AERONAUTICS

British Jets Spur U. S.

America and Russia used the British Whittle jet engine as basic model for their own development. This first engine has been given to America by the British.

➤ THE British "ancestor" of American jet engines, just presented to the American nation by the British Ambassador, Sir Oliver Franks, is the first engine of the type to power a British airplane in flight. It is the engine brought to the United States in 1941 and used here as a model in developing American jets. Russia later used Whittles as models.

This engine, known as the WIX, was the invention of a brilliant young Englishman named Frank Whittle, now Sir Frank Whittle. Jet-propulsion became his dream when a cadet in 1928. In 1936 he formed a company to build jets. Early engines were failures but success soon followed. With a special plane constructed for the purpose and a Whittle engine, flying tests made in the spring of 1941 proved a complete success.

When the WIX was brought to the United States, it was delivered to the General Electric Company at Lynn, Mass., by a small team of British engineers, together with complete drawings and technical data. It is another example of the complete collaboration between Britain and America in the scientific development of needed war aids, such as radar for example.

The idea of jet-propulsion was not new in America when this engine arrived. In 1923, the National Advisory Committee for Aeronautics published a report by Edgar Buckingham of the National Bureau of Standards relative to the future of jet propulsion. However, America's attention was directed toward better reciprocating en gines, and better planes, until aroused by reports of German jet-propulsion activities.

A German jet-propelled plane actually flew in 1938, it was reported. However, it was not until 1942 that Hitler awoke to the possibilities of jet-propulsion in his war effort. Two years later, such planes were in production. The part they played in the war was minor, but they did spur both English and American development, although neither of these nations produced a jet-propelled plane that actually took part in combat.

To Britain belongs the credit for leadership in jet-propulsion of the type now employed. Which nation is actually in the lead today in the development of airplane gas turbines is debatable, although England claims the leadership and many Americans in a postion to know agree with the British. It is certain that England had the first jet-propelled commercial airliner and probably leads in the use of the turbo-prop engine. This type of propulsion combines the efficiency of the gas turbine with conventional bladed propellers. It is already in use in the United States and probably will be in very wide usage in transports in the near future.

American jet engines today are vastly improved over the WIX that came from England in 1941. So are the British jets. Details of progress in Russia are not known outside the Iron Curtain, but the Soviets got a considerable number of Whittle jet engines from England under a wartime agreement. Russia's jets are perhaps based on the English Whittle, although Russia acquired at the close of the war some of the German jet engines and also took to the homeland some of the German scientists who had worked on the Nazi power plant. The Soviet jet engine of today may be a "hybrid" affair, with both English and German ancestry.

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AERONAUTICS

Air-to-Air Rocket Bomb

See Front Cover

➤ A GUIDED missile for launching from an airplane against enemy aircraft, which has already passed successful tests in the air, was revealed by the Ryan Aeronautical Company, San Diego, Calif.

It is a 10-foot, winged, rocket-powered bomb with a warhead designed to explode when it is close enough to an enemy aircraft to insure destruction. If it misses its target, the warhead is automatically detonated in the air. Because of its small size and the speed obtained from its rocket power, it is a missile hard to track even on radar scopes.

The missile was developed for the U. S. Air Force and is said to be the first air-to-air type yet constructed. Air-to-air is a term used for a missile to be launched from one plane against another, both in the air. Its popular name is the Ryan Firebird, but in military terms it is the XAAM-A-1, which is short for experimental, air-to-air missile, Air Force, first model.

The Ryan Firebird is carried suspended under the wings of a jet fighter or bomber. When released, with its radar device homed on a target, it has the speed of its mother ship plus the added power of its own booster rocket and finally its flight rockets, as shown on this week's cover of the SCIENCE NEWS LETTER. It is capable of heading off and destroying its objective in a matter of seconds.

This air-to-air missile can be used effectively at night or in bad weather since visual sighting is not required. The missile's mother plane detects the enemy by radar. A complicated radar navigational and electronic system in the Firebird takes over when the missile is launched.

There is a similarity between the Ryan Firebird and the Navy Bat which was developed during the war. The Bat was shaped like a small plane, was airborne by a bomber, but had no propulsion power except that of its mother plane and gravity. It was an air-to-ground missile. Radar equipment in its nose, homed on a target located visually or by radar, was set by remote control in the carrier craft to head it directly for its objective. It did not use the wartime proximity fuse to cause explosion, but exploded on contact.

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VETERINARY MEDICINE

Artificial Insemination On Increase in U.S. Herds

➤ INCREASED practice of artificial insemination is boosting the cow population by about one per herd, the additional cow being supported by feed that formerly went to the bull.

Although they would not estimate the number of bulls that have been replaced in this way, dairy specialists of the U. S. Department of Agriculture said that at the beginning of the year nearly 2,000 bulls were in service in artificial-breeding associations.

Each of these sires served by means of artificial insemination an average of 1,250 cows each. This of course is many more than an individual stud bull would be able to serve by the natural method.

That the practice is on the increase is evident in some Bureau of Dairy Industry figures: the bureau estimates that by the end of 1949, 10% of all dairy cows in the country will have been bred artificially. In some states the figure is as high as 25%.

The advantages of the method include the following: An important saving in feed and investment which results from a herd's not having to keep its own bull. Increased safety on the dairy farm which does not run the hazards of an unpredictable bull. The most important advantage is that artificial insemination gives the widest possible spread to the usefulness of a high quality sire. Individual dairy farmers can breed their cows with the best, without having to own the bull themselves. This would be very expensive even if there were enough prime bulls to go around.

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