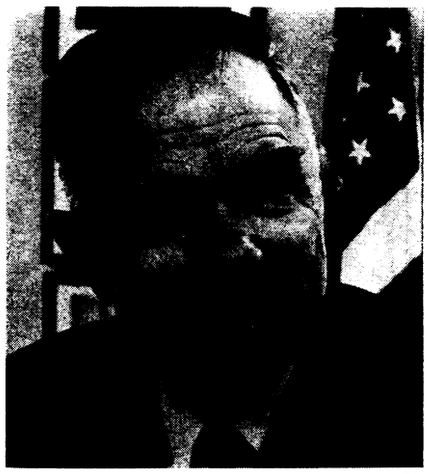
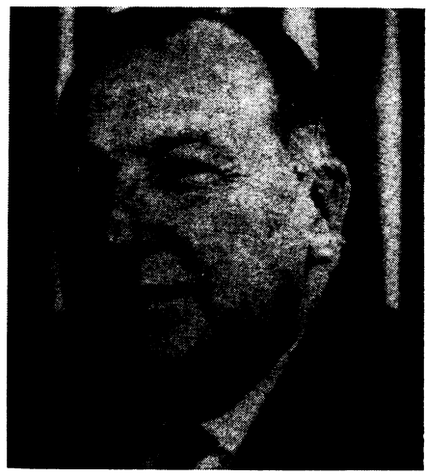


AEC

Dr. Seaborg: Controversial president.



AAAS

Dr. Spilhaus: The best meeting ever.

address by Dr. Robert Q. Marston, director of the National Institutes of Health, who preceded Dr. Seaborg on the program, Herbert Fox took the microphone and began reading an indictment of Dr. Seaborg for the crime of "science against the people." Meanwhile, prompted by other AAAS officials, Dr. Seaborg left the crowded room by a side door without attempting to make his remarks.

Fox, a leader of the radical faction, works for the Cambridge, Mass., firm of Bolt, Beranek and Newman, Inc. The Bolt of the company is Dr. Richard H., a member of the AAAS board of directors and the man who ran against Glenn Seaborg for the AAAS presidency.

Contrary to previous reports that Dr. Seaborg won election by a landslide margin of 10-1, the race was, in fact, very close. The AAAS refuses to release the actual count of the some 350 ballots cast by members of its council, but it officially concedes that reports of a wide margin of victory are inaccurate and says that, "It was a fairly close race." Though Dr. Bolt has been unavailable for comment, several scientists who have discussed the election with him report that he, himself, cites losing by only 30 votes.

Assessing the meeting at the end of the week, outgoing AAAS president Athelstan Spilhaus called it "the best session we've ever had," and said that in spite of the disruptions, "Our discussions with the young scientists here have been fruitful and, in the end, to the net good." Nevertheless, Dr. Spilhaus took issue with the philosophy of disruption. "I deplore bad manners," he declared, "because they inhibit discussion. I deplore knitting needles. I deplore any form of violence."

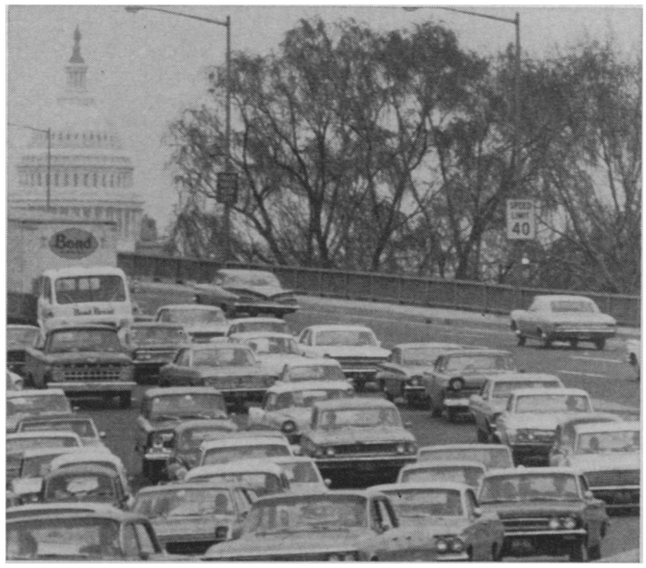
Dr. Spilhaus also challenged the view that the AAAS lacked relevance, citing the nature of its meeting topics in general and its direct consideration of the issue of defoliation in Vietnam as examples of its successful handling of current problems. At its meeting a year ago, in response to previous debates, the AAAS council named Harvard biologist Matthew Meselson to head an investigation of the damage herbicides have caused the ecology, economy and health of the people of Vietnam. It charged him with responsibility for appointing a team of co-investigators and allocated $80,000 for their study. This year, Dr. Meselson and his team reported that in spite of claims by the United States military that its herbicide spraying operations have been designed to avoid harm to civilian populations and nonmilitary areas, damage in Vietnam is widespread. Defoliation has damaged the nation's mangrove forests and hardwood trees to the extent that it will take at least a generation of regrowth for restoration. Enough crop land has been destroyed so that food resources sufficient for 600,000 persons for a year no longer exist. And though the damage to health cannot be accurately assessed, an increased rate of birth defects and stillbirths has been recorded in some provinces.

