Leeds, Ravetz explained that the "hard polarity" of this passage was too crude and was largely based on his perception of science and society in the United States. In England, he has found, there is a continuous dialogue between the establishment and its critics, and it is known for people to change their minds. He describes the council as being "right next to and partly inside the establishment," though denies any intimate knowledge about the way the establishment works—"I have only once been inside a London club."

Swann, by contrast, is very much of the establishment. "I don't want to be too permissive or too authoritarian," he announced on being appointed chairman of the BBC. Nor will the Council for Science and Society go overboard one way or the other as long as he is chairman of that. "We will not make off-the-cuff pronouncements on hot issues," Swann says. "Although the BSSRS started off with a wide spectrum of people it became more activist. The council will not be political."

Members of the council, whatever their differences, share a common interest in weighing the consequences of scientific advance. Swann, for example, chaired a government inquiry into the use of antibiotics in animal feedstuffs; his committee's report led to severe restrictions on their use. As Ravetz sees it, the council's aim will be to warn of the dangers of new scientific advances before commercial interests or institutional battle lines are formed. Ravetz hopes that "in the calm and settled conditions of this older culture it will be possible to set up a study of a problem early enough and calmly enough so as to develop a consensus on it before we have to resort to adversary science."

Sir Michael Swann

The English art of compromise consists of the conjoining of antagonists so extreme that outsiders then doubt if either could have been sincere in his original position. Lenin, for example, on being shown a photograph of English workers playing football with policemen during a strike, ordered the Soviet subvention to the British Communist party to be reduced on the grounds that the nation clearly did not take its politics seriously. The Council for Science and Society brings together people who differ strongly in their views of society and science's role therein. Even if nothing subversive emerges from its deliberations, it promises at least to avoid dullness.

—NICHOLAS WADE

Science Policy: Committee Wants Adviser to Use Active Voice

When National Science Foundation director H. Guyford Stever made his first official appearance on Capitol Hill as the Administration's top science adviser on 17 July, the discussion touched on just about everything, including sunshine (solar energy) and motherhood (control of experimentation on the human fetus). Stever's reception by members of the House Committee on Science and Astronautics was cordial, but the congressmen sought unmistakably to extract a pledge from Stever to take the initiative in advising the President when Stever sees that things are going amiss.

Stever did not make any major revelations. Committee members seemed interested primarily in getting Stever's views and intentions on the record; presumably he will be reminded of them later.

The occasion was the opening day of hearings called by science committee chairman Olin E. Teague (D.-Tex.) to undertake a "comprehensive inquiry into Federal policy, plans and organization for the support and utilization of science and technology" (see box). With Stever the first witness, the committee focused on *Reorganization Plan #1 of 1973*, by which President Nixon abolished the science advisory apparatus in the White House and transferred its functions to NSF.

At the hearings' opening session Stever was asked a series of fairly hard questions, but was not pressed very hard for answers. A certain discontinuity in the proceedings was caused by the comings and goings of the members to vote on the floor. More to the point, committee members of both parties are obviously friendly to Stever. He is very good at holding up his end of the sort of colloquy with which congressmen feel comfortable, and in his role as director of the National Science Foundation it is evident that he has accumulated a considerable balance of goodwill on which he will be able to draw as science adviser. Furthermore, he had held the science adviser's job for a bare 2 weeks and could not reasonably be called to account for things done or left undone.

If Stever was the star of the first hearings, as the roster of witnesses shows, the committee does not consider that science policy begins and ends with the science adviser's operation, whether it be in the White House or NSF. Appearing on the second day of hearings on 19 July was William O. Baker, president of Bell Telephone Laboratories, the most prominent and probably most influential member of an informal group of scientists and engineers which for a time at least was touted as a potential scientific kitchen cabinet. Also on the schedule was John C. Sawhill, associate director for Natural Resources, Energy, and Science of the Office of Management and Budget (OMB), but time ran out be-

fore the committee got to Sawhill. On the hearing schedule for 24 July are Edward E. David, the last man to occupy the science adviser's post before it was reorganized out of the White House, and William Carey, a former Bureau of the Budget (BOB) official who was a principal switchman for science at BOB during the buildup of federal funds during the 1950's and 1960's.

In a second phase of its inquiry later in the year, the committee plans to hear the views of witnesses from industry, academia, think tanks, and health care institutions. Finally, next year, Teague plans an assessment of progress being made, including, rather pointedly, a review of the Administration's science policy in action.

