

The dismantling of the astronaut corps: Some questions

What is currently occurring at NASA's Manned Spacecraft Center (MSC) illustrates poignantly a criticism frequently made of NASA and, as frequently denied: NASA is too oriented to machines and not enough to people and to science. The question asked is whether NASA has been able to make the most creative and most effective use of all its personnel.

Astronauts—men who have sat atop a Saturn 5 rocket—are being asked to find other jobs. About a third of the 45 active astronauts have been so approached. Two, James B. Irwin of Apollo 15 and Edgar D. Mitchell of Apollo 14, announced last month they were retiring. The implication is that, at least, in their cases, they wanted to leave. Others, however, have also been asked to find jobs, and have been given a few more months. A few with seniority, when asked, said they would not leave.

The situation is complex, but the reasoning of MSC is not: Cuts in the space program have required a reduction in personnel. Donald Kent Slayton, head of the astronauts' training, explains: "We have too many guys to fly the missions that are left." The astronaut corps is being reduced to the ones that have been assigned to Apollo 17, three Skylab flights and the joint docking mission (SN: 6/3/72, p. 356).

"The problem is not what is happening to a group of space heroes or prima donnas," says one observer. "It is with the way NASA has viewed the role of the astronauts and the job they were to do. It is a close-ended instead of continuous career."

Training an astronaut takes enormous time and money, but the end product is a man with multidisciplinary skills in pilotry, engineering and science. His expertise is unique and not readily transferable. With the exception of a few astronauts who quit early in the program, all readily say that their jobs have been (and are) "a fantastic experience," one they were lucky to get, and one they would

accept again even if they were fired tomorrow.

The nature of the training is not the problem. It is how to use them once they have been trained. The current conception is mission-oriented. An astronaut flies, then he is through. His task is viewed as a once-in-a-lifetime shot rather than a life-time commitment that NASA could use—one way or another—with the shuttle, with earth resources, or in management. "If a guy is making a useful contribution, whether he is going to fly or not," says one astronaut who is staying, "use him. Don't count the number of couches left [seats in space] and turn him out to pasture." This sentiment is shared: "My main criticism is that NASA takes careers from everyone of us without replacing them. It's like being tossed in the garbage can."

"All of us—pilots and scientists alike—came here with what now appears to be an ill-conceived picture of how NASA would use us," another who is staying told SCIENCE NEWS. "The pilots thought they would be able to maintain their skill in test-pilotry. The scientists thought they would be able to stay current in science, provide expertise in their own discipline while getting trained." It has not turned out that way. "We found ourselves put in a homogeneous group with no particular attention given to our expertise. The idea is to learn to fly a spacecraft and if you make a flight, then you are through, and if you don't fly, you are through. Then you start over again in the career you dropped 10 years ago, or find a new one."

What should be done with a man who has been or could have gone to the moon? This is a problem NASA appears not able—in some instances—to deal with. On the other hand, the men themselves develop a certain elitism that makes it difficult for them to adjust. After their training, most other jobs tend to lack apparent challenge.

The astronaut corps is being reduced. The logical next question is, will it be built up again, with all new people, when the shuttle becomes operational?

Getting technology to the states and cities

Last year, an ambitious cloud-seeding project attempted to alleviate a severe drought in Florida. In New York, a new electrical switching system is expected to significantly reduce housing construction costs. A county in Michigan is seeking ways to use municipal sewage for fertilizer.

These are all examples of public technology—technology applied to the goals and needs of civil governments. Unfortunately, according to two reports issued this week, such examples are few. For a number of reasons, state and local governments are making little use of science and technology, though they are faced with a widening spectrum of problems, such as pollution control and housing needs, that require scientific knowledge and judicious application of technology. The reports, one prepared by the Council of State Governments and the other by the Federal Council for Science and Technology's Committee on Intergovernmental Science Relations, agree that

much of the blame for this lack rests with the Federal Government.

The Federal Government currently spends \$17 billion a year for research and development; combined expenditures of all 50 states amount to less than two percent of that amount. But the Federal Government makes little effort to disseminate the results of research to the states or to include state and local government representatives in planning research projects. The irony is that much of the federally funded research is applied to problems that are basically the responsibility of state and local governments. "The assumption has been," says the CSG, "that Federal agencies can design innovative approaches to housing, transportation, or health care that fit the settings of 50 states."

For their part, state governments simply don't have the resources to fill the need for public technology by themselves. States do not have the funds to hire the large numbers of professionals needed, nor can they offer the benefits, such as opportunities for advancement and job mobility, that would attract scientists and technicians.

To fill the gap, the CSIR recommends that the White House Office of Science and Technology name a Federal agency to make sure that the views of state and local governments are incorporated in national policy decisions bearing on state and local needs and to help state and local governments develop and coordinate their own science and technology programs. Federal agencies should try to identify possible public technology applications of their research and development programs. A task force established by the FCST would survey state and local governments to determine which problems should receive priority. Other recommendations include intergovernmental exchange of scientific and technical personnel, joint Federal-state-local research projects, and a central data bank.

The CSG is more specific in its recommendations and would place a greater share of the burden on the Federal Government. The National Science Foundation, says the CSG, should create a Public Technology Task Force composed of state, local, Federal and industry representatives.

