interest groups," recalls one Senate aid, "and Califano's people were there, pushing for their side." Under considerable pressure, people from USDA who were fighting for a lead role were having second thoughts, starting to give in. Amid the shuffle sat Hubert Humphrey, wasted by cancer, with only 5 months to live. His voice cracked through the conference room. "Look," he said, pounding his fist on the table, "HEW has avoided the area of prevention like the plague, and it's about time that USDA moves in. It's going to take this aspect of the nutrition program whether it wants to or not." The room fell silent, the issue settled.

Today the political implications of USDA being "lead agency" are still far from clear. (The farm bill's language was vague, and it overlapped other legislation.) One thing, however, is certain. Since the passage of the bill, there has been a surge in the dollars spent on human nutrition by both HEW and USDA. HEW now spends far more than USDA, but USDA is catching up—and its growth seems likely to continue. USDA has latched onto the preventive ethic of *Dietary Goals*, which Congress seems to love. (This is also an interesting about-face for USDA—from producer to consumer interests.) The litany of the *Goals* is to eat less meat, less fat, less cholesterol, fewer eggs, less sugar, less salt, and to eat more fruits, vegetables, unsaturated fats, and cereal products—especially whole-grain cereals. The hope is to sidestep the "epidemic of killer diseases." NIH, with its traditional emphasis on the biochemistry of disease, is at a distinct disadvantage in the battle for new funds. Cortez F. Enloe, editor of *Nutrition Today*, recently put it this way: "*Dietary Goals* gave the people at USDA something to hang their hat on. So now they've become the barefoot boys of nutrition. The minute USDA took up this position, they had the race against HEW hands down. Why? Because now they're activists. They're new age, neo-naturalists and they have an issue. On the level of popular ideology, HEW just can't compete."

It may not beat to the popular pulse, but HEW is nonetheless sinking new dol-

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lars into nutrition research. In 1977, NIH claimed it spent $80.4 million on human nutrition research. In 1979, it plans to spend $130 million. Increases are said to be siphoned from programs that are on the wane.

Critics at USDA, however, claim it's all a ruse—that there are no real increases and that there was never much spent in the first place. They say that basic research unrelated to the health-diet connection is flourishing at NIH under the flag of human nutrition research. They point out, for instance, that in 1977—the year NIH claimed it spent $80.4 million on human nutrition research—the nutrition study section handed out only $3.3 million in grants. People at NIH take this attack in stride. "The difference in outlay," says Artemis Simopoulos, chairman of the NIH nutrition coordinating committee, "comes because organ- or disease-specific nutrition research and nutrition contracts are handled outside the nutrition study section." For the most part, this seems to be the case. Yet USDA, in a search of these outside grants, came up with some unusual "human nutrition" titles. USDA staffers pointed to "Catalytic functions and metabolism of vitamin B6 in bacteria and fungi," "Nutritional imbalance and metabolic alterations in fungi," and "Heptoma incidence in trout on dietary aflatoxin and PCB," and argued that these were not "human" research topics.

The problem is perennial. Just what research can be applied to *human* nutrition is a hotly debated subject and one that haunts the turf battle. It is also a favorite subject in Congress. At a hearing held in June 1978, Senator McGovern asked Arthur C. Upton, director of the National Cancer Institute, to explain why NCI had three different estimates of its support for nutrition research in 1977. "The problem," Upton explained, "is basically one of definitions. Nutrition is a thread woven into the fabric of studies throughout the institute, and depending upon whether one chooses to include studies that have a nutritional component as part of the nutrition effort, or whether one wants to include only those studies which are predominantly nutrition related—over 50 percent of the effort being nutrition related—one gets differences in totals." That same day, after being raked over the coals by McGovern, NIH Director Donald S. Fredrickson conceded that, by a strict definition, his agency devoted only around $20 million in 1977 to human nutrition research—down some $60 million from the "broad" definition.

Less ambiguity haunts the dollar figures at USDA, for there is little doubt that most of their research applies to humans. Take, for example, grants entitled "The effect of TV commercials on the eating habits of children," "The potential digestibility and nutritive value of dietary fiber," or "Studies of preschool children's food preference development."

In 1979 USDA claims that some $40 million will be used for research, with $20.3 million of this going to its new human nutrition center, headed by Harvard biologist Mark Hegsted. Forty million dollars is twice the 1977 figure, and speculation abounds about how the department, with a shrinking budget, gets the money. According to insiders, USDA is shuffling money from programs where there is sure to be a grass-roots outcry (from funds to land-grant colleges and from research into postharvest technology) and using it to build a nutrition empire, knowing that Congress, in responding to political pressures from the slighted, is likely to refund all programs.

