

Spacecraft Center so that that work and the data obtained can be made available to these scientists throughout the country that are interested in and concerned with these matters. Therefore, while the development activities are proceeding, we are also phasing over into a stronger science emphasis.

At the Marshall Space Flight Center, the Saturn vehicle development work, for which Marshall has been responsible, is now nearing completion. The 14 successive successful flights of the Saturn IB and the first successful flight of the Saturn V conducted last November, indicate the competence of the NASA organization at the Marshall Space Flight Center and of the industrial contractors with whom Marshall has worked in the development of this vehicle. Although continued testing will be required at the Mississippi Test Facility in order to test out those vehicles that are produced to be flown in later missions, the advanced design, research and development work is decreasing on these vehicles. We have, therefore, assigned to the Marshall Space Flight Center responsibility for development of the ATM, the Astronomy Telescope Mount, that will be used in conjunction with manned flights to be conducted in the 1970's using much of the Saturn-Apollo capability. This astronomy work is quite different from the kind of vehicle development work with which Marshall has been associated in the past but, here again, it is the basic competence of the people assigned that permits them to move from one activity to another and still make significant contributions. Obviously, some change in the discipline skill mix at Marshall will be required as they phase over into these other activities, but this change is still built on the foundation of the basic scientific, engineering and management competence of that organization.

The Ames Research Center, at which hypersonic aerodynamic research led to the definition of the shapes required to permit ICBM weapons to reenter the atmosphere and also led to the basic theory and design information for the reentry conditions of space vehicles has moved into the field of biosciences as an essential ingredient of NASA's program. They are defining experiments, developing instruments, and working on evaluation of biologic chemistry as part of their activities aimed at the study of exobiology, extraterrestrial life. Again, on the base of an overall scientific and engineering competence, it is possible to modify work assignments and to expand readily into new areas of science and technology.

The main point I want to emphasize by these numerous examples is that the skill and training and competence of our people permits them to make significant contributions in the changing needs of aeronautics and space work and can do the same in work on other national programs and needs. Physics is physics no matter what organization it sits in; chemistry, mathematics, biology, these are basic sciences that do not vary depending on the organization in which these disciplines are practiced even though the specific application and emphasis may be different.

The engineering talents required to advance our technology of batteries, fuel cells, nuclear power sources, aircraft engines, rocket propulsion, materials development and fabrication, electronics systems analysis and design, test and development methods are also directly applicable to the propulsion, power, structural analysis, guidance and