(Not printed at Government expense)

Congressional Record
United States of America
PROCEEDINGS AND DEBATES OF THE 79th CONGRESS, FIRST SESSION

EXTENSION OF REMARKS
OF HON. CLIFTON A. WOODRUM
OF VIRGINIA
IN THE HOUSE OF REPRESENTATIVES
Saturday, March 24, 1945
ADDRESS
BY
MR. JOHN F. VICTORY
SECRETARY OF THE NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

Mr. WOODRUM of Virginia. Mr. Speaker, on Friday, March 23, at noon, before a notable audience, composed of members of the National Press Club, oficers and members of the armed services, and Government officials, there was delivered an address which I think will be of great interest to Members of Congress and all others who are interested in aviation and its future. Mr. John F. Victory, secretary of the National Advisory Committee for Aeronautics, was the speaker and his subject Keeping America First in the Air.

It was my great pleasure and privilege to hear this splendid address and I take much satisfaction in knowing that as a member of the Appropriations Committee of the House, I have sponsored for many years appropriations for the National Advisory Committee for Aeronautics, known as the NACA, the House Select Committee on Post-War Military Policy, of which I am chairman, has just concluded interesting hearings on scientific research and development in the post-war period. This committee will be interested in Mr. Victory's address. The address follows:

Mr. President, members of the National Press Club, distinguished guests, and friends, the honor of being invited to address this distinguished organization is especially appreciated by me to the extent that it evidences your interest in keeping America first in the air. Your curiosity about the work of the National Advisory Committee for Aeronautics (N.A.C.A.), which I have the honor to represent, is encouraging.

The overwhelming influence of German air power during the first year of the war in Europe focused the American people to the danger of having to pay taxes to the Axis. With the invasion of France and the Low Countries, President Roosevelt sounded the bell with his call for 100,000 airplanes, and American industry responded with the miracle of aircraft production. No single measure has had more far-reaching affect in changing the whole course of the war.

Subsequently, in the battle of Britain there was an appreciation that the quality of the air war in Europe was determined by the quality of aircraft. And the accuracy of this appraisal was born of the realization that America was destined to produce in great quantity the superior aircraft to which American ingenuity and American industry was destined to produce in great quantity the superior aircraft, which was destined to produce in great quantity the superior aircraft required to win the war. This high-level development program was alone sufficient to require enormous expansion of the work of the N.A.C.A. in order to perform the function of providing a complete and reliable research and development program was alone sufficient to require enormous expansion of the work of the N.A.C.A. in order to perform the function of providing a complete and reliable research for such a venture.

Although the Congress, too, can seemingly work miracles in its field, it cannot legislate superior performance into any American airplane. But it can set science to work. It did so, and that is where the N.A.C.A. comes into the picture.

There is no natural law known that today fixes a limit upon either the speed or the size of aircraft. All types of American airplanes in production today, and many foreign types, make use of fundamental design data from the laboratories of the N.A.C.A. Let me emphasize, however, that in the development of America's air power the N.A.C.A. has been only one member of the team, a silent partner, so to speak, of the military services and of the aircraft industry. The over-all progress is the result of the organized effort of millions of Americans involving many organizations governmental and private, including not only the military and manufacturing establishments directly concerned with aeronautics, but many supporting agencies and industries. Development in aeronautics has been extremely rare. For which an aircraft organization or individual, in or out of the Government, deserves all the credit.

The airplane and the tank were introduced in World War I, but it remained for the present war to develop their dominant role. In like manner, we may expect that the new weapons recently introduced in this war may be the forerunners of a whole new line of weapons that may dominate the future. Aviation is entering an era of revolutionary change resulting largely from the development of new methods of propulsion. Entirely new fields of research must be explored. The new propulsive systems open up extraordinary new possibilities which must be studied and evaluated.

At the close of World War No. 1 the top speed of a typicai pursuit airplane was 135 miles per hour; its ceiling, 22,000 feet; and, its maximum endurance 1 hour and 49 minutes. In World War II, we have seen these high-speed aircraft penetrate the veil of the unknown as it existed at the time and made possible in a single day's rocket developments in aircraft performance which are now well-known to you. We are just piercing the veil in the field of gas turbine and jet propulsion development and can at this time but faintly glimpse the possibilities in the great unknown fields of guided missiles and super sonic travel.

