Who, if anyone, talks to the President about science?

Sawhill and Baker at House science hearings.

Unheralded, the President's Office of Science and Technology (OST) died July 1, bequeathing its headaches, if not its power, to the director of the National Science Foundation. Actually, NSF director H. Guyford Stever has been easing into his new responsibilities since the January announcement of OST's demise (SN: 1/27/73, p. 52), while gamely fending off charges that the reorganization was a politically motivated "downgrading" of science (SN: 2/3/73, p. 70). Last week the House Science and Astronautics Committee began a series of hearings to determine just what the changes do mean and to find out who, if anyone in this Watergate year, gets to tell President Nixon the concerns of America's scientists.

Citing the decline of R&D's share of the national budget from 12.6 percent in 1965 to 6.4 percent today, committee chairman Olin Teague (D-Tex.) charged that the Government's attitude toward science, as well as its financial support, had diminished. Stever insisted that "there is a daily flow of information between the Executive Office of the President and myself on science policy matters," but when pushed, admitted he had actually spoken to the President only briefly since January.

Committee members pressed to learn how Stever's advice on scientific matters or requests for money reached the President. As adviser, he said, he reported through Secretary of the Treasury George Schultz; for funding, he had established a working relationship with John Sawhill of the Office of Management and Budget (OMB). Though he would not hesitate to approach the President directly on "matters of urgency," Stever said, he generally doesn't like to make such a "grandstand play."

Photos: John H. Douglas

Stever: A tough role, new duties.

Even if his advice were reaching the President, the congressmen inquired, wouldn't the science adviser have less prestige when dealing with other officials as just another agency head, than would a White House assistant? "That depends on which assistant," observed Stever. What about the conflict of interest involved when, as Presidential science adviser, Stever had to pass on the merits of various agency programs, including those of his own NSF? It will be a "tough role."

Though praising Stever for his competence, the congressmen remained skeptical over whether the new Presidential adviser arrangement would help shepherd congressional science appropriations through OMB or convince the scientific community the Administration was interested in their problems. "Sometimes we think of our programs being blindfolded and lined up on a firing line," James Symington (D-Mo.) told Stever.

The skeptical congressmen obviously relished their first opportunity to examine a representative of OMB before the committee, as John Sawhill took the witness stand. "I've been guilty of calling you gnomes," admitted Charles Mosher (R-Ohio), the ranking minority member. "I hope that's not true."

Sawhill assured the committee, "I will give my personal attention to assisting the director of the Foundation in his broader responsiblities." He spoke of his "close relationship" to Stever and emphasized the need for NSF to maintain the "independent analytical capability" of OST.

Then why the cutbacks and impounded funds, pressed Mosher? Preferring to call them "reserve actions," Sawhill replied that priorities always have to be set and that the Administration had given higher priority to funding current research than to "resource building programs"—i.e., science education. Such deemphasis of education could cause an "irrevocable loss downstream in basic research," objected John W. Davis (D-Ga.). Maybe discussion of such problems needs a new vocabulary, responded Sawhill.

Perhaps. As testimony progressed, the OMB economist and the science-oriented congressmen progressively seemed to be talking about different subjects in different languages. George Brown Jr. (D-Calif.) bore down on Sawhill's terminology that moving science out of the White House would "reinforce and strengthen" communication between the scientific community and the President. Why, the congressman wanted to know, had the same catch phrase been used when the Secretaries of Agriculture and the Treasury were elevated to the title of Presidential Assistants. Sometimes decentralization, could be just as effective as centralization, demurred Sawhill, suggesting that the "good working relationship" between himself and Stever was more important than organizational framework. "Most of what he's saying is pure poppycock!" Brown later told SCIENCE NEWS.

If communication from the official science advisers gets filtered through the economists of OMB and the Treasury Department, does the President listen directly to anyone from the scientific community?

Maybe. Another major witness called before the committee was William O. Baker, president of Bell Telephone Laboratories and chairman last year of the Science and Engineering Council for the Re-election of President Nixon (SN: 10/21/72, p. 262). After the announcement in January that OST would be phased out, Nixon began

turning increasingly to Baker's group for advice on scientific matters. The NATIONAL JOURNAL quoted Baker at the time as saying, "There is a need for someone to serve as an interface between Washington and the scientific community." Baker said the council scientists would "nominally report through NSF but actually will consider themselves White House advisers," dealing with such matters as energy, environment and transportation.

Before the Congressional committee, Baker spoke with authority, usually saying "*we* decided" when speaking of Administration science policy. The shift from OST to NSF, he said, was only part of a broader program to move Federal science policy away from "performance systems" (geared to solve only specific, narrowly defined problems such as developing weapons) to "economic systems" (in which free-enterprise dictates which projects are to be pursued). "A quite different strategy of research and development is necessary—one that is close to what has been developed in private industry."

The whole scientific community must become committed to decision-making on a "free-will, free-market basis." Gone are the days of the 60's with their "widespread illusion" that society would support "research and development as ends in themselves, as the cultivation of science as a kind of new national sport."