Largely as a result of joint efforts by Dr. Meselson's team and the AAAS, use of the deadly herbicide Orange has been banned by the White House and new regulations for phasing out all herbicide usage have been announced (see p. 29). Speaking before the council meeting, Dr. Commoner cited the organization's action in this area as an example of its influence. "When we take action we can get real results in the real world," he said, urging more of the same. □

NIXON SIGNS BILL

Action toward cleaner air

Washington takes action against the automobile: Clean Air Act may require reduced use of autos in the central city.



APCO

Last week in Chicago, during the annual meeting of the American Association for the Advancement of Science, air pollution was severe. Air pollution control authorities suggested on radio stations that citizens reduce their use of automobiles and that industries limit emissions by curtailing production during the critical period. There was no noticeable reduction in pollution, and factories continued to belch great plumes of black smoke that flattened out against the inversion layer hovering over Chicago.

But another event of last week may cause some radical changes in citizen and industry behavior regarding air pollution: President Nixon signed the 1970 Clean Air Act.

The new law provides for far-reaching changes in the way air pollution standards are enforced. And the intense political competition engendered by the environmental crisis—antipollution has become nearly as sacred as the flag and motherhood—may mean

the new law will, indeed, be used as intended.

This political competition became evident at the bill-signing ceremony. Conspicuous by his absence was Sen. Edmund S. Muskie (D-Me.), chairman of the Senate air and water pollution subcommittee, which had reported out the bill in essentially the form the President signed it. An Administration official commented that the President did not regard the bill as "the Muskie bill," but rather as a composite effort that included provisions suggested by the Administration. Whoever is credited, there is no doubt the bill includes stringent provisions the Administration had earlier regarded as too tough on industry.

The most discussed such provision is the one which will require the automobile industry to install emission controls on 1975 models roughly 90 percent more effective than those on 1970 models. Under previous law, this goal had been set for 1980. The industry has protested at hearings that the necessary technology cannot be achieved in time. But Muskie and others insist that a genuine effort will produce the necessary results.

Although the auto emission standards received the greatest publicity, other provisions might have much more far-reaching effects. For example, even if the 1975 deadline is achieved on automotive emissions, unless equipment that can be retrofitted can be devised, most cars on the road for the following several years will produce higher levels of emissions. And there is no assurance that the emission controls will continue working the way they are supposed to after a car is a few years, or even a few months, old.

The bill recognizes these obstacles by establishing national ambient air standards. States and cities will have to meet them regardless of the state of the art of emission controls. The only way the ambient air standards can be met, says a Muskie aide, is through drastic curtailment of the numbers of automobiles allowed to enter central cities.

Chicago is a case in point. Illinois air quality standards now limit carbon monoxide to about 5.9 parts per million, based on an annual geometric mean of 24-hour averaging of ambient levels at any given point. In fact, levels in downtown Chicago in 1967, the last year Federal readings were taken, were about 14 parts per million, more than double the allowed level. Officials of the Air Pollution Control Office of the Environmental Protection Agency claim that calculations of carbon monoxide and other auto pollutants, based on the current emission standards, show there should have been at least some reduction since 1967. But they admit they have no empirical evidence this is so.

