FIELD ARTILLERY MISSILES– PRESENT AND FUTURE

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5--4--3--2--1--FIRE! The time: 2248 hours. The date: Friday, 31 January 1958. The place: Cape Canaveral, Florida. The Jupiter C left its launching pad carrying a 30-pound payload-- Explorer I. The satellite was in orbit at 2255 hours.

The United States had her first man-made satellite circling the globe, and it was a proud moment for the Army. The Army again demonstrated its ability in the missile business. The primary vehicle in the Jupiter C was the field artillery's Redstone, which was modified for its mission of putting Explorer I into space.

The success of that January night had added significance because the 2nd, 3rd, and 4th stages were driven by solid-propellant rockets. This was a clue that the second generation of Army missiles was on its way. At present, the solid-propellant Sergeant and Pershing missiles, members of that second generation, are being developed. However, the first generation missiles are tried and tested and will be with us for some time.

Here are descriptions of the field artillery's operational missiles and those planned for the future.

Redstone

"Old Reliable," as Redstone (fig 1) has been dubbed, is the long-range missile which can be fired further than 200 miles. It is 69 feet long and 6 feet in diameter. The missile is checked out in a horizontal position and then is raised into its vertical firing position. When fired it rises slowly at first then accelerates to several times the speed of sound.

Alcohol is used as the fuel and liquid oxygen (LOX) as the oxidizer. Hydrogen peroxide generates the steam which drives internal equipment. The fuel tanks make up the center section of the missile, with the entire power plant comprising about 75 percent of the length.

The other sections are the warhead section and guidance sections. The Redstone's guidance system is entirely self-contained. The missile follows a preplanned ballistic trajectory to the target independent of outside influences. The preplanned trajectory makes it completely immune to known electronic countermeasures.

As the Redstone reenters the atmosphere, its power unit slows and falls short of the target. The remainder of the missile body continues on to the target. The first firing of the Redstone by troops was accomplished on 16 May 1958 at Cape Canaveral using test center facilities and equipment. More significant was the first troop tactical firing on 2 June 1958 at White Sands Proving Ground, New Mexico, using the unit's own field equipment.

Figure 1. The Redstone missile.