Ever since the reorganization plan was unveiled early this year, some ambiguities have surrounded the relationship between the science adviser and the President. The main question was whether Stever was adviser to the President or to the Executive Office, a more nebulous function. At the beginning of his statement to the committee, Stever quoted a letter from President Nixon that did clear up this major point of protocol, which could have power implications. The relevant excerpt went as follows:

> As I indicated in January, I also want to take this occasion to designate you as my Science Adviser. In this post, I would like you to advise and assist the White House, the Office of Management and Budget, the Domestic Council and other entities within the Executive Office of the President on matters where scientific and technological expertise is needed, and to act as my representative in various international scientific undertakings. I believe this designation should significantly strengthen the science policy machinery of the Administration.
>
> I also designate you as Chairman of the Federal Council for Science and Technology, a role which you have already undertaken in an acting capacity.

In the opening session the committee members seemed mainly concerned with getting Stever to define his role under the new dispensation. Teague set the tone when he asked Stever, "Who's your boss? Have you had a chance to get a feel for that relationship?" Stever's general answer was that the reorganization bill had not gone into effect until 1 July so that it was too early in the game to comment in detail, but he felt things were going well.

Several times the question of whether Stever would take an active or a passive role as science adviser came up. Representative Charles A. Mosher (R–Ohio) put the question, as did Representative Mike McCormack (D–Wash.), and asked Stever if he saw himself going to the President and vigorously advocating some course of action if Stever thought that some policy set by Congress or the Administration was in error. Stever said that indeed he would take the initiative in such a case. Committee members suggested that perhaps next year he might come back and give them some examples of when this had happened.

The matter of access to the President figured in several other questions. Asked how many times he had seen Nixon since the reorganization plan had been broached, Stever said he had seen the Chief Executive once for a half hour to discuss international scientific programs and on two or three other occasions had seen him for shorter periods on other matters. Stever said the White House official he deals with most frequently is OMB director Roy L. Ash. He said he had had contact with former domestic counselor John Ehrlichman but had not met with White House staff chief Robert Haldeman, both of whom resigned after the Watergate disclosures. The role of chief economic adviser George P. Shultz in the Administration science hierarchy remained cloudy (see Briefing, page 426). A conflict in his schedule made Shultz decline the committee's invitation to appear at the first round of the hearings, but he agreed to provide written responses to questions.

Asked whether his role as science adviser would extend to defense matters, Stever said that he would be kept abreast of National Security Council matters and that his role could be said to be as wide as was that of Edward E. David when he was director of the Office of Science and Technology (OST). The staff of Stever's new Science and Technology Policy Office, however, will not be included in national security matters as the OST staff was.

If Stever was treated gently by the committee, the discussion did reveal current strains between Congress and the White House. Congressional resentment over OMB impoundment of appropriated funds was evident in

House Space Committee in New Orbit

One aim of the committee in holding the current hearings on science policy, it is evident, is to diversify its activities. The Science and Astronautics Committee was created in reaction to Sputnik and, significantly, has been known as the space committee. Now that the space program is declining in budget and attention, the committee has understandably been looking for areas of science with more glamour and growth potential.

When Teague succeeded to the chairmanship at the beginning of this Congress, it was understood that he had traded his chairmanship of the Veteran's Affairs Committee for the top spot on the science committee because of his interest in space matters. As chairman, Teague is in the process of educating himself more fully on the nonspace concerns of the committees, which include oversight of NSF and science policy issues. He may well have been spurred by the activities of a House special panel which is now reviewing the operations of all House committees and is expected to make recommendations on realignments and consolidations of committee jurisdictions and functions. An underemployed committee might find itself out of business, so the committee's incentives for working a claim vigorously are strong.

The current hearings were conceived originally as an activity of the subcommittee on science, research and development, headed by Representative John W. Davis (D–Ga.), but Teague decided to make the hearings an operation of the full committee. The nearest thing to the current hearings undertaken previously by the committee were science policy hearings held in 1970 by the science, research and development subcommittee then chaired by former Representative Emilio Q. Daddario, who in a sense discovered nonspace science for the committee. Those hearings, however, concentrated on identifying priorities for federal science while the current ones include consideration of science policy organization as well as of goals.

Teague's remark that he felt the committee had faith in Stever's organization (NSF), but couldn't say the same for OMB. The point was made more than once and required of Stever the fastest footwork of the afternoon. He acknowledged that there were some "creative tensions" between Congress and the Administration on the subject of OMB and noted tactfully that OMB had some very knowledgeable people, but he said that he should let OMB speak for itself.

