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Remarks

by

James E. Webb, Administrator
National Aeronautics and Space Administration

during

Langley Inspection Week

at

Langley Research Center
Hampton, Virginia

May 18, 1964

It is a great pleasure to welcome this distinguished assemblage to the Langley Research Center and to revive an old custom, the annual field inspection of research centers by interested representatives of industry, government and universities.

Years ago, the National Advisory Committee for Aeronautics, one of NASA's ancestors, annually conducted field inspection trips so that the nation's leaders in aviation could have a first-hand look at the progress in research made by the scientists and engineers of NACA.

Today, we are gathered for a first-hand look at advanced research and technology not only in aeronautics, but also in the new realm of space.

It is most fitting that the revival of the annual field inspection trip takes place first at the Langley Research Center, for Langley was the first research center of the original NACA, and is today, as it was in 1917, working at the frontiers of scientific and technical knowledge.

Langley currently has responsibility for an annual budget of nearly $77 million, carries on cooperative programs with 49 universities, and does business with 4,500 industrial firms. Langley personnel number 4,300 and better than 10 percent -- 472 to be exact -- are increasing their value through graduate studies. In addition, there are 112 undergraduate students in cooperative engineering programs who spend part of their time here at Langley, and part of their time in classes at 15 universities in 13 states.

The Langley Research Center is in reality a national resource, typical of the "triangular approach" to the problem areas of aerospace; with industry, universities, and government in-house competence teamed up for close cooperation in enlarging man's ability to operate, vicariously and in person, both in the atmosphere and in space.

While a large part of our efforts are concerned with space, we are still conducting important research in aeronautics. Our Office of Advanced Research and Technology, which is responsible for aeronautical research programs as well as research for many areas of manned and unmanned space flight, today has a budget five times greater than that of the old NACA.

It is important to remember that NASA is not an operating agency, in the sense that the Weather Bureau and the Air Force are. Rather, NASA's role is much closer to that of the NACA, a research and development organization.

Weather satellites are being developed and flown by NASA, but when they are perfected, they will be operated by the U. S. Weather Bureau.

Similarly, NASA has carried out myriad research and development operations to design and fly a series of experimental communications satellites, in close cooperation with our partners in industry and the nation's universities. Most of you are familiar with these programs, I feel certain -- the

Echo balloon satellites, the Telstars, the Relays and the Syncoms -- designed to test the best system of satellite communications. When such a system has been developed to the operational stage, however, it will be the Communications Satellite Corporation, not NASA, which will act as the operating agency.

The concepts behind the flight hardware of our aeronautical and space programs are tested in the laboratories here at Langley, and in other NASA research centers across the country. It is here that tomorrow's space capabilities grow from ideas into workable designs. Here we are working on truly advanced concepts, beyond the limits of today's technology.

It is important to note that the studies being undertaken here at Langley are in no sense commitments to flight programs, or hardware. They are, rather, feasibility investigations into areas which appear to hold promise for future space missions. When the decisions are made on the space programs to come after Apollo -- the manned exploratory flight to the moon -- they will be national decisions, made in the light of conditions then prevailing, and carefully weighing the wide range of choices possible to the nation at that time.

It is within this framework of choice, granted to us by our rapidly expanding capabilities in space, that we are investigating, at Langley, the possibilities of manned orbiting research laboratories, including life support systems, resupply, crew conditioning and orbit keeping; advanced techniques for guidance and control for interplanetary mission trajectories; rendezvous and landing techniques on other planets; hypersonic air-breathing transport craft, traveling at speeds above Mach 5; recoverable boosters capable of being used repeatedly to put payloads into orbit; and magnetoplasmadynamics and interplanetary propulsion.

Langley capabilities include low-speed aircraft technology; supersonic fighter and transport technology; noise alleviation work, including the problems of sonic boom; aircraft operating problems, including takeoffs and landings; launch vehicle dynamics and model technology; inflatable satellites; micro-meteoroid satellites; thermal protection of entry vehicles; high-temperature structures; development of simulators for manned spacecraft operations; and re-entry communications.

Langley plays an important role in our striving for better, safer, more versatile aircraft. On the supersonic transport program, for example, NASA's Langley facility has put in more than 10,000 testing hours on supersonic transport concepts. Since 1959, when a supersonic transport plane was first proposed, until the first of this month, our people here at Langley have devoted 2400 eight-hour shifts to working on the supersonic transport.

Similarly, the TFX, or the F-111, as it is now called, is based on a new concept of flight developed within the framework of NASA and the NACA -- the variable sweep wing, which changes the shape of the aircraft for the most effective flight configuration in several different speed ranges. More than 2,000 running hours of NASA wind tunnel tests have been conducted on TFX or F-111 flight models here at Langley -- an aggregate of some 720 eight-hour shifts -- and work is still going on to support contractor efforts on this aircraft.

Much aeronautical knowledge has been accumulated here at Langley. Nearly every military aircraft produced in this country, and many of the civilian aircraft also, have benefited from research and testing at Langley, and the results of this research and testing has been available to constantly improve aircraft designs of superior performance.

Here, too, the "drag cleanup" process added substantial increments to the performance of the military aircraft which helped the nation win victory in World War II.

Illustrative is the case of the P-39, the Airacobra, one of the great fighter planes of World War II vintage. When a full-scale model of the Airacobra came to the Langley wind tunnels for testing, it had a rated airspeed of 340 miles per hour. But when it came out of the tunnel, with the sources of unnecessary drag eliminated, the Airacobra flew at 392 miles per hour, a gain of 52 miles per hour.

The NASA program is not a drive with the single purpose of landing U.S. astronauts on the moon. As was the case with NACA, our purpose is across-the-board research and development competence to meet any national needs, civilian or defense, that are now apparent or may arise as men and their instrumented devices operate with greater competence in the near and far reaches of space.

You will see some of the results of this research and development work today, and I feel certain you will find it most informative. I, for one, am proud of the progress made here at Langley, and I hope you will be, too, after your inspection tour. Thank you for being here today.

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