It is ironic, but while HEW and USDA struggle to build their programs, there are those who say the mad scramble is a mistake. These skeptics, such as Alfred Harper, chairman of the food and nutrition board of the National Academy of Sciences, claim that the diet-disease link, which got the whole ball rolling, is in some cases overstated. They say, for instance, that many of the "killer diseases" are not the result of changing diets but of changes in the age of the U.S. population. In 1900, 4 percent of the population was over 65 years of age. By 1975 the proportion had increased to 10 percent. It is not surprising, say the skeptics, that the incidence of chronic and degenerative diseases should increase and that heart disease and cancer should be major causes of death. "When death rates from heart disease and stroke are adjusted for age," says Harper, "it becomes evident that the rates of occurrence of these diseases have been decreasing, rather than increasing. The death rate from cardiovascular diseases has decreased by 30 percent since 1950 according to the Senate committee's own report. . . . A far stronger case can be made for concluding that the changes in our food supply during this century have been associated with improved rather than deteriorating health." Few in government say they agree.

The flow of federal dollars into nutrition will undoubtedly lure new researchers into the field (one that is considered by many to be far from glamorous). But there are questions about where these researchers will come from and how good they will be. According to the chairman of one university's department of nutrition, who asked not to be named, the rush for federal bucks may not be for the best. He compared it to an earlier phase of nutritional frenzy. "Look what happened at the National Heart Institute in the 1950's," he says. "They had quite a bit of money, and there were people who came in with ideas about diet and heart disease and almost anyone could get funded. I know. I was on a study section at the time. Grants that were not really approved by their priority score but weren't quite bad enough to be cut off were funded. I would hate to see that happen again." Indeed, it seems there is already some evidence that a nutrition project is easier to fund than many others. At NIH, for instance, the nutrition study section in 1978 had an award rate (the number of projects funded divided by the number found eligible) of 50 percent. The rate was 43 percent in the genetics study section, 38 percent in reproductive biology, and 36 percent in endocrinology.

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Individuals who staff the nutrition programs express no doubts about the availability of researchers. Their only cry is for more money. "Look at the cost of one tank or one antiballistic missile," says Jack Iacono, deputy director of USDA's human nutrition center. "Then look at how much money has been put into nutrition. It's a pittance. And you say we're going to throw away money like the war on cancer did. That's ridiculous. We could sink about $200 million in 5 years into this human nutrition program and not saturate it." Congress has not yet produced anywhere near this amount—but it may. Senator McGovern, at hearings he held in February 1978, expressed it this way. "I think there is a wide opportunity for the De-

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government to work on policy issues.

Daniel Tosteson, dean of the Harvard Medical School, said that Hamburg will have "multiple roles" at the university, holding professorships at the medical school, the Kennedy School of Government, and the School of Public Health. Hamburg's office will be independent, fitting into the organizational structure directly beneath the office of the president. It will not have a teaching staff or confer degrees, Tosteson said, but will serve "as a pan-university, intrafaculty center" for research on health policy.

Washington Breeds Candidates (for MIT)

Another sea change that looms ahead is the retirement of Jerome Wiesner, president of the Massachusetts Institute of Technology (MIT). He will leave office in June of 1980, and a search committee has been looking for his replacement since last December. Chatter about Wiesner's successor can be heard as far away as Washington, D.C.

One authoritative caller told *Science* last week that the job would be offered to Frank Press, the President's science adviser, a good friend of Wiesner's and a former chairman of MIT's department of earth sciences. A second, equally authoritative source said that, beyond a shadow of a doubt, the final candidate was John Deutch, the former chairman of MIT's chemistry department who now serves the Department of Energy (DOE) as director of research, acting assistant secretary for energy technology, and putative undersecretary of the department. The newspapers have been saying for 2 weeks that Deutch is about to be nominated undersecretary of DOE to replace the departing Dale Myers. No such appointment has been made, however.

No decision has been made at MIT either, according to Carl Mueller, chairman of the search committee and vice chairman of the Bankers Trust Company. Mueller said, "The gospel truth is that the job has not been offered to anybody. We truly have not gotten to that point yet." He said it was unlikely that any decision would be made before fall.

