

MILITARY SCIENCE

It Takes 50 Shots

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► **YANK AERIAL GUNNERS** can put a Japanese bomber out of action with 50 shots, according to accurate data taken during a six-week period on Guadalcanal. In the last war it took nearly 10,000 rounds of ammunition to put one airplane out of action. These facts were revealed by Col. Scott B. Ritchie, Assistant Chief of the Research and Development Service, Office of the Chief of Ordnance, U. S. Army, in an interview with Watson Davis, director of Science Service, on the CBS program "Adventures in Science."

The great improvement over the World War I record can be accounted for by the Army Ordnance research conducted during peacetime years. About 75% of the 1,200 major ordnance items now in use by our armed forces have been newly designed, or improved, since the beginning of the war, Col. Ritchie said.

"Great strides have been made in the field of materials since the beginning of the war," he pointed out. "Silk cloth was used as a container for propellant powder for many types of loading ammunition before this war. Silk was a strategic material because the Japs controlled practically all raw silk production, and artificial silks proved unsatisfactory. As a result of Ordnance research, suitable cartridge cloths of cotton were standardized. These cotton cloths not only overcame the shortage, but effected savings in cash which, during the first year of the war, amounted to more than the total amount of money allotted directly to research on explosives during the interval between World War I and World War II."

Research has brought forth new high explosives and new propellants for weapons to meet a variety of requirements.

Col. Ritchie expressed the view that the trend in explosives has been toward more powerful performance, with the usual safeguards with respect to dependability and safety in handling. None of the propellant powders used in the last war are being manufactured today for ordnance.

Many of our new explosives are based on a compound known by the code name RDX. These new explosives have greater blast effect than can be obtained with standard TNT. Hale-ite, another new explosive, has a greater power or shattering effect than TNT and differs in certain characteristics from RDX, he stated.

The powerful explosive used in the bazooka rocket is Pentolite, a combination of a very high explosive PETN, and TNT. PETN is too sensitive to be used alone, except in fuzes as primacord. Another explosive discussed by Col. Ritchie, is a plastic material which can be molded like putty with the hands so as to conform and stick to the surface of an obstacle, such as a tank. It will work under tropical conditions as well as at sub-zero temperatures.

"Millions of our rockets of various types have been fired in combat and new developments are on the way," Col. Ritchie pointed out. He also stated that many of our most important weapons are still in their infancy.

Col. Ritchie told of the 120-millimeter anti-aircraft gun, known as the "stratosphere cannon," that fires a projectile to an altitude of 60,000 feet. It can be used against land targets as well as aircraft. Our tank-destroying 90-millimeter gun can be fired accurately at a target 18 inches in diameter at a range of 6,000 feet.

"Our ordnance is superior to that in the hands of our enemies, but we can never remain satisfied. We must make absolutely sure that continuing research and development will keep it always ahead. Only in that way can we be certain that the peace we are striving for will endure," Col. Ritchie concluded.

Mr. Davis added that it is the responsibility and privilege of our nation's young scientists to help keep ordnance research alive. He pointed to the work of one of the Science Clubs of America in Webster Groves, Mo., where a group of boys built a rocket that shot through the air for a distance of 224 feet. It was made of one-half by five-inch brass tubing and filled with a powdered zinc-sulfur mixture.

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CARGO-VERSION—Designed for high speed, long range, large passenger capacity and low operating cost, this is the giant Boeing 377 postwar commercial air liner recently announced by the Boeing Aircraft Co. The airplane, a four-engine, two-deck transport developed from the famous B-29 Superfortress, is the first of the larger size super-transport of the future actually to have been built.