

Campaign against cancer

The President's State of the Union message is primarily a vehicle for expressing broad goals and noble principles, and thus is generally short on specifics. Usually, however, at least one concrete nonpolitical proposal is included, to give the world something specific to chew on.

In 1970 President Nixon proposed funding water pollution control to the tune of \$10 billion in five years (SN: 1/31/70, p. 123). Last week, in a speech that included momentous proposals to reorganize the Federal bureaucracy and turn over to the states much of the revenue collected by the national Government, it was cancer research that was singled out for special attention.

The proposal recalled the flavor of President Kennedy's call for a national goal of landing an American on the moon by the end of the decade of the 1960's. Indeed, President Nixon's announcement that he will ask appropriation of an extra \$100 million "to launch an intensive campaign to find a cure for cancer" referred back to that technological achievement:

"The time has come when the same kind of concentrated effort that split the atom and took man to the moon should be turned toward conquering this dread disease. Let us make a total national commitment to achieve this goal."

Thus did the President accept much of the spirit of the recommendation in December of the Yarborough panel (SN: 12/19/70, p. 459) to amass a national campaign against cancer. Mr. Nixon, however, made no reference to the panel's request for creation of an independent agency called the National Cancer Authority. This left up in the air whether the money would be channeled mainly through the National Cancer Institute of the National Institutes of Health or through some other agency.

If the additional money is approved—Congressmen may find it difficult to vote against a cancer cure—it raises the same issues and problems unsurpassed by the Yarborough report itself. One concerns whether the appropriation would drain off funds from other areas of important research. Another concerns a more subtle question involving the sensitive issue, always present when discussing cancer, of possibly raising false hopes. As has been pointed out (SN: 1/2/71, p. 12), some progress has been made against certain types of cancer in the last 40 years, but the fundamental scientific knowledge necessary to achieve anything that might be called a victory

over cancer is not yet in hand. This contrasts with the moon-landing effort which, although complex, involved primarily the engineering application of known scientific principles. The public has perhaps not been sufficiently educated about this distinction, and most researchers would be careful to point out that one should not infer from the President's proposal that "a cure for cancer" necessarily will be soon found.

The cancer campaign was only part of one of the President's "six great goals" for the years ahead. It was included among a set of proposals for improving health care and making it more generally available. He will propose, said Mr. Nixon, a program to insure that no family is left without basic medical care because of inability to pay; a major increase in aid to medical schools; incentives to improve the delivery of health services, and new programs to encourage better preventive medicine. All these, of course, are proposals made countless times by countless groups. The questions involve how they are to be best brought about.

As for the environment, Mr. Nixon said the effort "so dramatically begun this past year" to protect the natural environment would be continued and a strong new set of initiatives to combat air, water and noise pollution would be proposed. He mentioned briefly his planned proposals to make better use of the land and to expand the nation's parks and recreation areas. To stimulate the lagging economy, another of the goals, Mr. Nixon plans to propose an expansionary budget. Scientific research is among the many expected to receive a healthy increase in Federal support.

The two goals creating the most controversy were the President's often-discussed intention to enact a plan to share Federal revenues with state and local governments, and his proposal to consolidate the executive branch into 8 instead of 12 cabinet departments. In the latter, the Departments of State, Defense, Justice and Treasury would remain; the other departments would be consolidated into departments of human resources, community development, natural resources and economic development. Broad-scale opposition, as might have been expected, surfaced immediately. The proposed restructuring is of such broad scope and its implications so far-reaching that, given the practical political difficulties of achieving bureaucratic change, there seems little probability for positive action. Rep. Chet Holifield (D-Calif.), chairman of the House Government Operations Committee, which will handle the reorganization proposal when it is sent to Congress, called it a fairy tale. □

Worse, not better

One day in St. Louis in 1941, air pollution was so severe that it was impossible to see across the street. Aroused citizens launched a campaign to clean up the soft-coal-burning sources of pollution, and St. Louis air was cleared up considerably. The action was paralleled elsewhere in the nation and the world as methods were learned to reduce particulates from industrial stacks and as open burning of garbage was abandoned.

