

school systems is divided among thousands of individual school boards, all generally independent of central control as to the primary elements determining the academic effectiveness of the institutions under their supervision. And this circumstance introduces enormous political and practical rigidities into the overall system, if serious consideration such as basic curricular changes or teacher selection and compensation, is to be proposed."

Wiesner also conceded that the outlook for broad education legislation "is not hopeful" and that the problem is greatly complicated by the private school (church-state) issue. But he then went on to say that, while attempts to solve basic social issues must be continued, "it is also important to pursue simultaneously a more operationally oriented program, one which seeks to resolve important particular problems somewhat independently of more general issues."

In this latter category Wiesner, as pragmatist, placed the recommendations of the President's Science Advisory Committee (PSAC) toward increasing opportunities for graduate level training in the fields of engineering, mathematics, and physical science.

The Operational Approach

Pursuing the "operational approach," Wiesner observed that the "next logical segment of the educational system on which further attention might be focused . . . is the secondary school level."

In addition to calling for an extension to other grades and subjects of work in curriculum development and teacher training supported by the National Science Foundation, Wiesner made two new and noteworthy suggestions: (i) federal assistance to special science high schools to be operated by city or state authorities, and (ii) a major project to expand and upgrade science instruction in Washington, D.C., schools.

Both ideas, which were only roughly sketched in the speech, are aimed at helping to overcome deficiencies in background or opportunity which constrict the flow of scientific and technical manpower. Though carefully phrased, probably in deference to congressional, and especially Southern congressional sensitivities, his proposal for the experimental project in the District of Columbia suggests that there are special problems in D.C.—where a large majority of the students are Negroes,

many of them disadvantaged, and where school facilities and budget have been inadequate—that make the system an ideal laboratory.

The models for the special science high schools are the Bronx Science High School and the relatively few similar science schools with high standards and competitive admissions policies. Wiesner would sidestep the issue of federal control by having a city, county, or state authority run the school, with the federal government contributing. An intriguing line in his text reads, "The admission of students would be on the basis of rigorously competitive academic aptitude examinations, with the costs of attendance for those winning admission, but in need of financial assistance, being provided by the school through arrangements with the state and federal government." This implies boarding school arrangements for children coming from rural areas and perhaps from urban slums and hints at a startlingly new type of American public high school.

It will be interesting to see if there is a legislative response to Wiesner's proposals. Congressional reaction to bills embodying the ideas might well indicate whether or not Congress really believes an emergency in scientific and technical manpower is developing.

An incidental effect of the speech is to identify Wiesner as a critic—implicitly and without hyperbole—of the status quo in public education and to suggest that he will be having more to say on the subject.—JOHN WALSH

Bill Providing Science Advisory Staffs for House and Senate May Be a Step in a New Direction

One swallow maketh not summer, but the introduction last week in the House of Representatives of a bill to establish a science advisory staff in both the House and the Senate, comes as a further sign of the growing uneasiness of Congress over its lack of access to competent and objective advice on scientific matters.

It should be recognized that, in the congressional scheme of things, this new bill (H.R. 6866), introduced by Representative Abner W. Sibal (R.—Conn.), has rather meager immediate prospects, both because it is a brand new legislative idea and because it was put forward by a freshman member of the minority party. A realistic view

of the measure probably is that it is an opening bid and serves a useful purpose by spelling out a plan for improving the science advisory apparatus of Congress and by making that plan available for criticism and, perhaps, for eventual action.

If the odds appear to be against early success for the Sibal proposal, the sentiments Sibal expressed in a statement issued when he introduced the bill are gaining force in Congress.

"For a long time," said Sibal, "the Executive Branch has had a near-monopoly of scientific talent in government. Although the President and the major departments and agencies have scientific staffs which consult on the tremendous range of highly technical issues concerning the Government, Congress does not. Members of Congress, who are nearly always people untrained in science, have to rely chiefly on scientists from the Executive Branch whose task is to defend their programs and seek the funds to run them.

"It has become increasingly difficult for Congressmen to question programs sent down from the Executive side. This is extremely serious when one considers that it is Congress that must decide whether to vote the money and, if so, how much. Right now, for example, we are weighing the question of whether to authorize billions and billions in the race to the moon. We should not have to be so dependent on the Executive for technical advice. The lack of independent scientific resources must be corrected if Congress is to fulfill its responsibilities as direct representatives of the people and is not to become, through lack of proper tools, a mere rubber stamp for the Executive Branch."

Under Sibal's proposal, each house of Congress would get a science advisory staff headed by three professionals "available to the committees and members of the House of Congress within which it is established and to conference committees of the two Houses of Congress to give scientific advice and assistance in the analysis appraisal and evaluation of legislation or proposed legislation."

The three-man staff could not be expected to assist on all the questions on science and technology that the legislators might put to them, but would be expected to arrange for the services of consultants and for the convening of panels of experts on terms much the

same as those now offered by the Executive agencies.