Under the new law, the setting of standards will be taken out of the hands of the states and given to EPA. And although the local governments will be responsible for implementation plans, there are strict criminal provisions in the law for Federal monitoring and enforcement of the standards. A further provision seems to insure that EPA will not be derelict: It provides for waiver of the concept of "sovereign immunity" (SN: 9/26, p. 273) so that ordinary citizens, or citizens' groups, can sue EPA if they feel the agency is not doing its job.

The same national standards and enforcement apply not only to pollutants from automobiles but also from industry. Many cities in the United States now have ambient levels of sulfur oxides exceeding safe levels (SN: 8/29, p. 187), despite the fact that ambient air standards have been adopted by many states and regions. Under the new law, these jurisdictions will have to formulate clearcut implementation plans to meet the new national standards. If they fail, then EPA can step in and implement them. If necessary, Federal agents may close down factories or invoke criminal provisions of the law.

EPA officials were meeting this week to work out details and to begin to formulate the national standards—at least for the pollutants for which criteria now exist (particulates, hydrocarbons, sulfur oxides, photochemical oxidants and carbon monoxide). Two sets of standards will have to be promulgated: primary ones, aimed at a minimal level of control necessary to protect public health, and secondary standards aimed at the more nebulous goal of "public welfare." States will have nine months, after hearings, to develop and adopt implementation plans for the primary standards. More time is allowed for adoption of secondary implementation plans. □

THREE-MONTH RESPITE

Supersonic transport

Sen. William Proxmire (D-Wis.), in the waning hours of the 91st Congress last week, agreed to end his anti-SST filibuster in favor of a continuing resolution for Department of Transportation funding at the previous year's level until March 30. This means that about another $50 million—in addition to the $110 million already appropriated under earlier such resolutions—will become available for the controversial airliner. The total is considerably short of the $290 million DOT wanted for the current fiscal year. In exchange for his concession, Proxmire insisted upon, and got, a promise of a clearcut up-or-down vote in both Houses by March 30. □

SOLAR SYSTEM

Through a cell of hydrogen

Hydrogen is the lightest of the chemical elements and possesses the simplest atomic nucleus. Perhaps for this reason it is the most abundant element in the universe. Large clouds of hydrogen pervade the Milky Way galaxy. Over the last 20 years astronomers have been able to make contour maps showing its density in different places.

Most of the hydrogen that has been studied so far lies at great distances from the earth. Now data from an Orbiting Geophysical Observatory satellite indicate that the solar system is in the middle of a turbulent cell of neutral interstellar hydrogen that appears to be crossing the solar system's path in space.

(The word cloud has been used to describe the local turbulence, but Dr. Gary Thomas of the University of Colorado, one of the discoverers, prefers to say turbulent cell, because, he says, "cloud" implies density, and the local cell appears to be less dense than the average of interstellar gas.)

The hydrogen cell is at least 300 times as long as the mean radius of the earth's orbit, or 45 billion kilometers. It appears to be moving from the constellation Taurus toward the constellation Sagittarius, a direction that makes an angle of about 60 degrees with the direction the solar system moves through space. After correcting for the motion of the solar system, the cell's velocity appears to be about 50 kilometers per second. Co-discoverers with Dr. Thomas are Dr. Charles Barth and R. F. Krassa of Colorado and Drs. Jacques Blamont and Jean Bertaux of the University of Paris.

The cell was discovered by its scattering of the so-called Lyman alpha emission of the sun. Lyman alpha is a particular pattern of ultraviolet frequencies given off by hydrogen atoms in the sun. The hydrogen atoms of the cell reflect it, and the brightness of the reflection reveals their presence.

The brightest spot, representing the head of the cloud, lies in the direction of Sagittarius. Observations were made at four points as the earth went once around its orbit. In these observations the apparent location of the bright spot changed by as much as 40 degrees. If the change is interpreted as being due to the change in the point of view rather than any motion of the spot itself, then the size of the change indicates the hydrogen is very near the earth, says Dr. Thomas.

The temperature of the hydrogen is estimated from the brightness of the reflections to be about 10,000 degrees K. Its density appears comparable to that of the solar wind or about one