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partment of Agriculture to do what the Congress intended, and that is really to lead out in this field of nutritional research. I think there are a number of areas where the Department really needs to put on the gloves with the Budget Bureau and go to battle, go to the battlefront on these things that the Congress has indicated it would like to see happen." That same day, McGovern talked of Congress appropriating $21 million for a USDA nutrition center at Tufts University in Boston.

Big money has in some ways brought HEW and USDA into open conflict. But on another level, they don't speak. Tom Grumbly, an associate administrator with USDA, calls it a class issue. "To be harsh about it, NIH looks down on USDA in the same way that the big scientific institutions of this country look down upon the land-grant system. HEW and USDA may be just down the street from each other, but they are worlds apart when it comes to the kind of people who populate them and the values they bring to their jobs." Another observer calls it a standoff between dietitians and doctors. Aloof as they seem, the administrators at HEW nevertheless stoop to play the turf game at times. One sign of this is an amendment that was quietly slipped into the Public Health Service Act and enacted into law on 9 November 1978. It makes clear, lest there was any doubt, that HEW now has a special mandate to do human nutrition studies "with particular emphasis on the role of nutrition in the prevention and treatment of disease and on the maintenance and promotion of health."

Now that both HEW and USDA are in the game for keeps, some say that nutrition research should be more coordinated. They claim that the agencies are going to needlessly duplicate each other's research and in the process burn up millions of tax dollars. USDA, for instance, has just started a program on infant nutrition at the Baylor College of Medicine in Houston that overlaps some of the programs at the National Institute of Child Health and Human Development. Or take nutrition in the aged. The National Institute on Aging (NIA) has a 1979 nutrition research budget of $3.1 million. But USDA is coming up fast. It now has received $21 million from Congress to build a center at Tufts University in Boston that will study the nutritional needs of the elderly. Its operating budget for 1980 is $2 million.

In selling the idea to Congress, supporters of the Tuft's center cited the potential differences between the way that NIH does research and the way the new center would. At a Senate hearing in early 1978, for instance, Jean Mayer, nutritionist and president of Tufts, hit NIA's system of competitive grants, saying they do not lend themselves to "a continuous mission, such as a study of successful aging." He also claimed that this system discouraged young investigators, and that "it is difficult to assemble multidisciplinary teams in universities through this type of funding." Instead, using persuasion by association, he called for a mission-oriented program at Tufts, modeled on the Jet Propulsion Laboratory and the Argonne Laboratory. Congress was impressed. Soon it approved the requested $21 million for construction. Yet the picture Mayer painted was not complete. USDA policy-makers are in fact moving away from mission-oriented nutrition research, except, it seems, when they see an easy opportunity to pick up turf. They have now set up a $5 million competitive grants program for human nutrition projects, not unlike the grant system at NIH. Mayer also neglected to mention that NIA—and before NIA was founded, other institutes at NIH—runs a large clinical unit in Baltimore, where nutrition has been studied in more than 1000 persons for more than 20 years.

Repeating the same research is, to some, anything but a waste. "Critics feed on this dead horse about duplication of effort, forgetting in the first place that there isn't a scientific fact that has been established unless it has been duplicated by somebody independent of the original observer," says Richard Greulich, scientific director of NIA. "The abysmal ignorance we have of the nutritional needs of the elderly is of such a magnitude that, in my opinion, the more people who work on it the merrier—regardless of what bureaucratic unit they come from in the federal establishment."

That establishment, however, has an attraction for the issue of human nutrition that borders on obsession. The upshot is ludicrous. At last count, there were 14 congressional committees and 20 subcommittees looking into national nutritional needs—each group with a slightly different axe to grind. In 1977 alone, according to a recent article in the *Journal of the American Medical Association*, nearly half of the bills brought to the attention of Congress were related to food and nutrition. There are now 14 agencies under seven different departments involved in human nutrition research. Not unexpectedly, the thrust of several reports published last year—including ones by the Office of Science and

Technology Policy, the General Accounting Office, and the Office of Technology Assessment—was that things on the nutrition research scene, especially in light of the new programs getting under way at USDA, were at best fragmented, at worst chaotic. Each report recommended some type of government-wide coordination, if not consolidation, of human nutrition research. That has not yet come to pass. Yet a start was made at NIH in June 1975 when the nutrition coordinating committee was set up to strengthen cooperation between the 11 institutes. At first the committee packed little punch. But since May 1977 it has reported directly to the director of NIH, Donald Fredrickson. In September 1978, USDA set up the new position of nutrition coordinator. In this job, Audrey Cross, a lawyer and nutrition consultant, coordinates human nutrition activities within USDA. There is now also legislation on the books that demands more cooperation between departments, especially between the USDA centers at Tufts and Baylor, and the NIH institutes with similar missions.