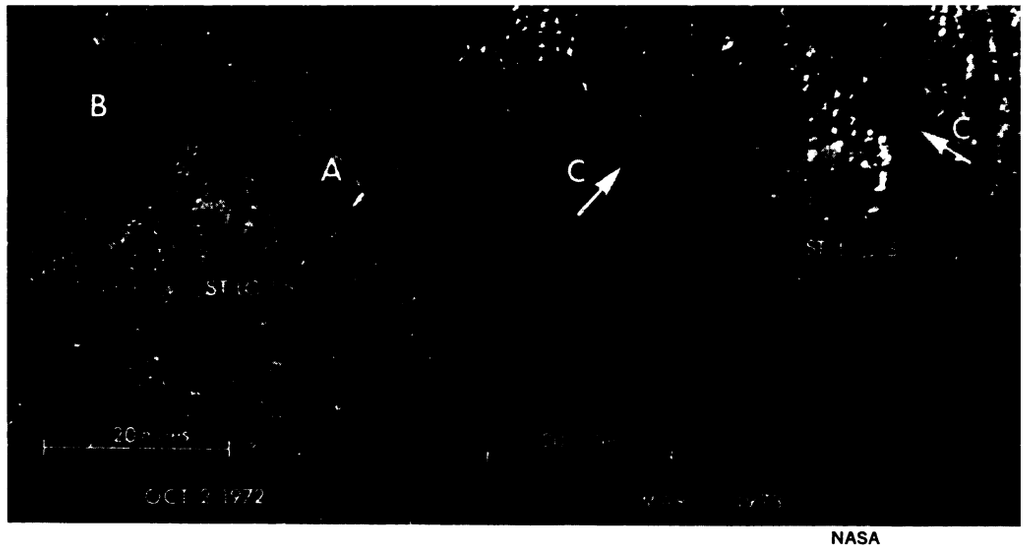
The committee did not determine to what extent these views were indeed those of President Nixon, nor to what extent Baker and other members of the re-election council influence Administration science policy. But in light of Baker's outspokenly critical views on the Environmental Protection Agency and his ideas on overhauling the Administration's science policy apparatus, the question of his influence vitally affects the scientific community. □

One year and 70,000 photos in space

The Earth Resources Technology Satellite is one year old this week.

Launched July 23, 1972, ERTS (SN: 6/24/72, p. 408 and 3/31/73, p. 214) has orbited the earth more than 5,000 times and produced more than 70,000 images of three-fourths the earth's surface, including all of the land mass of the United States. Three hundred investigators in the United States and 38 foreign countries are using the imagery.

At a conference this week in Philadelphia sponsored by the builders of the spacecraft (General Electric Co.'s Space Division) scientists and managers reviewed the results of this first year of earth observation from space.



NASA

Space view: The Illinois, Missouri and Mississippi rivers before and after flood.

"During its first year in orbit, ERTS has produced a wealth of scientific data that have exceeded our most ambitious prelaunch expectations," says Daniel J. Fink, GE vice president.

"We know of nothing we hoped or expected to see that we haven't seen," says John DeNoyer, head of the Department of the Interior's earth observation program. "Only the skeptics have been surprised by ERTS."

The accomplishments of the ERTS system over the past year tend to support these accolades.

For the first time, geologists and hydrologists have a complete overview of a flood: the Mississippi River and its tributaries before, during and after the disastrous spring floods this year. Since the spacecraft passes over the same area of earth every 18 days, scientists get a repetitive coverage that allows them to detect changes. They were able to make very accurate "automatic maps" of the flooded areas from the imagery, says DeNoyer. The photos were used in evaluating flood insurance claims. The government has used the photos to determine the impact of the floods on agriculture and the best methods of flood control.

The spacecraft photos allowed the entire state of Rhode Island to be divided into 11 land-use categories with 90 percent accuracy. Officials of Los Angeles County were able to differentiate high-, middle- and low-income residential areas. Synoptic views of large areas, such as the state of Alaska, could be assembled with "scissors and Scotch tape." It takes six months to produce equivalent information by normal means, according to William Nordberg of NASA.

A map of the Eastern Seaboard from New York to Virginia was made with nine ERTS images. At least 100,000 images would be required to prepare the same map with conventional aircraft.

Cropland in southern California afflicted with the cotton bollworm is being monitored by ERTS to ensure compliance with state regulations for dealing with diseased crops.

New faults, fractures and other geological features associated with mineral and petroleum deposits, as well as results of movements of the earth's crust, have been identified. South Africans have found features in their country resembling features present in the nickel-rich areas of Canada. As a result, new South African mining activities are expected to begin soon.

Three "utterly striking" examples of plate tectonics features can actually be seen on the imagery in the Himalayas, Alps and Alaska, says Nordberg.

ERTS also revealed a line that extends all the way from California to Canada. The line could be related to a previous episode of plate movements. Now the geologists are wondering if that line intersects somewhere another long line that begins in the Yukon and extends to that area of Canada.

ERTS imagery is going to court. A Vermont scientist has traced a pollution plume in Vermont waters to a paper mill in Ft. Ticonderoga, N.Y. The picture has been submitted, along with a NASA affidavit, to Vermont's attorney general as evidence in court. □

The Calico controversy: Artifacts or geofacts?

The oldest proposed evidence of human habitation of the New World exists in the form of several hundred flint-like rocks collected in the foothills of the Calico Mountains near Yermo, Calif. Louis Leakey and Ruth Dee Simpson exhibited the chipped stones as tools made by early Americans. Geological evidence, they said, dated the stones and the site at between 50,000 and 100,000 years old (SN: 11/7/70, p. 364). But since this theory was first put forward, a number of