

AERONAUTICS

Research Is Most Fundamental To Obtaining Air Supremacy

N.A.C.A. Annual Report Declares Whole Effort of Air Defense Will Be Wasted If Planes Do Not Perform

"SCIENTIFIC research is the most fundamental activity of the Government in connection with the development of America's potential strength in the air," Congress was told in the report of the National Advisory Committee for Aeronautics, transmitted by President Roosevelt. It was submitted to him by Dr. Vannevar Bush, president of the Carnegie Institution of Washington, chairman of the Committee.

"No matter how greatly production facilities may be increased, no matter how many pilots may be trained, unless the aircraft that are built for action are at least equal in performance to those of any possible enemy, the whole effort will be largely wasted," the report continues.

Importance of such research has been recognized, for, it is stated:

"The Army and Navy have maintained the closest contact with the Committee's laboratories and have taken the fullest advantage of the Committee's facilities in the solution of their pressing problems. The Army Air Corps has appointed at the Committee's laboratory at Langley Field a liaison officer, and the Navy's liaison officer, having headquarters in Washington, visits Langley Field at regular and frequent intervals.

"The Committee has two major research laboratories, one at Langley Field, Va., known as the Langley Memorial Aeronautical Laboratory, and the other at Moffett Field, Calif., known as the Ames Aeronautical Laboratory. The flight research laboratory was the first unit of the Ames Laboratory to get into operation. Other units will be placed in operation as rapidly as their construction is completed.

"Both the Langley Memorial Aeronautical Laboratory and the Ames Aeronautical Laboratory are devoted chiefly to aerodynamics, although the Committee has at Langley Field a structures research laboratory, a hydrodynamics research laboratory and a small engine research laboratory. To remedy the deficiency in engine research facilities the

Congress by act approved June 26, 1940, authorized the construction of a third major research station for the Committee which is to be an aircraft-engine-research laboratory. The site finally selected by the Committee under authority of that act is adjoining the municipal airport at Cleveland, Ohio, and the Committee is proceeding with its construction. The details of this action are set forth in Part II of this report.

"The Committee highly appreciates the support of the President and the Congress in providing these two additional research stations during the past 2 years. They were indispensable to strengthen research and to accelerate aeronautical progress in the United States. They will prove of great value to the national defense, and it is confidently predicted that their economic value to the Nation will more than offset their cost."

Many of the researches are necessarily secret, for, the report states:

"The Committee has found it necessary in the national interests to withhold from public distribution the detailed results of its researches. Therefore, until world conditions change, this and succeeding Annual Reports will deal only in general terms with the results accomplished."

Higher speed planes, with greatly increased armor and armament, are viewed as the outstanding trend produced by the European war. Special studies to meet these requirements are being made, it is said.

"The demand for increased speed has resulted in the need for much greater horsepower," the report continues. "Whereas pursuit airplanes of a year ago were equipped with engines of 1,000 horsepower, they are now being designed with single engines of 2,000 horsepower. The trends toward increased speed and higher ceiling, toward larger and heavier engines, toward increased armor and armament, necessitate larger and much heavier types of airplanes. This condition has established a defi-

nite trend toward higher wing loadings.

"Because of the higher flying speeds demanded by the Army and Navy, the Committee has given special study to the important subject of compressibility shock encountered at high speeds. With the speeds now attainable, it is essential that care be taken to design all parts of the airplane structure so as to prevent velocities approaching the speed of sound from occurring at any point. The 500-mile-per-hour wind tunnel at the Committee's Langley Field laboratory has proved of great value in the study of this problem."

Despite war needs, commercial aviation should not be neglected, the Committee declares. It believes, it says, "that commercial aviation will prove of ever-increasing importance to the United States in promoting international trade and good will, especially in the Western Hemisphere. When the present wars have ended, aviation will have an opportunity to prove its real value to civilization in shortening the distances between nations and in facilitating international trade and commerce. When that day comes, the extension of world trade routes of the air will bring some compensation for the awful destruction wrought and to be wrought by military aviation before peace again prevails."

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PUBLIC HEALTH

National Defense Means More Jobs for Handicapped

NATIONAL defense activities with the accompanying stimulation of industry mean more jobs for physically handicapped workers, Dr. D. L. Lynch, of Boston, declared at the Third Annual Congress on Industrial Health held in Chicago under the auspices of the American Medical Association.

Employment placement of 3,067 handicapped persons in the northeastern area of the nation, reported by the Federal Vocational Rehabilitation Bureau, is seen by Dr. Lynch as probably resulting already from the effect of defense activities on industry.

A disabled person, if placed in the right job, is just as efficient as a non-handicapped person, Dr. Lynch believes. Theoretically, three out of every 10 jobs could be handled competently by suitably trained workers with physical handicaps, Dr. Lynch said in pointing out that the range of positions which could be filled by the handicapped is much greater than generally believed.

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