



For the past fifteen years or so, the United States has been spending billions of dollars on its space exploration program. One of the arguments for investing these huge sums of money has been national security. The benefits which may have accrued to our nation in this area are cloaked in secrecy for the most part, and the value is, therefore, difficult to assess.

Another argument for investing in the program is benefits which may come to us all from research and development of scientific information we would otherwise not have attained the ways this knowledge can be applied to improve the lives of the American people.

This is, I believe, a good argument for spending a reasonable amount of money, if in fact the research does offer the country's citizens a better way of life, or if problems such as the energy crisis might be solved with new information acquired from the exploration program.

To do any of us any good, of course, the information must be made available to the public; to find out if the information is available I wrote to the National Aeronautics and Space Administration (NASA) and requested information about new advances in energy resources, medicine, and safety devices.

I've learned that NASA's Application Team Program is an effort to find solutions to technological problems in many areas of public concern not directly related to aeronautics and space research.

The teams work with selected educational and research institutions to adapt and apply technology derived from the aerospace program to specific problems that have been carefully defined in cooperation with other government agencies and public interest groups on federal, state, and local levels.

NASA's rapidly increasing storehouse of scientific and technological information is available to everyone. It is the purpose of the Technology Utilization Office to enlarge the return on the public investment in aeronautical and space activities to make tax-paid developments available to the public.

For instance, a new method of repairing teeth has been developed through NASA research. Tooth enamel is composed of a mineral called brushite which can be chemically reproduced and the crystals used to reconstruct tooth enamel.

First the affected tooth area is cleaned and filled as in standard dental treatment. Next the surface on which the enamel is to be grown is roughened to form crystal-growth sites. The nutrient gel is then applied and covered with a super-saturated solution of a highly soluble calcium salt, and a temporary cap placed over the tooth.

Chemical action takes place to form brushite; the catalytic effect of the roughened tooth surface causes the brushite to form on the surface of the tooth. After several days the cap is removed and the tooth surface polished.

Brushite is also a mineral found in our bones, and although no application has been developed to date, it's possible perhaps that further research will develop similar methods for treating bone deterioration, such as osteoporosis, to which older people are often subject.

A second example is a practical solar energy heating and cooling system now technically and economically feasible for residential purposes. Its major components are a flat-plate solar collector to process solar radiation, a thermal-energy storage system to retain collected energy for use at night or on cloudy days, an absorption cycle

heat pump for both heating and cooling houses, and a hot water system.

The recommended solar collector consists of two transparent covers over an aluminum thermal absorber plate treated with a special selective coating. The orientation of the collector would depend upon the geographic location. The heat is transferred to a fluid that carries it to the energy storage system.

The recommended energy transfer fluid and the storage fluid is ordinary water, and an insulated and slightly pressurized container is recommended for the storage system.

The heat pump works most efficiently on an ammonia and water mixture, and the pump itself is similar to commercial units now available.

This system, according to NASA, should be usable in all parts of the United States, and although the costs of installation will be greater than for conventional heating systems, this additional expense will be defrayed after a few years of service by the very low operating costs.

Other developments people may soon find making their lives better and safer are such things as inexpensive lightweight mirrors, mechanical solar motors to convert the sun's radiation directly into mechanical energy, a tornado detector and alarm system which attaches to an active T.V. set and sounds an alarm when a tornado is within 18 miles of the device, and a fail-safe fire detection system.

Everyone interested in any of these, or approximately 6,000 other inventions and discoveries, is entitled to receive full particulars and encouraged to put the information to practical application.

These are all described in NASA Tech Briefs which provide technical information about the innovations and their underlying concepts and operating principles.

Backing up the briefs are Technical Support Packages obtainable from the Technology Utilization Office, Code KT. NASA, Washington, D.C. 20546.

Some of the inventions developed by the NASA teams have been patented and others have not. To encourage the earliest possible commercial use of innovations resulting from NASA-sponsored research and development, all inventions patented by NASA are available for licensing by American firms.

Anyone who is interested in learning more about this data which belongs to us, the American people, and who writes to NASA, Washington, D.C. 20546, asking either for specific or general information in any technical field, will receive full details for obtaining the information he would like.

We've spent billions of dollars on this program; the developments that have come from it promise solutions to our present problems, if we will but put them to use.

Mechanical aptitude is a quality sometimes described as Yankee ingenuity. And that's all it will take to apply many of these discoveries for happier, healthier and safer lives. The ground work has been laid for us; it's all sitting down there in Washington, awaiting some initiative on your part.

What are we waiting for? Someone else to do it?