

ORDNANCE

Exploring Upper Air

V-2 rockets from Germany are serving Army, Navy and scientific groups in research into atmospheric conditions above the earth. Aerojet missiles also are being fired.

► GERMAN V-2 rockets, on peaceful missions seeking new knowledge for science, will be sent streaking through the skies over the desert at White Sands, N. M., until at least next April, according to a tentative schedule announced by Lt. Col. J. G. Bain, chief of the Guided Missiles Branch, Rocket Division, U. S. Army Ordnance.

From a stock of 25 completely assembled V-2's, 10 have been fired, and 10 more will be sent into the upper atmosphere by early Feb., 1947. The others will probably follow in the next two months, but a decision will be made early next year on whether to construct more of the German weapons or turn to other designs in future exploration of the region around 100 miles overhead, Col. Bain said.

Of an original request for 100 complete V-2's, only 25 were obtained. Some parts are available but others will have to be manufactured in the U. S., using captured German plans, if it is decided to continue the V-2 program after the first 25 are expended.

Meanwhile, an anti-aircraft guided missile has been fired in Utah, first of 60 standard Aerojet rocket-propelled units scheduled for firing this year, the Army has announced.

Called "gapa," ground-to-air pilotless aircraft, the missiles are built by the Boeing Aircraft Co. Pencil-slim, the latest postwar weapon is 10 feet long.

SEISMOLOGY

West Indies Quake=8:25

Only three recorded tremors have been rated higher than the earthquake with its serious aftershocks which rocked the West Indies.

► THE EARTHQUAKE that rocked the West Indies Aug. 4, and with its aftershocks killed more than 65 people, was a harder shock than the famous Japanese quake in 1923 that claimed nearly 100,000 lives, seismologists at the United States Coast and Geodetic Survey have stated.

The tenth Nazi missile actually to be fired at White Sands was instrumented by a group including the Army Air Forces and headed by Dr. W. G. Dow of the University of Michigan. This winds up the first round of rockets with the scientific groups each getting another V-2 in the second series beginning in October, under present plans.

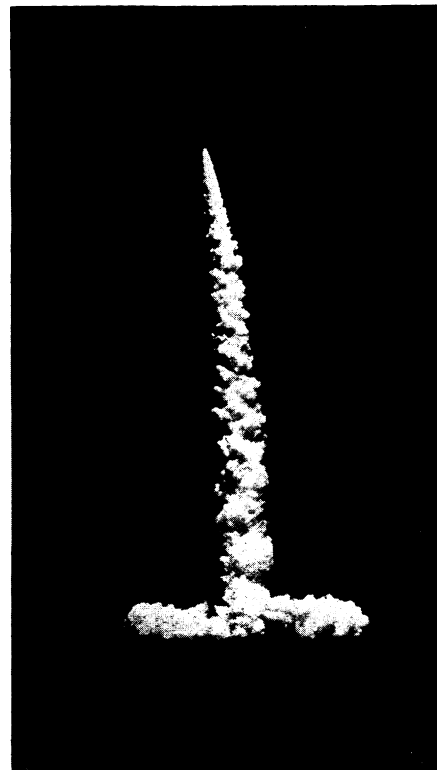
The eleventh rocket, to be fired Oct. 3, will be a second one for scientists of the Naval Research Laboratory, Washington, D. C. The Navy scientists directed the data-recording work on the V-2 shot off June 28, but got only a partial record of the flight on their instruments.

The twelfth V-2 will be in the scientific hands of the Johns Hopkins Laboratory of Applied Physics, Silver Spring, Md. This group sent instruments up in the record-breaking flight of the eighth V-2, July 30, and troops are still searching the desert for records of the trip, recorded on instruments that fell separately from the rocket.

Princeton University scientists will be in charge of the 13th rocket, scheduled for firing Oct. 31, and other V-2 shoots are listed at two-week intervals into early 1947.

Dr. E. H. Krause, head of the rocket sonde section of the Naval Research Laboratory's research section, is chairman of a V-2 technical group in charge of the scientific use of the Nazi weapons being fired at White Sands.

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GAPA—This heretofore secret guided missile has been fired for the first time over the salt fields of Utah. It is pencil-slim, 10 feet long, and has been designed as potential defense against attack by enemy aircraft.



