

AERONAUTICS

Step Toward Pilotless War

New radio-guided jet bomber brings the airman one step nearer technological unemployment. Pilotless light bomber squadron will be trained to use B-61.

► THE NEW guided jet bomber announced by the Air Force last week brings the pilot one step nearer technological unemployment. But the day when we can dispense with pilots flying off "into the wild blue yonder" is still some time away.

The guided missile is one of the "fantastic weapons" being developed for the armed services. Known as the B-61, or Matador, it is a pilotless light bomber and is being produced by the Glenn L. Martin Co. of Baltimore, Md.

The missile has been described as somewhat resembling a smaller edition of the B-51 medium bomber. It is launched from the ground and flies under its own power. Crews trained to operate the Matador will be trained at the Missile Test Center, Cocoa, Fla., beginning the first of October.

It is limited in range to the distance the high frequency radio signals which control it can travel. This means a few hundred miles. Thus, if the B-61 is to travel deep into enemy territory, it—or a flock of B-61's—must be accompanied by a piloted mother ship which would control the pilotless planes.

Unlike a true guided missile, the B-61 will not be used for defense against enemy bombers or missiles. Its function will be offensive. Because of its limited range, its use in strategic warfare will probably not be extensive.

However, in areas of enemy troop concentration, close to the front lines, particularly when protected by heavy barrages of antiaircraft, the guided B-61 might prove extremely useful. In such instances, antiaircraft fire would only threaten loss of the plane, not both the pilot and the plane. Without human lives to consider, greater chances could be taken with the plane.

For the same reasons, a similar pilotless medium bomber might prove useful against enemy fleet concentrations, always protected by heavy antiaircraft. Of course, accurate enough controls will have to be used.

No information has been given as to the weight or number of bombs that can be carried by the B-61. It is likely that it would be able to carry A-bombs. Whether these expensive destructive agents would be entrusted to pilotless planes is another question.

There is no reason why the largest planes to be developed could not do without their pilots and crews. Guided planes so small that they could not possibly bear the weight of a pilot have been in use for some time—principally as targets for antiaircraft practice.

Many types of true guided missiles are in various stages of testing. None have yet reached the development just announced for the B-61 as far as is known.

They are of four main classifications: surface-to-air, air-to-air, air-to-surface and surface-to-surface. Of these, the smallest can be air-to-air, for in general they travel less distance, therefore need less fuel. They are slated to be the principal artillery for air combat.

Surface-to-air guided missiles are equivalent to antiaircraft shells of greatly superior range and accuracy. They are our defense from the ground against the modern high-flying, high-speed airplane, whether manned or pilotless.

Surface-to-surface missiles are the super long-range artillery, of which the German V-2 was the forerunner. Post-war research and development have vastly improved the slugging range and accuracy of these giants. Presumably they can easily be made large enough to carry atomic bombs.

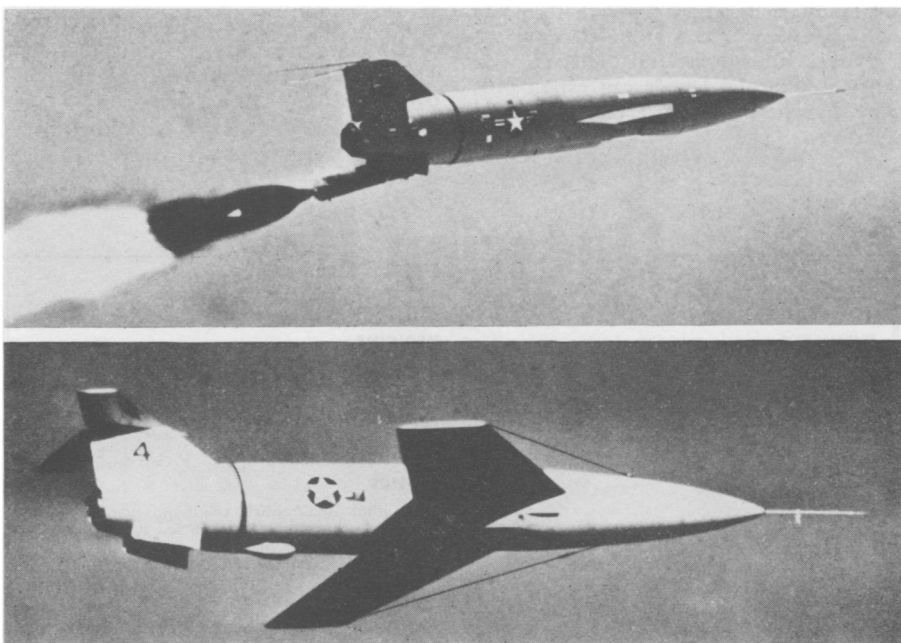
Air-to-surface missiles can be guided by a radar-television combination to smash directly on the target. "Mother" planes flying many miles away, beyond the range

of the surface-to-air weapons of the defenders, could control such missiles, changing their course if necessary.

