White House Science Units Formed

More than three years after President Nixon disbanded the White House science advising apparatus, two congressionally mandated new advisory units have been put into operation. Last week H. Guyford Stever was confirmed by the Senate and sworn in as the director of the Office of Science and Technology Policy (OSTP), making him in effect the presidential science adviser. And Simon Ramo was appointed to head the President's Committee on Science and Technology (PCST), a long-range planning group.

Stever moves to the White House post from his position as director of the National Science Foundation, where he has been the focus of attention during NSF's recent battles with conservative congressmen. The debate started when some parents began to complain about the content of pre-college science courses developed under the auspices of the Foundation (SN: 4/19/75, p. 253). The NSF also bore the brunt of criticism leveled against several agencies for sponsoring "frivolous" research. Most of the charges were eventually put to rest to the satisfaction of a congressional majority (SN: 8/9/75, p. 87; 4/3/76, p. 215), but four Republican senators nevertheless tried to block Stever's nomination to the White House post, calling it "an affront to Congress" (SN: 7/3/76, p. 7).

By the time of the Senate confirmation hearing, however, criticism had begun to fade, and the resulting debate was almost anticlimactic. None of the opposing senators came to question Stever, and conservative Sen. Barry Goldwater (R-Ariz.) said he felt "there is no question about Dr. Stever's qualifications" for the post. Most of the hearing involved asking about the appointee's views on various issues.

Sen. Edward Kennedy (D-Mass.) summed up a widely held feeling in Congress when he said that "science for most of our citizens is a mysterious code that can only be deciphered by specialists," and expressed the hope that OSTP would help clarify these matters. Stever said the scientific community is increasingly responsive to practical needs and, "I hope to be part of that shift."

Stever's appointment was confirmed by the Senate by a vote of 78 to 6, and he was sworn in as OSTP director on Aug. 12. The NSF deputy director, Richard C. Atkinson, will serve as acting director of the Foundation until at least January.

The new science advisory office will have its hands full from the beginning, despite the distractions of an election year. Stever told SCIENCE NEWS that under him OSTP will effectively set science budget priorities for the next fiscal year, even if the present administration should be replaced. The office will also begin immediately to deal with a list of 65 policy questions prepared by two ad hoc committees formed for that purpose earlier this year (SN: 1/17/76, p. 39).

One committee, under Simon Ramo, was to determine the "contribution of technology to economic strength." The other, under Bell Labs president William O. Baker, was to look into "anticipated advances in science and technology." Among the 65 policy areas mentioned, the following eight were selected for special urgency: food production and distribution, improvement of nutrition, impact of government regulation, choice of alternative energy sources, raw materials production from the oceans, industrial productivity, priorities in basic research, and how OSTP itself should conduct policy analysis.

During the confirmation hearings, Stever was questioned particularly about how OSTP will approach military research matters and the administration's law of the sea policy. While remaining vague on the details, Stever replied that he had already begun talks with the head of the National Security Agency on how the two groups can cooperate, but cautioned that the limited size of OSTP would preclude many in-depth studies of particular weapons systems. He said that the law of the sea conference might provide his first opportunity to influence administration policy.

As head of PCST, Ramo will be in charge of conducting a two-year survey of federal science, engineering and technology. Among other things, the group is to look into organizational reform, improvement in existing systems for handling scientific and technical information, reduction and simplification of federal regulations, possibilities for forming a broader base for supporting basic research, and planning for ways in which science and technology can address major national problems.

An initial report is to be submitted to the President within one year, with a final report to follow a year later. Each report must, in turn, be sent to Congress. Afterwards, the committee can either be continued or disbanded at the President's wish. A change in administration in January, however, would probably not affect the makeup of PCST, though a new director of OSTP might be appointed. □

Charmed baryon: New particle family

When theoretical physicists added charm to the list of properties subatomic particles might possess, they opened the way for the possible existence of entire new families of particles. Over the last two years experimenters have begun to find them. Two new families of the class called mesons are now represented among the experimental data, and this week's news from the Fermi National Accelerator Laboratory is the finding of a member of a third, a new family of the class called baryons.

Charm has this widespread effect because it adds a new quark and a new antiquark to the existing theory of the structure of mesons and baryons. Quarks are the hypothetical constituents out of which theory builds the observed particles. In the older version three quarks and three antiquarks sufficed. Out of the various permutations of these, the properties of the known particles could be explained and new ones predicted. By adding another quark and antiquark, charm provided a whole new series of hypothetical permutations.

Theory tells us that a meson should be made of a quark and an antiquark, and a baryon of three quarks (or three antiquarks for an antibaryon). The first new family that experiment found was a group of mesons called psi particles. These are seen by theorists as combinations of a charmed quark and an anticharmed antiquark. Since charm and anticharm act like positive and negative, the psi's have neutral charm over all and do not display it "nakedly," but it does play a role in their behavior. These discoveries made experimenters search for nakedly charmed mesons, and this spring they began to find them. Presumably these are made of a charmed quark and a charmless antiquark. In fact, in the Aug. 16 PHYSICAL REVIEW LETTERS, the theorists who worked out the properties of a set of such nakedly charmed mesons, A. De Rújula, Howard Georgi and S. L. Glashow of Harvard University, comment on the first of these particles recently found in an experiment at the Stanford Linear Accelerator Center. They conclude in effect that what was found looks like what they had earlier predicted.

Now we come to the charmed baryons. In their structure, hypothetically a charmed quark should replace one of the three uncharmed quarks that make up an ordinary baryon (correspondingly an anticharmed or negatively charmed antiquark in an antibaryon). The particular particle found at Fermilab appears to be negatively charmed antibaryon. It has a mass of