Other nations may be succeeding better than we know. Present American developments as yet undisclosed would, alone, change the character of future warfare. It is staggering to contemplate the full potentialities of present reasonable probabilities as they may be developed for the future. Continuous scientific research is the best insurance that American aims will not again fall behind. Neglect of research, even for one generation, may jeopardize freedom in the next. It bears certain that never again will a nation considering aggression give us a year or more to prepare our defense. We may expect that no nation considering aggression will attack America in the future, or prompt two into war. Let us strive to keep the things that we cannot afford to lose.

The favorable box score in aerial combat in this war, which has averaged upward of 4 to 1 in our favor, is, no doubt, due in large part to the careful selection, and to the fine fighting qualities and superb training that characterized the American air forces.

The National Advisory Committee for Aeronautics was established by the Congress 30 years ago "to supervise and direct the scientific study of the problems of flight with a view to their practical solution." It is a committee of 15 appointed by the President and serving as such without compensation. The membership includes General Arnold and General Echoes of the Army Air Forces; Vice Admiral Forb and Rear Admiral Richardson; the heads of the Civil Aeronautics Administration, the Bureau of Standards, the Weather Bureau, and the Smithsonian, and 6 technically qualified experts from private life.

Out of N.A.C.A. research has developed the engineering basis for a rapidly advancing aeronautics, technology. Consequently, America had, when the war started, a healthy nucleus of a strong, competitive aircraft industry. Had it not been for the war, we might now be studying Germany and learning how to do business with Hitler.

The country can be grateful to the Congress which had the vision 30 years ago to establish the N.A.C.A. as a separate agency to advance aeronautics science, although that Congress was quite cautious about how it appropriated the taxpayers' money. It started the N.A.C.A. with an appropriation of $100,000 a year for 5 years, or so much
thereof as may be necessary." It was not clear whether the phrase "so much thereof as may be necessary" related to the $5,000 or to the 5 years.

However, from that modest start the N. A. C. A. has gradually blazed new trails in aeronautical research, and to lay the foundation for the science of aeronautics. Under the leadership of able chairman from Dr. Durand in World War No. 1 to Dr. R. H. Smith, present chairman, and including the illustrious names of Charles D. Walcott, Joseph S. Ames, and Vannevar Bush, the N. A. C. A., with the invaluable assistance of Dr. George W. Lewis as Director of Aeronautical Research, has worked as much for the Army, the Navy, and the industry to gain for America definite leadership in aircraft development.

N. A. C. A. laboratories, generally recognized in the late twenties. I recall that in the early thirties there was a meeting in the United States at the International Congress Aeronautique. Discussions by European leaders after the N. A. C. A. laboratories at Langley Field were in the effect that the N. A. C. A. was at that time 10 years ahead of any other research laboratory engaged in aeronautics. I asked how they measured this.

They replied that, if progress were to cease in the United States and Europe were to continue at its own pace, it would take any European nation 10 years to catch up. The sudden and the resurgence of German militarism. Setting Germany at a level at first to build a superior air force, Hitler authorized Goering and for the sake of aeronautics necessary to build for Germany the strongest air power in the world. Did they rush into massive production of airplanes based on 1933 designs? They did not. Realizing that the struggle for supremacy in the air must start now, in 1934 the N. A. C. A. expanded and multiplied its research facilities until at the time of the pact of Munich in 1938, it had doubled those of the United States. By that time Germany had established her research facilities and was then the strongest power in the air.

The N. A. C. A. had started in 1927 to anticipate Europe's aeronautical engineering and expand its research facilities. It is most fortunate that the additional facilities were constructed in time to make possible the development of the whole program in this country. I do not know how that has been done. The problems are too numerous to recount in detail, but I would like to give you a few examples.

The aircraft program required enormous quantities of aviation gasoline and lubricating oil, involving first of all a determination as to the kind of petroleum stocks that could be used to produce high octane gasoline in the quantities needed.

In cooperation with the oil industry's laboratories and with the Army and Navy, the N. A. C. A. has brought forth research data upon which decisions were based for the early expansion of the aircraft petroleum industry. The N. A. C. A. made it necessary to meet decisions as to petroleum stocks to be used and N. A. C. A. has, with but little time for research facilities, been able to show what different products would perform in an aircraft engine.