The new B-61 will be controlled by radio waves, as are all guided missiles. The waves keep the planes on the path to the target and sometimes signal when the plane shall drop its load of bombs. The actual instruments used in the planes and missiles are secret in detail, but they respond to radio waves of different types to activate mechanisms which in turn activate fins and rudders on the outside of the plane's body.

These radio waves travel with the speed of light and, therefore, when released by the controller, reach the plane or missile practically instantaneously. The controller uses radar to keep track of the missile on its course. If great range is planned, a series of radar and control stations several hundred miles apart would be necessary.

The origin of radio control of a pilotless moving vehicle might be said to be the driverless automobiles that were stunt-driven some 25 years ago by radio operators in accompanying cars. During World War II, war-weary airplanes loaded with explosives but unoccupied by men were sent against German targets under radio control from a mother ship. Many notable trips have been made by so-called drone planes, including those from which photographs were taken automatically in radioactive regions close to exploding atomic bombs in the Bikini and Eniwetok tests. The drone planes were flown by "pilots" in mother ships several miles away.



THE MATADOR—Two views of the U. S. Air Force's B-61, Matador, the pilotless light bomber now in production. In the upper picture a fuel tank is being jettisoned by the plane. The plane's shape and design indicate that the pilotless guided missile could carry A-bombs.

The Navy Bat, developed late in the war, was a guided missile of another sort. It was a giant bomb in a winged casing similar to a plane. It was carried aloft under the wings of a bomber. It had radar sending and receiving equipment in its nose. When a target was sighted from the bomber, the Bat's radar beam was set on the target and the missile was released. Radar kept it on its course, even though the target might be moving.

Devices within a guided missile can send out radar waves which are reflected back if they encounter solid matter. The reflected waves bring the missile close enough so that its proximity fuse causes a destructive explosion.

Science News Letter, September 22, 1951

METEOROLOGY

East and West to Be Warmer than Usual

➤ **FALL WEATHER**, at least until mid-October, will be warmer than normal in the area east of a diagonal line stretching from western Maine to Louisiana and also in the states west of the Rockies.

It will be colder than usual in all the great plains states and the western Great Lakes states. In the boundary areas between the colder-than-normal region and the warmer-than-normal region, temperatures are expected to be about average. This is the prediction of the Weather Bureau's Extended Forecast Section for the period extending to Oct. 15.

More than the usual amount of rain will fall over a wide belt extending from Texas and Louisiana northeast through the Ohio Valley, the Great Lakes and New England. The extreme Southeast and the states west of the Continental Divide can expect little rain. Elsewhere the usual rainfall can be expected.

Science News Letter, September 22, 1951

GENETICS

Women Can Be Bleeders

➤ **WOMEN** can have hemophilia, contrary to popular and medical reports up to now.

This hereditary "bleeder's disease" was once known as "the curse of the Hapsburgs" because so many members of this European royal family were affected.

From earliest times it has been thought that only males had the disease, while the women of the family transmitted it without having it themselves.

Now three cases of the disease occurring in women have been discovered. The third, a 24-year-old woman who nearly bled to death two weeks after the birth of a child, is reported by Drs. M. C. G. Israels, H. Lempert and Elizabeth Gilbertson of Manchester, England. (*LANCET*, June 30).

Only one possible combination of inheritance can lead to hemophilia in a girl or woman. That is when a man with hemophilia marries a woman who is a carrier of the bleeding disease. The combination has been considered a deadly one. If a female hemophiliac was conceived, she would be born dead, according to previous medical opinion.

The patient reported from Manchester has the double inheritance necessary for a woman to have hemophilia. In addition, modern methods of testing her blood show beyond doubt that she is hemophilic. Her father is a known hemophiliac. Her mother's brother, who bled to death following an accident, was a known hemophiliac. The patient's mother is therefore a presumed carrier of hemophilia. The patient's sister is a carrier and has a hemophilic son. The patient's little daughter will be a carrier.

Other cases of women with a bleeding disease like hemophilia have been reported

in the past. Because it was always believed that women could not have true hemophilia, these were considered cases of pseudo, or false, hemophilia.

Re-examination by modern methods of two such women has led another scientist, Dr. C. Merskey, to believe that these also are true hemophiliacs.

Science News Letter, September 22, 1951

SCIENCE NEWS LETTER

VOL. 60 SEPTEMBER 22, 1951 No. 12

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc. 1719 N St., N. W., Washington 6, D. C., North 2255. Edited by WATSON DAVIS.

Subscription rates: 1 yr., \$5.50; 2 yrs., \$10.00; 3 yrs., \$14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

Change of address: Three weeks notice is required. When ordering a change please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

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Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C. under the act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for by Sec. 34.40, P. L. and R., 1948 Edition, paragraph (d) (act of February 28, 1925; 39 U. S. Code 283), authorized February 28, 1950. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to periodical literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., Pennsylvania 6-5566 and 360 N. Michigan Ave., Chicago. STATE 2-4822.

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