Each of the two science advisory groups would be composed of a director and two associates. The salary of the director would be \$21,500, and the salaries of the associates, \$20,000 a year. The Sibal bill specifies that the triumvirates be appointed on the basis of merit and "without reference to political affiliation," but adds an insurance clause which provides that the director and one associate shall be appointed by the ranking majority officer of the house in question and that the other associate shall be appointed by the minority leader.

The potential difficulties in organizing a science secretariat for Congress, even one of modest size, are not far to seek. First, it might be difficult to prevail on first-rate scientists to leave their laboratories or university posts to work in the highly charged political atmosphere of Congress.

Some way would have to be found to protect the science advisory staff from becoming an answering service for the not inconsiderable flow of congressional mail touching on matters of science and science policy. Most of these letters from constituents would be trivial scientifically, but for legislators they are anything but trivial politically.

A further difficulty is the absence of a precedent. No staff agency in Congress performs functions similar to those which would be expected of the science advisory staff. The closest thing to a model is probably the Office of the Legislative Council, a bill-drafting service which employs a staff of lawyers to embody the members' legislative intentions in proper form. But the counsel's men are not called upon for the evaluative work which would be expected of the science staff.

Perhaps most significant, the science staff, working in Congress, with its many strong magnetic fields, might develop its own loyalties to persons and programs and lose the objectivity which is the chief reason for its being there.

The Sibal bill anticipates some of these difficulties. Terms for the advisers would be 3 years, and no adviser would be permitted to serve more than 6 years. There would be a top age limit of 55, "to keep an emphasis on youth and creativity," according to Sibal.

To qualify for one of the three top positions on either staff, a scientist would have to hold a doctorate or its equivalent. The bill also specifies that one staff member hold his degree in biology, one in chemistry, and one in physics.

The best chance for innovation in the apparatus of providing Congress with advice on science would probably come at a time of general reform of the structure and rules of Congress. While discussion of such a reform is planned (but not yet scheduled) in the Senate Rules Committee, the pressure for reform, which seemed strong at the beginning of the session, now appears to have slackened.

Nevertheless, Congress is showing interest in sound scientific dissent against official policy set by the Executive agencies—the lunar landing program is an example—and is looking increasingly to the scientific community for help in seeing the other side of the question.—J.W.

Krebiozen: A Dozen Years after Introduction, Controversy over Cancer Treatment Still Flares

For 12 years, a drug called Krebiozen, claimed by its proponents to be effective in treating cancer, has had about the same relation to organized medicine that the Holy Rollers have to the Archbishop of Canterbury. In the latest sideshow, 2 weeks ago, frightened cancer victims and their relatives picketed the White House, pleading for continued distribution of the drug on which they think—rightly or wrongly—their lives depend. Earlier extravaganzas have featured a full-scale investigation by the Illinois legislature and the forced resignation of the president of the University of Illinois, a \$300,000 libel suit, and serious tests of both academic freedom and freedom of the press. A continuous attraction has been a series of violent, public attacks on the integrity of science and medicine, both in and out of government.

The Krebiozen controversy is so complex, and so much of it remains unresolved, that any discussion of it is bound to be incomplete and perhaps even misleading; much of what follows has been disputed at one or another time by one or another of the principals. But it is worth looking at, because

when the carnival tents are taken down, at least one question of profound importance to science is left standing. The question, not fully answerable, is whether the procedures that have been developed to protect science against frauds may not also make it difficult for unorthodox, but nonfraudulent, propositions to get a fair hearing—and what category, unorthodox or fraudulent, Krebiozen comes under. At this stage, about the only safe prediction is that when—if ever—the schism is finally healed, Krebiozen will probably tally as many casualties in both science and politics as adherents among the victims of cancer.

Krebiozen's troubles began in March 1951 when Andrew C. Ivy called a semipublic meeting at Chicago's Drake Hotel to present the results of his preliminary experimentation with Krebiozen on 22 human patients with advanced cancer. At that time Ivy was vice president of the University of Illinois in charge of the Chicago Professional Colleges, distinguished professor of physiology, and head of the department of clinical sciences. He had also served as executive director of the National Advisory Cancer Council of the Public Health Service and had represented the Allied governments on the subject of medical ethics at the Nuremberg trials of Nazi physicians accused of war crimes. Ivy had been working with Krebiozen since the summer of 1949 when it was brought to him by Stevan Durovic, a Yugoslav political refugee who was carrying on medical research at a laboratory in Argentina. The laboratory was set up for him there by his brother Marko, who has continued to play a financial role in the Krebiozen story.

If Durovic did discover an anti-cancer agent in his South American lab, it would be, as the *New York Post* once said, a little like "a high school physics teacher smashing the first atom all alone in his basement," but Ivy was impressed—mainly because Durovic's product squared with a theory he himself had long been interested in. The theory, roughly, is that the body itself contains an anti-cancer agent that explains the occasional spontaneous disappearance of the disease, and that the agent can be stimulated, extracted from the tissues, and used in treatment. Durovic obtained the substance indirectly, from the blood serum of horses in which