

ORDNANCE

New Weapons Disclosed

Kickless mortar, one-shot flame-thrower, flying bangalore torpedo among weapons developed at the Allegany Ballistics Laboratory.

See Front Cover

► WEAPONS THAT SAW action only in the closing stages of the war, and have not hitherto been disclosed to the public, were shown before a small group of industrialists and newspapermen at the birthplace of the bazooka, a hidden ballistics laboratory in a bowl in the West Virginia hills just before it terminated its wartime program, several months after V-J Day. The place was known as the Allegany Ballistics Laboratory; it was operated during the war by scientists of the George Washington University, Washington, D. C., under a contract with the Office of Scientific Research and Development. Most of the weapons developed there are now standard Army equipment.

The bazooka, earliest and smallest of American rocket weapons, has been supplanted by a superbazooka, a projectile bulkier but more completely streamlined than its ancestor, containing a much larger charge of propellant powder that gives it higher velocity, flatter trajectory and considerably increased range. The "payload" of super-high explosive will send a sword of flame stabbing through the thickest of tank armor. The series of photographs on the cover of this SCIENCE NEWS LETTER shows the actual launching of a rocket on the proving grounds at the Allegany Ballistics Laboratory.

Although the Allegany Ballistics Laboratory was established especially for the developing and testing of new rocket weapons, and many of the rockets that wrought such dreadful execution on the enemy, all the way from Sicily to Okinawa,

were first produced there, the laboratory's scientific staff was called on to solve a number of other problems that involved the use of the peculiar, giant-grained propellant powders of the type used in rockets. Thus several unique and highly effective weapons have been evolved, that are not rockets at all.

Most striking, perhaps, are the recoilless mortars that deliver low-angle, "flat" fire, like cannon. They were developed especially to provide a very lightweight but hard-hitting weapon to knock out enemy pillboxes, and were used for this purpose in the last weeks of the war against Japan.

Recoil is eliminated as it is in the already-announced recoilless cannon, by leaving openings in the breech, so that enough of the expanding powder gases escape backward to offset the weapon's "kick". So successfully has this been worked out that the heavy base-plate required by ordinary mortars is not needed; the recoilless mortar is mounted on the standard Army machine-gun tripod.

Unlike the recoilless cannon, the mortar is a muzzle-loader, with the advantage of rapid fire which that method of serving brings. Since the shell cannot be dropped down the barrel when firing is horizontal or at a low angle, a small rocket is screwed into its nose. When the gunner pulls the string, this little rocket rams the shell down the barrel. The primer in the powder charge secured to its base hits the firing-pin—and out comes the shell again on its way to the target.

Another very effective weapon developed at the laboratory is the "one-shot" flame-thrower. Most flame-throwers have flasks of compressed air or other gas to push out their jets of inflammable liquid. This adds considerably to their weight. In the one-shot flame-thrower the necessary pressure is provided by the ignition of a cylinder of slow-burning rocket powder. Unlike its heavier forerunner, this flame-thrower cannot be turned on and off; once started, it delivers all its charge in one long, withering spurt. This is offset by its much lighter weight, also by the fact that refilling does not involve the use of heavy machinery for compressing air. A load of fuel and a charge of powder about the size of a Boy Scout

knife are all that is required.

Weapons that are true rockets, yet do not rise into the air, are a group that were developed for the purpose of clearing paths through mine fields by dragging long trains of explosive athwart them, to be set off as soon as they reach favorable positions. One such is called the "snake": a rocket head with an up-turned, ski-like snout, trailing two strings of high explosive charges behind it in long, light-metal protective strips. In action, the thing reminds one irresistibly of the "nigger-chasers" of long-ago Fourth-of-July celebrations—only it is a thousand times bigger. And there is a rocket-towed mine-clearer that is even bigger than this; its heavier, more powerful rocket drags a string of bangalore torpedoes, which are lengths of light metal pipe filled with high explosive.

The Allegany Research Laboratory was entirely a research, development and testing establishment; the rockets and other weapons and ammunition developed there were manufactured elsewhere. Like practically all such wartime undertakings, it owed its success to the cooperative efforts of many heads and hands. Heading up the work for NDRC was Dr. C. N. Hickman, a physicist whose services were donated to the government by the Bell Telephone Laboratories. He reported to F. L. Hovde, in Washington, who had charge of all OSRD research on rockets. Dr. B. D. Van Evera, head of the chemistry department at the George Washington University, represented that institution as contracting organization. Dr. R. E. Gibson, a physical chemist on leave from the Geophysical Laboratory of the Carnegie Institution of Washington, directed research at the laboratory.

Science News Letter, April 6, 1946

MEDICINE

New Anesthetic Related to Ether, But More Powerful

► A NEW anesthetic related to ether but more powerful, less irritating and with less disagreeable after-effects has been developed by Dr. John C. Krantz, Jr., of the University of Maryland School of Medicine.

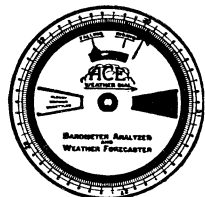
Metopryl is the name of the new anesthetic which, chemically, is n-propyl methyl ether. Surgeons who have tried it report that it gives greater muscular relaxation and is good for long operations. It is said to have a pleasant odor.

Science News Letter, April 6, 1946

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