Other questions touched on perennial issues in federal science policy organization. Representatives John W. Davis (D–Ga.) and Ken Hechler (D–W.Va.) pointedly questioned the decision to move the science adviser out of the White House. They suggested that officials of other countries would conclude that science had been downgraded, and also that Stever and his staff operating from NSF would have less leverage in dealing with the bureaucracy than they would from a base in the White House.

Representative James W. Symington (D–Mo.) also asked whether Stever can successfully wear two hats, serving as head of a line agency (NSF) and at the same time performing a top-level staff function as science adviser. Stever acknowledged that "the matter of dual responsibility was a matter of concern to everybody" but cautioned against too much emphasis on jurisdictional conflicts. The greatest effect the science adviser to the President will have, he argued, will not be on organizational issues, but on science and technology issues, said Stever. "The first and most important role is to decide what should be done," he said, and "then to figure out who should do it."

The committee members displayed a tendency to veer from asking questions of Stever as science adviser to asking them of him as NSF director—on the matter of energy programs, for example, and on a ban enacted by the House on experimentation on the human fetus.

One matter left vague was that of consultation with the scientific community. Lloyd Cook, of Union Carbide, a member of the National Science Board (NSB) appeared with Stever and said that most NSB members now see their responsibility as broader than simply acting as the board of directors of NSF. Just how the NSB and other outside advisory groups will operate was not described in detail. Stever did, however, indicate that he favored ad hoc panels formed to address particular problems and dissolved after they had done their job.

For those wondering how Stever will approach certain policy questions, there was a strong hint that Stever is not a centralizer. His statement carried the following comment:

> . . . science and technology programs, including both basic and applied research and development, have been conducted by a multiplicity of agencies in support of their individual missions. This pluralistic approach to the conduct of R & D has

POINT OF VIEW

New Values for Federal Science?

In one of the more interesting apologias to surface in the wake of President Nixon's reorganization of federal science policy apparatus, William O. Baker, president of Bell Telephone Laboratories, in effect, argued for a "new federalism" in science and engineering. Testifying before the House Committee on Science and Astronautics on 19 July Baker recalled that federal science structure and policy was shaped after World War II by the wartime experience and helped produce extraordinary accomplishments in military, space, and medical fields. In the following excerpts he argues that the demands on federal science have changed and so must the system:

These historic national services of science and engineering were through *performance systems*—radars, bombsights, nuclear weapons, ICBM's, space vehicles and exploration. The situation now is altogether different, for the main challenge to science and engineering is now in the service of man in the form of *economic systems*. These have a huge consumer factor, and are ultimately best determined by a free market.

Even the *performance systems* aspects of health care and public health possess foremost a popular determinant, for as we know people won't even do what is good for them as individuals unless as individuals they decide to do so. No such choices are involved in the great science and technical systems which have been Federally sponsored up to now. Hence, a quite different strategy of research and development is necessary —one that is close to what has been developed in private industry in this century.

Further, there is a subtle, but absolutely crucial, complementary part of science and engineering that was little enhanced by the great performance systems successes that we are all too wont to use as examples of how Federal science and technology should be organized and executed. That is, discovery and understanding through basic science, and invention of systems components through applied research and engineering. . . .

. . . Unlike the ready availability of all the things that made moon trips, and jet travel, and nuclear power plants, and chemotherapy possible, we do not now have the inventory of systems components and effects necessary for solution of the problems of ecology and the environment, of universal health care, of public transport, of energy for individual use, of industrial competition with overseas resources, and very importantly of both costly food production and distribution. Thus, we must conceive and achieve national science and technology policies which will favor difficult, unscheduled, talented, human insights and ingenuity, along with thrifty industrial-type development and especially a market orientation which will build a new platform of primacy for our nation.

This is what is being sought in the new Federal structure, but to succeed it will require not only exceptional abilities there but a vastly stronger participation of the nationwide independent community of engineering and science than has yet been achieved (even during wartime!).

helped make the United States the foremost nation in the world in science and technology.

Mr. Chairman, I believe that this approach to the conduct and support of science and technology is the best course to follow. It has proven effective and flexible and it permits all sides of a particular problem to be examined thoroughly.

At the hearings on 19 July, Baker gave a rationale for the reorganization plan which also seemed to support giving more responsibility for making science policy to federal operating agencies. Baker was also asked about the Scientists and Engineers Council formed of Nixon supporters before the election and cast in an advisory role. He said its members still confer, but never have formalized procedures.