This first generation of air pollution abatement gradually shifted into today's effort, which might be termed the second generation. Now electrostatic instead of the less efficient mechanical precipitators remove fly ash from the emissions of burning coal. Elaborate devices are being designed to reduce the poisons released into the air from sources ranging from the automobile to atomic power plants.

Many of these efforts are failing, according to the participants of an air pollution symposium at Louisiana State University this week. Their consensus was that unless more money is spent on research and development, there will be no choice but to go to a third generation of control: Authorities will have to say to polluters not that they must install control devices but rather, in the words of one of the speakers, Jean Schuneman of the Maryland Health Department, "shut it down, move it or don't do it."

In terms of visually obvious pollutants, the situation today is less severe than it was in St. Louis in 1941. But according to the symposium participants modern pollution is often of a different variety, and exponential increases in population and consumption make the problem more urgent today. In 1941, there was time to do something before the problem grew worse. Today, there is not.

"In 1970 in Los Angeles, there were more first-stage air pollution alerts [when photochemical oxidants exceeded 0.5 parts per million and all sporting events and physical education classes were canceled] than in the history of the area," says Dr. J. N. Pitts of the University of California at Riverside. "We had three first-stage alerts on carbon monoxide [levels in excess of 50 parts per million] last week." Added Nobel laureate Dr. Willard F. Libby, who spoke at the symposium on the need for environmental generalists: "Los Angeles has become virtually uninhabitable."

It has been only in the past year, Dr. Pitts asserts, that there has been widespread awareness of the worsening situation. Before that, he says, the public—

and scientists—had been lulled by new auto emission standards and the devices they spawned, and by paper calculations of supposed reductions in air pollution.

"We've collectively loused up a lot of things we should have known about," he says, largely by failing to view pollution in its totality. For example, auto emission devices may reduce carbon monoxide and hydrocarbon emissions; at the same time they have apparently increased the reactivity of the hydrocarbons that still escape into the air by some 20 percent.

Skepticism about auto emission devices was widespread at the symposium (although Dr. Libby expressed belief they would be workable eventually). "Should I ask the legislature to spend \$25 million on compulsory inspection of motor vehicles for emission control?" asked Schuneman. "Will it do any real good?" He doubts that the average car repair shop or service station could do the repair job even if the deficiencies were revealed by inspection, or that retrofitted emission control devices on used cars would work well unless the car was also overhauled.

Speakers made it clear that the photochemical smog problem is no longer peculiar to Los Angeles—although the only enclave of expertise on the problem is located there. There is good evidence, says Schuneman, that the problem is severe throughout the megapolitan area from Boston to Norfolk, Va., and in many other cities. But the only systematic monitoring work is being done in Los Angeles. And the 20 monitoring stations in the Los Angeles basin are by no means enough, says Dr. Pitts.

Most of the participants spoke of gaps in research, not only into the complex phenomenon of photochemical smog but also into the subtleties of the kinds of pollution that have existed since the beginning of the industrial revolution.

Knowledge of pollutants' health effects is similarly sketchy. Dr. Vaun A. Newill, a physician with the Air Pollution Control Office, replied, "We don't know," a half dozen times in response to questions from the audience regarding chronic long-term effects of a number of pollutants, including lead, cadmium, mercury and even the ubiquitous and long-studied sulfur dioxide. Epidemiological studies show a clear correlation between SO₂ levels and respiratory diseases, he said, especially in children.

Nitrogen oxides, a component of photochemical smog, apparently are harmful to health in their own right. Criteria to be issued soon by APCO point out several problems: NO₂, for instance, causes loss of cilia, disruption of bronchiole cells and greater mortality

from bacterial and viral infections. "But," said Dr. Newill, "we have a paucity of epidemiological information on NO₂."

Dr. H. A. Panofsky, a Pennsylvania State University meteorologist, pointed to weaknesses in the knowledge of mesoscale meteorology, the meteorology of areas 10 to 20 miles in diameter, or about the size of many urban areas. Such knowledge, in the form of sophisticated mathematical models, is badly needed, he says, so that meteorologists can help air pollution control officials.

