

**George W. Lewis Talk at
Aircraft Engine Research Laboratory
Groundbreaking**

January 21, 1941



Jan. 23, 1941.

Mr. Chairman and Gentlemen:

Twenty years ago, engine research began in a very small way at the Committee's laboratory at Langley Field. At that time, there was little interest in aircraft engine research, and funds were very difficult to obtain. To undertake the first problem and to start the laboratory, we asked and received the support of the Navy Department.

There sits at this table a man whose interest was largely responsible for that modest beginning—Captain Kraus of the Bureau of Aeronautics, Navy Department. He was then Lieutenant Kraus of the Bureau of Engineering of the Navy. There was no Bureau of Aeronautics then, and all aircraft engine development and procurement was centered in the Bureau of Engineering.

No building was available in which to start engine research, so here the Army helped out in giving us the steel framework of a discarded hangar. The older members of the Committee will remember that old dingy hangar and the efforts we made to provide equipment and to conduct engine research.

The work expanded, and six years ago we proudly built an engine research laboratory building at Langley Field.

So you can imagine my great pleasure in being here today and having the privilege of participating in the start of this great new laboratory which will play such an important part in the future of aviation development and in our national defense.

We are very happy that this third research of the Committee is to be located in Cleveland. We have a beautiful site, ideally located, adjacent to one of the finest airports in the world, with all the desirable facilities that the city of Cleveland offers.

It seems most fitting that the aircraft engine research laboratory of the Committee is to be located only an hour's flight from the workshop of Wilbur and Orville Wright where the first successful aircraft engine to fly was constructed. Their success in the construction of this engine was outstanding, but they modestly considered it just a part of their airplane. I have always been happy in the fact that the Wright Brothers were alone responsible for the design and construction of the first complete airplane, including propeller and engine. This honor was forced upon them, as they had tried in every way to get some manufacturer interested in building an engine for their airplane.

The future of aviation as regards speed, efficiency, and safety, will, in a very large measure, depend on the results which come from this laboratory. Such rapid advance in aircraft engine design and performance has been made in the past ten years that one can

easily let himself believe that we have almost reached the limit of power per cubic foot piston displacement or the weight per horsepower of the engine.

At this moment, the possibilities of greatly improving aircraft powerplants look more promising than at any time in the past. Yes, we can say that in the past ten years we have doubled the horsepower of a given cylinder displacement with improved reliability; and we have further reduced the pounds per horsepower. But we now see, as the result of investigations on laboratory engines, results that promise much more in the immediate future. Then too, with speeds over 400 miles per hour in the present aircraft, we ask ourselves, "Will the present type aircraft provide means for producing power that are the most practical and efficient?" -- "Are there other means of obtaining propulsion?" -- "What about jet propulsion, gas turbines, or the combination of the present type engine and jet propulsion?" No, we are just at the beginning of a great undertaking, the results of which challenge the imagination, and this laboratory will play a most important part in the progress that will be made in aviation in the years to come.

In the "pre-emergency" days, visitors were allowed to go through the Langley Field laboratory from the hours of 10:00 A.M. to 2:00 P.M. We had many visitors, from many walks of life; and I recall one small group of farmers from the apple section of Virginia. A demonstration was being made of a single-cylinder high-speed diesel engine. The point was made by the demonstrator that -- operating on a Diesel cycle, with high pressures and high temperatures, and injecting the fuel through fine orifices in a nozzle at a pressure of 6,000 pound per square inch -- almost anything would burn in the Diesel engine and produce power. After the demonstrations, questions were asked, and one old farmer spoke up and said, "Do you think this engine would run on hard cider?" This is not as funny as it sounds, because, today, to obtain the maximum power from an engine, cocktail fuels are used, and in the cocktail fuels we sometimes find considerable quantities of alcohol. I don't expect that we will, as a result of research in our new engine laboratory, be able to construct engines that will run on hard cider, but I do know that this laboratory will be a most important contributing factor in the progress of military and civil aviation.

Address by George W. Lewis at luncheon following groundbreaking ceremony for the NACA's new Aircraft Engine Research Laboratory

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Lewis' talk - ground breaker
ceremonies AERL 1-23-41

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