This task force would select three high-priority problems, define requirements and specifications for the hardware and systems needed to solve them and choose three to six states to test the solutions. If this first phase, which should be operational by mid-1973, works out, the project would be expanded. The CSG also proposes that panels of state and local government representatives be established in all Federal agencies concerned with domestic problems; that up to 15 percent of the R&D budgets of Federal agencies be reserved for joint projects with state and local governments; and that state laws and procurement policies be reviewed so that technological products could be standardized or purchased jointly. □

A power theory for why people drink

Why will people willingly consume a substance that tends to deprive them of physical and mental coordination and can lead to extreme discomfort on the morning after? People use alcohol, many psychologists answer, because it is a central nervous system depressant that relieves tension and curbs anxiety. David C. McClelland of Harvard disagrees. He says most people are moderate drinkers (one or two drinks) and alcohol consumed in such small amounts has no effect on anxious thoughts. Moreover, he says, the physical, mental and social effects of large amounts of alcohol should actually increase anxiety.

The anxiety theory, McClelland believes, is a hangover from prohibition and the Puritan ethic. Researchers, he says, were unwilling to accept the fact that alcohol could actually produce good feelings. They limited it to the job of covering up bad feelings (anxiety).

Assuming that men do drink because they enjoy the experiences it produces, McClelland began 11 years ago to search for a pleasant experience common to all drinking people. Last week in Washington, at the second annual alcoholism conference of the National Institute on Alcohol Abuse and Alcoholism, he concluded that "males drink primarily to feel strong."

The thematic apperception test (TAT) was used to examine fantasies produced while drinking. Before, during and after drinking the subjects were shown pictures and asked to write stories about them. At college fraternity parties and in working-class taverns McClelland found an elevated incidence of socialized power thoughts with small amounts of drinking, and, after larger amounts of alcohol, more personal power thoughts and fewer indications

of inhibition than in nondrinking controls.

To further examine why people drink, he conducted a cross-cultural study. Folk tales of 44 primitive societies were coded and examined for thematic content. More thoughts of power and fewer of inhibition were found in the heavy drinking cultures. Hunting cultures tend to drink more than others and the traditional explanation was that the hunters were anxious about finding their next meal. McClelland and his researchers found no evidence of increased anxiety in these cultures. "Accordingly," he says, "these new findings are interpreted as support for the hypothesis that males drink primarily to feel strong, and that men who drink excessively have excessive power concerns and low inhibitory tendencies to start with."

Sharon C. Wilsnack of Harvard worked with McClelland in development of his theory. But she accuses him of making generalizations about all drinkers on the basis of studies of male drinkers. She conducted experiments with women, using the TAT, and found that drinking does not increase feelings of power in women but can temporarily enhance feelings of womanliness.

Ozzie G. Simmons of the Ford Foundation in New York also finds some fault with McClelland's hypothesis. The power theory, he says, may be only a reinterpretation of previous dependency and anxiety theories. Also, it does not explain religious drinking, total abstinence or occasional drinking sprees. The power theory, he says, is an interesting one but it needs more systematic testing.

In his new book *The Drinking Man* (see p. 383) McClelland admits to these limitations, but concludes "that the alcoholic experience has a common core for men everywhere and that they drink to get it . . . the experience centers everywhere in men on increased thoughts of power." □

A distemper treatment for man's best friend

Because of distemper vaccines, hard-pad distemper in dogs is far less common than it used to be, but quite a few dogs still come down with it. The disease, believed to be caused by a virus, makes a dog feverish, hardens the pads on the bottom of its feet, stiffens its legs and eventually kills it. Many veterinarians will not even try to treat a dog with hard-pad distemper.

For the past five years, however, a veterinarian and marine zoologist in Pensacola, Fla.—Samuel R. Monroe Jr.—has been trying a novel treatment on more than a hundred dogs of all



Monroe administering ether to dog.

breeds and in various stages of hard-pad distemper. The technique has saved the lives of virtually all the animals. At the same time, Monroe has run control groups, giving dogs with hard-pad distemper traditional antibiotics treatment. Nearly all the control animals died. Monroe's treatment involves the use of ether. He puts an ether cone over a dog's nose and anesthetizes it for 15 to 20 minutes a day for five to ten days. "I tried ether out of desperation," he admits, "in an effort to get something into the dogs' bloodstreams that would be effective against the virus."

The virus for hard-pad distemper is believed to settle in epithelial and nerve tissue. Monroe says he has no idea how the ether acts on the virus, but he speculates that the drug might dissolve the phospholipid capsule of the virus, thereby destroying the integrity of the virus. Until recently, veterinarians in the Pensacola area were skeptical of Monroe's treatment, but now they are interested in it—especially as Monroe recently saved a dog with hard-pad distemper belonging to one of his colleagues.

In the past five years Monroe has also successfully treated cats and fish with hard-pad distemper and a kind of pneumonia. He has also obtained some good results by giving ether to dogs with inner-ear infections. Although the Florida veterinarian says he is a "doctor of all animals in the world but man," he hopes that his technique might hold value for treating various virus-caused diseases in people. He is particularly anxious to explore the effects of ether on rats with leukemia, and believes that ether might be used to treat cancer in patients. "To my knowledge," he says "virtually no gases have been tried on cancer patients."

A spokeswoman for the National Cancer Institute confirms this state of affairs. "About the only gas that has been tried on cancer patients," she says, "is oxygen, in its use in conjunction with X-ray therapy." □