U. S. Army Air Forces Photos

RESEARCH MISSILE—V-2 rockets have been fired higher than 100 miles into the stratosphere. Special instruments replace TNT in the warhead and may be lowered by parachute after ejection. These instruments furnish data for scientists.

have been rated higher. The three greatest shocks, listed as 8.5 on Dr. Gutenberg's scale, were on the border between Ecuador and Colombia in South America in 1906, in China in 1920 and in Chile in 1922. The Jap quake in 1923 was rated 8.0.

Dr. Gutenberg's rating system, regarded by many seismologists as the most accurate, is the only scale measuring the intensity of the earth's tremors by instruments. It uses the amplitude of a quake's motion as recorded on a seismograph to rate the shock, and a Gutenberg figure of 7.5 will be a tremor big enough to wreck any city. Higher numbers are based on the extent of the quake.

Tremor on Aug. 8 that raised the toll from the quakes was one of more than 150 aftershocks recorded after the first big tremor. These following quakes may continue a month or several months more with varying intensity, seismolo-

gists declare. While not looking for any more as big as those already recorded, the earthquake authorities say that these "hangover" tremors are unpredictable.

The longest period of aftershocks ever recorded was for the quake at Helena, Mont., in 1935 that was followed by tremors for a full year.

Emphasizing that location is the all-important factor in the toll from quakes, seismologists say that the West Indies disturbance killed relatively few people because the epicenter of the shock was approximately ten miles at sea. The area affected was not densely populated and the many flimsy buildings helped keep the death list relatively small for an earth-rocking of that magnitude.

Among modern earthquakes, the Chinese shocks in 1920 claimed 180,000 lives for the highest fatalities, but China's historians have recorded a quake in 1556 with an estimated 830,000 deaths.

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ENGINEERING

Shielded from Electricity

► SHIELDED buildings to protect delicate electrical experiments and tests inside from electrical influence without are not new, but in two under construction unique methods are employed.

One is a Navy hangar, a \$2,000,000 project just started at Patuxent River, Md., to provide facilities for delicate tests on radar and other electronic devices installed in aircraft.

The other is a group of laboratory buildings, some completed and others under construction at Nutley, N. J., in which the Federal Telephone and Radio Corporation will conduct experiments in television, frequency modulated broadcasting, aerial navigation and radar. Their shielding walls are designed to protect against atmospheric electricity.

In the Navy hangar, fine mesh wire will be used as a shield. It will be one-eighth inch galvanized mesh wire, installed around the entire hangar in such a manner as to prevent any breaks in its continuity. Two layers of wire mesh will be laid in the concrete floor.

Wire mesh is used in this building, instead of solid sheets of galvanized steel or copper, because it is cheaper and will permit ventilation and light, while at the same time opposing passage of electronic disturbances.

In the Nutley building, the walls are made of prefabricated panels made up

of flat sheets of aluminum and fluted sheets of steel, with an inch-and-a-half layer of glass fiber between. The glass is an inert, dielectric material that prevents electrolytic action between the two metals and also acts as insulation to keep heat within the building.

The steel sub-floors of the buildings are also made of prefabricated panels with a cellular structure, over which a lightweight concrete fill is poured. The cells provide runways for electric cables to furnish power within the building where needed.

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BIOLOGY

System Similar to Radar Not New to Bats

See Front Cover

► BATS USE the thin, tough membrane that forms their wings not only to fly, but to catch food and locate obstacles.

Most species of bats, except the large fruiteaters, make a collecting net of the membrane, doubling it up like an apron. The bat then deftly removes the insects upon which it feeds with its strong teeth or flies to a nearby tree where it can manage the larger victims, states Richard Headstrom of Boston, Mass.

The picture on the front cover of this

SCIENCE NEWS LETTER, by George A. Smith, Quarryville, Pa., shows a brown bat with his wings not quite folded out of sight.

Bats, unjustly abhorred by many superstitious people, detect obstacles in their path by an echo system somewhat similar to that of radar. They emit supersonic notes that are reflected by the obstacle. The membrane which serves as wings is equipped with sensitive nerves that apparently respond to the reflected sound waves and help locate the source.

Bats, true mammals with the habits of birds, are not at all fitted for walking. Their hind legs are twisted around so that their knees bend backward, in the

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