This continues...
CONGRESSIONAL RECORD

part in dollars and cents. Take for example the B-32 which has so rigidly awakened the Jap leaders from their comfortable dream of world conquest by putting so many of their industrial plants out of production. Its range is at present the great white hope of the Army Air Forces in the long-range bombing of Japan. As far as three new bombers coming along which are expected to be more powerful and capable than the B-29. They are the Consolidated B-39, virtually a parallel project to the B-29; the Northrop B-38, and the Consolidated B-36, which is larger than the B-29. The American people are putting into the B-29 program alone several billion dollars. Now what is the end product of that great adventure? Transportation of bombs for long distances. Recent N. A. C. A. research indicates a possible increase, say, during the coming year, in the 30 percent and it will very materially increase the return upon that investment, either in terms of dollars and cents, conservation of material resources, or by making more bombings sooner, to shorten the war. And that research cost only a few thousand dollars.

I could give you another interesting example of research as applied to the B-29. That airplane was built for a certain gross load. Military necessity required that it carry a greater load. As a result, the engines had to provide more power which resulted in their overheating. This in turn shortened their service life and sometimes caused failure in flight, and endangered the airplane and crew. N. A. C. A. research showed where the overheating was critical and pointed to a partial remedy which is being applied and is resulting in greater safety in operation. The B-29 has been a remarkable lengthening of the service life of B-29.

One of the most serious hazards to flying is ice formation. The N. A. C. A. exhaust heat delicing system for the prevention of ice formation on aircraft is being applied on several types of military equipment in production and has permitted safe flight in weather conditions which otherwise would have grounded the airplanes. It is one of the greatest contributions to the safety of flying ever made.

In time of war the N. A. C. A. operates as a research and engineering facility of the Army and Navy. Its work is the fundamental activity of the Government in connection with the development of aircraft and its relations with the military services and with the aircraft industry, and it is constant and intimate. It is this teamwork that has made possible the great development of America's airpower. The results of N. A. C. A. research will continue to be reflected in the steady improvement in the speed, range, carry, climb, stability, controllability, maneuverability, ceiling, and rate of climb, and, in short, in the general military effectiveness of America's aircraft.

One of the outstanding lessons the present war teaches is that the problem of insuring America's future security is inseparable from the problem of keeping America first in the air.

N. A. C. A. research on military problems will be largely applicable to commercial and private aircraft after the war, with this significant distinction: In military aircraft superior performance must be achieved, if at all possible, even at the expense of lowered safety and economy. In the development of civil and commercial aircraft the research emphasis must be primarily on safety and economy of operation.

Following the war world will enter the aerial age about which men have dreamed. Air transportation to all parts of the world will shrunk time and distance and bring the peoples of the earth closer together in forceful reality. The fact that we all live in one world. Underwriting America's future in the aerial age, and underwriting America's investment in such things as wind tunnels to create the kind of aircraft has been the mainstay of American aeronautical research anywhere in the world. In an air stream 20 feet in diameter and covering a certain area of maintained altitude conditions of temperature and density existing at elevations up to 50,000 feet (765, 858 degrees Fahrenheit) and a pressure about one-ninth or less of that at the surface. And this despite the fact that the power of the jet engine is under test and the energy of an 18,000-horsepower motor. If the motor is turned down to a speed of 67 below. N. A. C. A. altitudes high enough to develop the performance of jet-propulsion engines can be investigated only up to altitudes conditions. Without it many months and the running of dangerous trials would be needed to be avoided. In other nations as well, are preparing to enter upon the same field of aeronautical problems involving flight of aircraft and operation in high altitudes at speeds above the velocity of sound.

In order to explore these possibilities the National Advisory Committee for Aeronautics is actually constructing new supersonic wind tunnel having airspeeds much faster than the speed of sound, ranging up to the neighborhood of 2,000 miles per hour. N. A. C. A.'s John Shack, chief of the Langley laboratory's comprehensibility research division, and recognized authority on high-speed problems, indicated in the last annual Wright brothers lecture the possibility within a few years of aircraft traveling westward at clock-stopping speeds. This would mean a speed at our altitude equating the earth's speed of rotation on its axis and giving the effect of being stationary. In other words, regular air transportation leaving Washington, say, at 12 noon and arriving at San Francisco at 12 noon the same day.

N. A. C. A. Government Printing Office: 1946

673993—10093