Though most everyone now pays lip service to interagency cooperation, behind the scenes there still seems to be a frantic rush at empire building. Take nutrition status monitoring. This measures a population's use of food. In individuals, it checks weight, height, and changes over time. On a biochemical level, it measures the metabolism of nutrients. It sounds routine, but getting an accurate idea of what people eat and what food does to them has been difficult in the past. Now, as the war over what people ought to eat intensifies, the need for this information is becoming crucial. At NIH, 7 of the 11 institutes are developing programs to do research on the methodology of nutrition status monitoring. And what of USDA? One day recently, Artemis Simopoulous was meeting with USDA officials when, in passing, one of them mentioned that USDA was thinking of acquiring a center for research into status monitoring. Simopoulos recoiled and said no, it was not necessary. NIH already had the field covered. The USDA official laughed. There was nothing Simopoulos could do. Coordination, at an NIH level or even for the HEW nutrition coordinator, only affects in-house policy. Coordination on a government-wide level is still, for all intents and purposes, a pipe dream. The upshot is that USDA is now making a bid for the Letterman Army Institute for Research (LAIR) in San Francisco. LAIR is already exploring techniques in nutrition status monitoring. Built in 1972 and now worth about $60 million, it has 20 lead scientists and 50 junior researchers. Says James Scheuer of the House Committee on Science and Technology: "It is generally agreed that the research techniques developed by the LAIR staff are unparalleled at any other nutrition research center."

As USDA scrambles to pick up new programs, it is also pushing hard on another issue—one that from NIH's point of view is perhaps the biggest headache of all. It is education of the consumer. USDA seems intent on a radical revision of the American diet, a la *Dietary Goals*. NIH is skeptical and wants to research the scientific merit of the *Goals*. A joint USDA-HEW task force is nevertheless trying to hammer out a series of dietary guidelines, at which point a government-wide nutrition education policy, aimed at prevention of "the killer diseases," would go into effect. But if the intensity of the turf war and the lack of coordination in other areas are any indication, a meeting of the minds on that issue seems rather far off.—WILLIAM J. BROAD

A New and Searching Look at NSF

Brown subcommittee opens year-long inquiry; witnesses say the agency is increasingly bureaucratic and seeks "sure bets" in making grants

The National Science Foundation (NSF), created three decades ago as the federal agency charged with the responsibility of supporting basic research, was given generally high marks on its performance by scientists testifying recently before the House Subcommittee on Science, Research, and Technology. But these witnesses saw actual or potential problems, as in signs of too much conservatism or "playing it safe" by NSF in evaluating grant proposals, and too few intellectual ties—which NSF was urged to foster—between university and industrial laboratories.

The subcommittee held hearings on 16 and 17 May to begin a broad review of the National Science Foundation Act (NSFA) of 1950. This inquiry will continue for about a year and include several sets of hearings. In an opening statement, Representative George E. Brown (D-Calif.), chairman of the subcommittee, said, "We want to take a new and searching look at questions that are fundamental to how the science foundation is structured and how its mission is defined, planned, and carried out."

Richard C. Atkinson, NSF's director and a lead-off witness, said that the NSFA had proved sound and that NSF had been "remarkably effective" in supporting basic science. Although nobody seemed disposed to disagree with this reassuring self-appraisal, criticisms were voiced to which Atkinson and other NSF officials no doubt will have to respond later in the inquiry.

Carl Leopold, plant physiologist at the Boyce Thompson Institute at Cornell University (and an aide to Guyford Stever when he was director of NSF), and Thomas F. Jones, Jr., vice president for research at the Massachusetts Institute of Technology, both expressed concern that grant proposals that are truly innovative and outside the mainstream often go unfunded.

According to Leopold, NSF program directors are constrained to support "conservative proposals, and proposals which are 'sure bets' in that they are most liable to provide some definable product in a short period of time." As for Jones, he said the peer review process discriminates against new interdisciplinary science and scientific thinking that is not "au courant" even though creative and ripe with "unusual possibilities for breakthroughs."

Leopold attributed this undue conservatism in grant-making to the "imposition of increasingly bureaucratic regulation." NSF programs, he said, are under pressure "to show that they have supported maximal numbers of pro-

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