

SST and the ozone layer: NAS panel finds Johnston's conclusions credible

The verbal free-for-all of a couple of years ago over whether the United States should build supersonic transports has, in a sense, turned out to be academic: Though the United States rejected the SST, other nations have proceeded to build them and the SST is now a fact.

In another sense, the debate is not dead. Anti-SST forces had presented disturbing evidence that SST's constituted a hazard to the environment, and one such report has received new support. Harold Johnston of the University of California at Berkeley had suggested that nitrogen oxides from SST exhaust can act as catalysts in the chemical destruction of stratospheric ozone, which shields earth from dangerous radiation. Though bolstered by research by another scientist, Johnston's conclusions were hotly disputed.

Now, in a rare move, a panel of the National Academy of Sciences has placed its seal of approval on Johnston's research, noting that "He has done a service in bringing this problem into full view and stirring the needed debate within the scientific community."

The NAS Ad Hoc Panel on (NO_x) and the Ozone Layer agreed that nitrogen oxides from SST exhausts could have important effects on the ozone concentration of the stratosphere. The panel admitted, as had Johnston, that more detailed conclusions could be made only with certain reservations. For one, the chemical model is based on a static atmosphere; dynamic processes may distort it. Second, the rates at which some of the chemical reactions occur may not be known with sufficient accuracy, and

third, estimates of SST exhaust products are uncertain.

Attempts to pin down the type and amount of pollution caused by high-altitude aircraft, said the panel, are hampered by the fact that "we suffer from serious ignorance of many fundamental aspects of the chemistry and dynamics of the stratosphere." The NAS panel considered some of the research that might alleviate this ignorance.

One of the most urgent problems is to determine the normal, global concentrations of trace constituents of the stratosphere, possibly through on-the-spot aircraft and balloon measurements. The panel also suggests experiments in which the stratosphere is seeded with measured amounts of specific contaminants. How the various atmospheric waves and eddies redistribute gases from airplane exhausts is also unknown. Research is needed on reaction rates between oxides, water and ozone and on the amounts of incoming solar radiation. The panel also suggests research on nitrogen oxide emissions from jet engines with an eye to reducing such emissions.

Meanwhile, Johnston has not been idle. Since his original paper came out in 1971, he has published four more. He now works under a Department of Transportation research contract. Other researchers have been equally active. Many of the information gaps have been filled in, says Johnston. "We know more than we did a year ago, and very active work is in progress all across the board." But there are still many holes yet to be plugged before definite conclusions can be drawn. "The final answers are not in."

Nixon campaign forms a science-engineering unit

Though the Nixon Administration has placed abundant verbal emphasis on science and technology, scientists and engineers have so far played a small role in the President's re-election campaign. Now, a mere three weeks before election day, the Committee for the Re-election of the President has announced that a pro-Nixon Science and Engineering Council has at last been formed.

In a press conference Tuesday, William O. Baker, vice president of Bell Telephone Laboratories and chairman of the council, outlined the body's purposes. Over the next few weeks the council, an arm of the CRP, will act as scientific adviser on campaign issues. "The central purpose of the council . . . is to serve as another link between the national community of scientists, engineers and technologists and the Nixon Administration during the campaign and afterward."

Baker said the council was not formed earlier in the campaign because pro-Nixon scientists felt that the issues were being adequately defined by the Administration, "so there was little they could add." Baker envisions the council as more than a campaign organization. He expects it to endure after the elec-



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Baker: Linking Nixon and scientists.

tion, as an independent organization that would respond to requests for advice.

At present the council numbers 29 members, with "opportunities for a few additions to the list," says Baker. Among the better-known members are Simon Ramo (vice chairman), Athelstan Spilhaus, Gordon MacDonald, Edward Teller, Henry Eyring, Willard Libby, William Nierenberg, S. Fred Singer, and Eugene Wigner. The President's science adviser, Edward David, has decided to remain aloof from the campaign. (He told SCIENCE NEWS the

night before the Baker press conference: "I don't think it is appropriate for the science adviser to become involved.") The council's first meeting, attended by a fraction of the membership, was about three weeks ago. There have been no meetings of the entire council.

Baker admits that the scientific goals of Nixon and McGovern are similar. The difference is in the ways of achieving these goals (SN: 8/26/72, p. 140). "We feel very strongly about that. . . . This Administration has mobilized for the benefit of society the greatest community of scientific and engineering skills ever. This is a fact that has gone long unnoticed." □

Congress overrides veto on water pollution bill

Despite urgings to take early action on the \$24.6 billion water pollution bill (SN: 9/23/72, p. 198), President Nixon delayed until midnight Tuesday, then vetoed it on grounds that it would cost too much. Congress was expected to adjourn Wednesday and proponents of the bill had feared there would not be enough time to override the veto by a two-thirds vote. But the measure passed the Senate early Wednesday by a 52-12 vote, and later the same day the House also passed it with a vote of 247 to 23. □