what redundant. Most observers assume the suspension request will be granted, but the hearings may influence the longer-term recommendations Train makes to Congress. A 1-year suspension is no big deal in itself because it would not affect standards presently applicable for 1978; however, it could cause legislators to be more sympathetic to pressures to loosen up the Clean Air Act, particularly if Train decides to push the presidential recommendations.

Senator Edmund Muskie (D–Maine), chairman of the air and water pollution subcommittee of the Senate Committee on Public Works, is said to be unlikely to favor giving Detroit any more leeway. But if EPA fails to urge holding the line on the statutory standards, Congress might well succumb to the arguments coming out of Detroit.

What Detroit says sometimes needs to be taken with a grain of salt. In 1973, for example, General Motors said that installation of oxidation catalysts in their 1975 models was really out of the question. Now GM has these catalysts in 85 percent of its cars and it loves them. Catalysts have turned out to be a boon—they handily achieve emission reductions required by 1975 interim standards, and the added cost is more than compensated for in enhanced fuel economy (engines had to be detuned to achieve emission reduction but now they can be tuned to maximum efficiency because the catalyst takes care of the added residuum).

Now, however, auto makers are trying to make the case that further tightening of standards will require much more expensive catalysts and will impede further efforts to improve fuel economy. This may be something of a red herring—EPA itself has said that there is "no inherent relationship between exhaust-emissions standards and fuel economy," and it is common knowledge that vehicle weight is the greatest single factor affecting gas mileage.

Presumably, it is the public health and environmental considerations that should settle the matter, but there is still very little known about the relationship between various levels of ambient air quality and public health. No one knows whether the ultimate standards set for mobile source emissions are really the right ones.

A study by three universities—Columbia, Massachusetts Institute of Technology, and Harvard—paid for by the National Science Foundation, recommended last fall that enforcement of the ultimate standards be delayed. The reasoning was that, otherwise, auto companies would be locked into the catalyst as the way to go and would not have the resources to devote to alternative engines. On the other hand, experience has shown that the only way to get auto makers busy on new technology is to make standards mandatory. Former EPA official Stephen Miller, now a freelance consultant, says, "What Detroit is saying is, 'Give us time and we'll come up with a better engine,' but," he adds, "they've been saying that since the 1950's."

For the next 5 years at least, there will be no new fuel-efficient clean-burning engine available for mass production. So it looks as though catalysts will be around for a while.

There are basically three kinds of catalysts. The simplest, and the only one now in mass production, is the oxidation catalyst. This works only to reduce emissions of HC and CO by injection of air which breaks them down to water and carbon dioxide. NO_x, an entirely separate problem, is kept down by means of exhaust gas recirculation.

A more advanced model is the dual, or reduction, catalyst. This is actually two catalysts, an oxidation one preceded by a catalyst to chemically reduce the NO_x. This is said to involve some fuel penalty because there must be a rich air-fuel mix to make the reduction component work properly.

The most sophisticated kind is the three-way catalyst. This is a single unit that reduces all three kinds of emissions when the engine is operating at the stoichiometric ratio (optimal burning mixture) of 14.7 parts air to 1 part fuel. This catalyst requires an oxygen sensor to ensure that there is just

Briefing

Signs of Life from the FCST

Historically, the Federal Council on Science and Technology has been one of the feebler arms of the government's science advisory apparatus, but the FCST—nominally, a top policy coordinating group—is showing some new signs of life. The most recent vital sign is a 165-page "Report on the Federal R & D Program" for fiscal 1976, a handy compilation and analysis of proposed spending for R & D next year throughout the government (except, of course, for intelligence agencies).

The FCST report exudes much the same upbeat tone as the R & D analysis put out by the Office of Management and Budget, but it goes beyond OMB's terse summaries in providing a more detailed view across agency lines of spending in such areas as energy, food, oceans, health, and social sciences.

The report also draws attention to some small but interesting nuggets of information easily overlooked in the OMB's voluminous main budget documents. Some examples: The Justice Department plans new research on "official corruption"; the National Oceanic and Atmospheric Administration will administer the coup de grace to its long-suffering oceanographic buoy program; and the State Department's Arms Control and Disarmament Agency, the victim of some severe budget-cutting during the Nixon presidency, will get a 31 percent increase to $1.7 million for research next year, now that nuclear proliferation is once again a hot topic.

The FCST has for many years been a somewhat somnolent coordinating committee of R & D chiefs in the federal agencies, under the chairmanship of the President's science adviser. Thus this job provides a third hat for H. Guyford Stever, who is officially President Ford's science adviser as well as director of the National Science Foundation. Stever has been trying to revitalize the council, and it was he who suggested late last year that a summary report on R & D spending be put out under the council's name. Material submitted by the various agencies was compiled by staff in the NSF's Science and Technology Policy Office. The result, according to an accompanying press release, represents a kind of "annual report on science and technology."

The next step in reviving the FCST will be to hire an executive secretary, a job that STPO chief Russell Drew has been filling on an acting basis. At least one candidate is in line.—R.G.