

AERONAUTICS

Jet Propelled Planes

Nazi use of these fighter craft may be the beginning of a new chapter in aerial warfare. Allies are also using jet propelled planes.

►THE RECENT announcement by the War Department of the use of jet propelled fighter planes by the Nazi Luftwaffe may be the beginning of a completely new chapter in aerial warfare. If the new Nazi fighter proves valuable in combat, the day of jet propelled military planes is here. On the other hand, if they wash out it may be some time before these planes, which many engineers believe will have speed, altitude, and other performance characteristics beyond anything previously thought possible, are used in air warfare successfully. We already know that the German jet propelled planes have poor maneuverability, which counteracts the effectiveness gained by their speed.

Although developments in jet propulsion in the United States and Great Britain have been shrouded in wartime secrecy, it is an established fact that both countries have perfected jet propulsion planes. Allied j. p. planes have already been employed in this war in England against the flying bomb, and the experience gained from this tactical use of the plane will certainly be used to improve its flying characteristics so that when we are ready to use j. p. planes against the Axis they will be a highly efficient weapon of war.

Efforts to achieve supersonic speeds in the air have been intensified in this country since the early days of the war when our military intelligence learned of the plans of the Germans to use jet and rocket propulsion for various weapons.

The last investigation made public by the National Advisory Committee for Aeronautics in the United States, before the war, reported that after full developmental work was completed, the jet propulsion plane should be 70% to 80% efficient, or more efficient than any other power system in use, at speeds above those of sound.

The present jet propulsion engine, which eliminates the necessity for propellers, was originally of British design. It was conceived by Flight Commander Frank Whittle, and built by the British Thomson-Houston Company, Ltd., an associate of the General Electric Com-

pany. The engine was sent to this country for further development, and Mr. Whittle spent three months here working with American scientists to produce a jet power plant that is now being manufactured by General Electric in the United States for use in Allied j. p. planes.

The basic principle which underlies jet propulsion has been known since the days of Galileo and Isaac Newton. The present day jet power plant is a successful and ingenious application of one of Newton's laws of motion—the law which says that to every action there is an equal and opposite reaction.

A familiar example of this is the rotary lawn sprinkler. The jets of water go in one direction, and the reaction causes the frame that holds the nozzle to revolve in the opposite direction. You might say that the lawn sprinkler is whirled by jet propulsion.

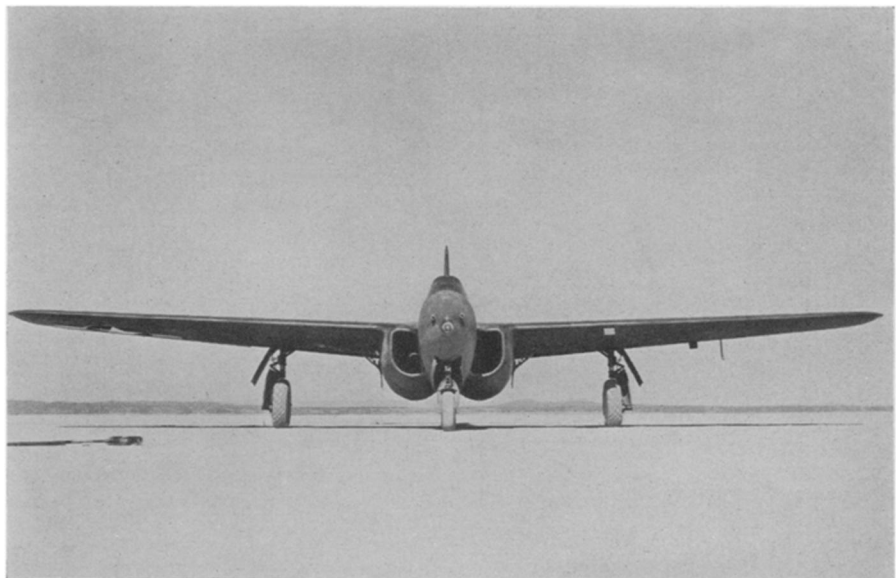
The maiden flight of the first experi-

mental jet propelled airplane in the United States took place on Oct. 1, 1942, just two years ago. The first Army officer to fly the plane was Brig. Gen. Lawrence C. Craigie. Subsequently tests were conducted both in this country and in England by the RAF. Early in January of this year, Gen. H. H. Arnold announced that the j. p. fighter planes had successfully passed experimental tests and soon would be in production. Hundreds of successful flights have been made without accident in the new planes. It is believed that a sufficient number of these planes have already been produced for training purposes.

Pilots who have flown j. p. planes report that they handle easier than the most conventional aircraft, and they are unanimous in their praise of the fact that it has none of the noise (caused by engines and propellers) of a conventional plane, and that it is free from vibration. It takes off like any other plane—not with a squirt and a swish.

Some months ago the NACA fitted standard fighter planes with special engine exhaust stacks which increase the top speed of the plane by 15 miles an hour. This is essentially jet propulsion used to squeeze out a little more horsepower which otherwise would go to waste as exhaust gas.

Science News Letter, October 7, 1944



JET-PROPELLED—This fighter plane has no propellers. This recent photo by the U. S. Army Air Forces shows the first American military aircraft to use jet propulsion motors. The jet motors are located under the wings right at the sides of the fuselage. Produced by Bell Aircraft, it is known as the P-59A Airacomet.