The committee hearings, to date, are probably less important for what has been revealed than for the fact that Stever and Baker accepted the invitation and engaged in a fairly open dialogue with the committee. If this dialogue continues, Congress and the public may very well gain real insight into how and where, and—even in some cases—if, federal science policy is made.—JOHN WALSH

Congressman Les Aspin: Bee in the Brass's Bonnet

If you read the curriculum vitae of Wisconsin's 34-year-old Democratic Representative Les Aspin, he sounds more like a scholar than a politician. But Aspin proves that even a Ph.D. economist can find happiness in the bustle of the U.S. Congress.

Aspin got a taste for politics the year after his 1960 graduation from Yale, when he worked in the office of Senator William Proxmire (D–Wis.), his political mentor. He went to Oxford as a Rhodes Scholar in 1961, where he majored in politics, philosophy, and economics. Then, after a summer on the staff of the Council of Economic Advisers in Washington, he went off to Massachusetts Institute of Technology for a Ph.D. in economics. Then he did his Army stint as one of "McNamara's whiz kids," serving as an economic adviser in the Pentagon's Office of Systems Analysis. After that he taught economics for a year at Marquette University, lying in wait for the opportunity to spring onto the national political scene.

Now, less than half way through his second term, Aspin is making quite a reputation for himself as a highly visible and persistent critic of his old boss, the Department of Defense (DOD).

Aspin serves on two committees—the committee on the District of Columbia, which he tries to ignore, and the House Armed Services Committee, on which he is building his career. As 20th in seniority among the 24 Democrats on the 41-member committee, Aspin has chosen to advance his views by appealing to the public rather than working from within. This means he could be about the most prolific utilizer of the press release to be found on Capitol Hill.

He concentrates his attention on two major areas: the military and the oil industry—the biggest game around. "You have to realize that when you take those on you are not going to win very much," says Aspin. Nonetheless, Aspin is generally credited with being not only outspoken but effective. "The object of publicity is to achieve outside what you can't achieve on the inside . . . it's a publicize-and-embarrass kind of approach—nobody wants to look like an idiot." A number of colleagues, particularly some committee members who disagree with him, believe he is getting more attention than he deserves. His recent appearance on the NBC's "Today Show," an upcoming interview with *Playboy* on oil policy, and an hour-long all-Aspin television show now being planned for "Bill Moyers' Journal" will probably not change their minds. But Aspin's legislative assistant Bill Broydrick says it's all happening because the Aspin outfit knows the secret of good publicity: be consistently right, and whenever you make a public statement say something new. And, says another congressional aide, "He knows how to penetrate the shield [of official Pentagon information] that effectively keeps 95 percent of the Congress away."

Finding something new to complain about in the Pentagon seems to be no problem. The staff is continually uncovering questionable but long-unquestioned relationships between the Pentagon and its contractors, misleading financial practices, overruns, special privileges for the brass, and so on.

"It's like shooting fish in a barrel," says Aspin, or, as he is fond of putting it, "You pick up a rock and there's always something crawling around under it." In the early days the staff picked up a good deal of material from random scrutiny of reports from the General Accounting Office. Now they are getting so they can smell a rat from 20 paces; they are also getting increasing numbers of tips, Jack Anderson style, from sources both within and outside the Pentagon.

A sampling of the past year's press releases shows that Aspin has criticized the Pentagon for demoralizing its civilian employees, calls a Navy contract for the Talos missile "illegal," says Litton Industries should be defaulted for bungling a contract on helicopter assault ships, says the Pentagon ought to switch to a cheaper telephone system, and alleges the Army is juggling its books to conceal expenditures exceeding appropriations.

One of Aspin's biggest accomplishments was the uncovering last year of a United Service Organization (USO) scandal in Vietnam which involved black market operations, kickbacks, and phony mail-order deals. A secretary who had witnessed the goings-on came down to Washington and sang all day into a tape recorder in Aspin's office. The revelations triggered a lengthy investigation by the Pentagon and the Internal Revenue Service. One result was the recent firing of USO's worldwide director, Sam Anderson. Aspin says he can never tell what reforms he spurred and what would have happened anyway. At any rate, the DOD never thanked him.

Aspin seems prouder of a recent achievement on the House floor. He and fellow committee member Otis Pike (D–N.Y.) fought a provision in the dependents' assistance act which