NASA technology utilization gets high marks

Senate hearings find that program has resulted in number of successful transfers of technology from agency to industry

A new Senate subcommittee—the Subcommittee on Aerospace Technology & National Needs—has chosen as its first order of business an investigation of the National Aeronautics & Space Administration's technology utilization program. Somewhat surprisingly, the subcommittee in its first series of hearings, held late last month, found that this is one government program that appears to be doing exactly what it was intended to do. The hearings were packed with satisfied users of the NASA program. However, most of the witnesses agreed that some improvements in the program, including its expansion, would not be amiss.

NASA's technology utilization program is aimed at helping state and local governments and industry identify and apply technology developed in the space program to their own particular needs, be it a new fire retardant, a new method of marking thermometers, or a system for detecting bridge failures. The program has been in existence for about 13 years and during that time it has made a number of successful transfers, according to Edward Z. Gray, NASA assistant administrator for industry affairs and technology utilization. These include development of a rechargeable pacemaker, a new type of respirator for firemen, and use of heat pipes to prevent freezing of oil in the Alaska pipeline. And Gray points out that during this period more than 1000 patents developed from NASA-sponsored R&D have been made available to industry.

According to Gray, NASA takes a four-pronged approach to getting technology out of the laboratory and into the market place. First, NASA has a low-cost mail order system to acquaint the 20,000 people on its mailing list with new technology developments. About 500 new technology briefs are issued each year. Each contains a technical description of the innovation, an explanation of the basic concepts involved, and specifies where to go for more detailed information, Second, NASA is willing to sell any one of its more than 16,000 computer programs at a cost of about $500 per program. As the remaining two approaches, NASA has six industrial and seven public sector applications centers at various universities around the country to solve, on a one-to-one basis, specific problems brought to them by any organization.

The centers are staffed by NASA and contractor professional scientists and engineers who, in addition to using the NASA data bank, can call on the consulting services of the university faculties and NASA professionals to help solve a particular problem.

This system does work, according to Richard L. Pessolano, who established a new company based on NASA's heat tube technology. However, he told the subcommittee that changes are needed in the system to make it more responsive to the needs of small businessmen and entrepeneurs. Pessolano recommends that, for a start, NASA develop single source indexes detailing all the work done on a particular technology. He also advocates having the technology utilization program provide some mechanism by which the major research companies that developed the new technologies would provide consulting services for new companies just starting out. And Pessolano would like to see NASA save some of the specialized equipment and instrumentation related to the development of a new technology, which is often dismantled or auctioned off at the end of a project, so that it could be acquired or leased by new companies interested in commercializing the technology.

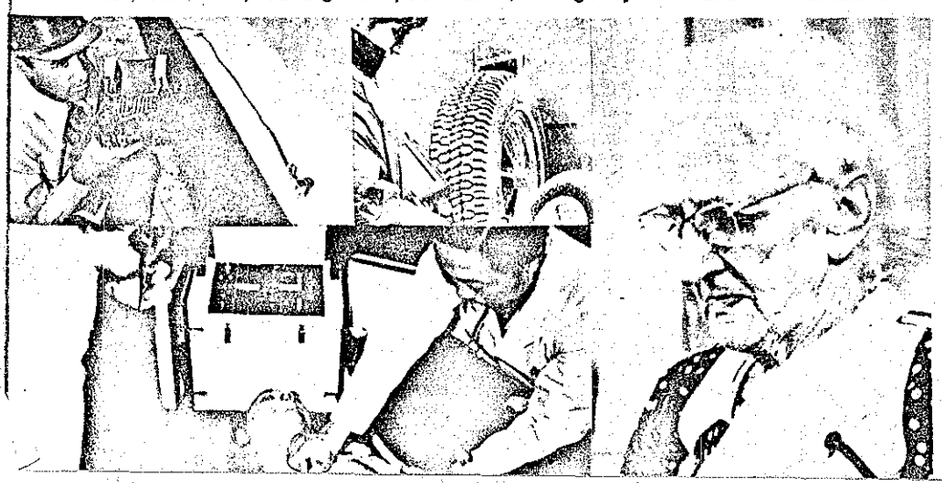
Another successful user of the NASA technology utilization program, Alfred E. Mann, president of Pacesetter Systems, which developed the rechargeable pacemaker, advocates making sweeping changes in the way government laboratories operate to increase the effectiveness of technology transfer. This might be accomplished, he says, by letting government inventors participate in the rewards of successful projects. He advocates using 50% of any royalties derived from a government invention to offset the developing agency's budgeted expenses, with 25% of the proceeds used to fund special projects of the inventor, and the rest of the money actually paid out to the inventor and the laboratory managers.