A new philosophy of air pollution control is in the process of being born, most of the participants agree. Dr. Newill, for example, stated categorically that lead should be removed from gasoline—even though ambient amounts are still below acute toxic levels and effects of sub-acute levels are still unknown. "The attitude that is developing, for example, in the President's Council on Environmental Quality," said Dr. Newill, "is that we cannot wait for proven deleterious health effects before we take action." □

SCIENCE TALENT

Forty winners

Forty of the nation's most scientifically talented high school seniors were named winners in the 30th annual Science Talent Search this week. They were chosen from 1,110 entrants in the nation's top science competition.

The winners, 12 girls and 28 boys, have been invited to Washington to attend the Science Talent Institute, a five-day expenses-paid session, Feb. 24 through March 1. During the institute they will be judged for \$67,500 in Westinghouse Science Scholarships and Awards in the final phase of the Science Talent Search conducted by Science Clubs of America, a Science Service activity. The winners come from 33 schools in 15 states. Twenty-one of the 33 schools in this year's search had not placed winners in previous years.

Of the 17,751 sets of entry materials requested for the Science Talent Search, 1,110 fully qualified entries were judged. Requirements included writing a report on an individual science research project, submission of school records and faculty recommendations.

By state, the winners are:

Alaska: Delores E. Walther, East Anchorage H. S., Anchorage.

California: Glenn H. Stevens, Foothill H. S., Bakersfield; Henry C. Hamaker, Cubberley Sr. H. S., Palo Alto.

Colorado: James G. Ogg, Fort Collins H. S., Fort Collins.

Florida: Ira H. Chinoy and Christine E. Sturtz, Nova H. S., Fort

Lauderdale; Glenn M. Greenwald, North Miami Sr. H. S., North Miami.

Illinois: Anne W. Gunter, Forest View H. S., Arlington Heights; Jonathan Baldo, Maine Twp. H. S. West, Des Plaines; Warren G. Lavey, Evanston Twp. H. S., Evanston; James H. Van Aken, Lyons Twp. H. S., LaGrange; Mary Jo Wilson, Oswego H. S., Oswego; Neil S. Greenspan, Niles Twp. H. S. North, Skokie.

New Jersey: Mitchell L. Dong, Bergenfield H. S., Bergenfield.

New Mexico: Edward J. Hoskins, Las Cruces H. S., Las Cruces.

New York: David R. Kenigsberg, Benjamin N. Cardozo H. S., Bayside; Wensor Ling and Mitchell S. Raps, Francis Lewis H. S., Flushing; Gary A. Feldman and Orrin E. Tilevitz, Forest Hills H. S., Forest Hills; Sue Klapholz, Jamaica H. S., Jamaica; Robert A. Brady, Samson D. Gruber, Marie S. Jernazian, Cecilia Wen-Ya Lo and Martin Wen-Yu Lo, Bronx H. S. of Science, New York.

North Carolina: Lenwood S. Heath Jr., North Pitt H. S., Bethel.

Ohio: Tucker O. Collins, Bay H. S., Bay Village; Paula L. Bockenstedt, Wayne H. S., Dayton.

Pennsylvania: M. Bruce Fegley, Boyertown Area H. S., Boyertown; Kraig L. Derstler, Columbia H. S., Columbia; Richard B. Gold, Baldwin H. S., Pittsburgh; Donald Brenner, Cheltenham Twp. H. S., Wyncote.

South Carolina: Thomas H. Fly, Spartanburg H. S., Spartanburg.

Texas: Howard W. Ludwig, A. N. McCallum H. S., Austin.

Virginia: James C. Snipes, Wakefield H. S., Arlington; Kimberlee J. Benart, Buckingham Central H. S., Buckingham; Debra A. Meloy, W. T. Woodson H. S., Fairfax.

Wisconsin: Nanette M. Nelson, Southwest H. S., Green Bay; Laura J. Brown, West H. S., Madison. □

SOVIET SUCCESS

Venus landing

Several times in the past Soviet space engineers have tried to land a space-probe payload on the surface of Venus. Despite one announcement of success, later retracted, all past attempts were failures. Now they say they have succeeded.

According to a report this week from the Soviet news agency Tass, the latest such probe, Venera 7 (SN: 12/19/70, p. 461), did reach the surface of the planet on Dec. 15 and transmitted from there for 23 minutes. Data indicated that the temperatures and pressures at the surface were 475 degrees C., plus or minus 20 degrees, and 90 atmospheres, plus or minus 15 atmospheres, said the report. □