Although many industries have implemented NASA's technology successfully, state and local governments are running into a number of problems in their efforts to do the same. For example, J. Hugh Nichols, a Maryland state legislator, says that the costs of NASA information services tend to be prohibitive for state and local governments and recommends that some arrangements be made to alleviate this burden. Even NASA's location of its application centers at state universities has had an unintended effect. Nichols points out that the political climate between legislature and university in some states has prohibited establishing effective relationships between NASA and the state governments.

Despite the problems in the local government sector, Senate subcommittee members seemed pleased with the way NASA's technology utilization program is going and are unlikely to recommend any major changes. However, they well may recommend increased funding for it in the future. But it will be at least a year before NASA gets any more money. Its 1976 appropriations bill has just passed Congress and it contains only $1.5 million of a total NASA budget $3.2 billion for the technology utili tion program.

Janice R. Long, C&EN Washi

NASA technology transfers include (clockwise from top left) bridge defect detector, winter tire, rechargeable pacemaker, emergency medical communications



'Privilege' Is Worry For NCI

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By Robert Pear
Washington Star Staff Writer

The director of the National Cancer Institute says the privileged position of his agency, including special access to the White House, is causing "concern, suspicion and even contempt" among other scientists.

As a result, Dr. Frank J. Rauscher Jr, director of the cancer institute, told a presidential advisory panel yesterday, "people in Congress are beginning to ask about the motives of the entire biomedical community."

And they have a right to ask after hearing scientists bicker, he said.

"ARE WE as physicians and scientists really interested in doing something about a major public health problem, or are we more interested in getting our share of the funds so that we can extend our bibliographies? You hear this more and more," Raucher said. "It does cause me concern."

Rauscher acknowledged that with its "end-run budget authority" and other privileges, the cancer program had won more money, positions and physical space than other units at the National Institutes of Health.

The chain of command is so arranged that "we can get the ears and eyes of the President directly," Rauscher said. He said these special prerogatives were justified because the country has placed high priority on the cancer program.

He appeared at a hearing of the President's Biomedical Research Panel, a seven-member group created last year to conduct a sweeping examination of NIH, looking in particular into problems of management and morale.

THAT PANEL was told yesterday that patient care mandated by Congress might be draining resources and the attention of scientists away from basic research into the causes of cancer.

NIH, under a multitude of external pressures, is pulling "away from reasonably clear, essentially noncontroversial research roles under strong leaders toward both unclear and thoroughly controversial roles in the areas of applied knowledge through demonstrations, control programs and direct service delivery," the panel's staff said in a report.

In an effort to demonstrate the fruits of its research, for example, NIH is providing "seed money" to start up local cancer-control programs, which emphasize early diagnosis, treatment and continuing

"IT'S GOING TO BE traumatic," Rauscher predicted, "if a community five years down the road cannot get enough money to treat its leukemic children as well as they're doing in a demonstration (program). There's going to be all kinds of hell to pay, I'm sure, if we pull out."

But the cancer institute intends to pull out of such programs after their first three to five years.

Several panelists, including Benno C. Schmidt, who also is chairman of the President's Cancer Panel, expressed the belief that the institute should not be in the business of recognizing "comprehensive cancer centers" around the nation, a task it was assigned by Congress.

Rauscher said it was too early to tell whether his agency was "skimming off the cream of the country's biomedical research competence into cancer to the detriment of other social and health problems." But he acknowledged that "certainly the potential is there."

Rauscher said his major concern was that the fight against cancer was "being viewed more and more as successful at the expense of other programs."

THE STAFF of the biomedical research panel made these other points in its report:

- NIH is "in trouble," caught in the middle of deepening ideological, political, budgetary and fiscal controversies."
- Leadership of NIH has been "increasingly politicized."
- NIH is no longer devoted purely to the "quest for new knowledge," but, to the distress of some of its scientists, is pursuing nonresearch aspects of the war on diseases as well.
- "The internal organization and functioning of the NIH lacks coherence."