

THE FUTURE OF THE ROBOT PLANE

By MAJOR ALEXANDER P. DE SEVERSKY

THE robot airplane or flying bomb unleashed by Hitler against England is neither a mere "new gadget" nor yet an irresistible weapon which will decide the war.

Unquestionably the weapon will grow in size, range and destructive capacity. It will become of increasing importance not only in this war, but afterward. It behooves the American people to know what this weapon is — and what it is not.

The German robot is no surprise to military men and aviation engineers. Driverless automobiles and manless ships, remotely controlled, have long been familiar. As early as 1921, the battleship *Iowa* was steered by remote control when she was used as a target during aerial bombing experiments by the late Gen. Billy Mitchell.

Robot tanks and robot ships loaded with TNT have been used in this war. Lawrence Sperry made encouraging tests with a robot plane at Bellport, Long Island, in 1918. A biplane equipped with a 90-horsepower engine, it had a maximum range of about 400 miles without load, and traveled at roughly 100 miles an hour.

Sperry had developed a special gyroscopic stabilizing and steering device for it which was about as efficient as the one the Germans are using

now. Progress thereafter was slow in our country, partly because of a general apathy toward military preparedness, and especially because military leaders failed to recognize the potentialities of the airplane, whether self-propelled or flown by pilots, as a weapon in future wars.

What has really made the winged bomb practical is the development of rocket and jet-propulsion engines. These give pilotless craft the necessary speed, range and carrying capacity. The Russian anti-aircraft rocket, our anti-tank "bazooka," and the Nazis' aerial torpedoes were successive steps of development which led to the flying bombs.

The wave of fear and speculation started by the German aerial robot is like the excitement the modern water torpedo caused. The naval torpedo was going to spell the end of surface ships. Flocks of torpedoes, radio-controlled, would search the seas for hostile craft and destroy them. None of the exaggerated predictions came true. The water torpedo is important, but it has taken its place in warfare as just one more kind of ordnance.

The parallel is perfect. The naval torpedo is a robot submarine just as the aerial torpedo is a robot plane. Both are self-propelled; both travel a

predetermined course gyroscopically controlled. Or both can be steered by radio. And the aerial torpedo is just another kind of ordnance.

The water torpedo has been employed by coastal defense against ships, by ships against ships, and in this war by airplanes against ships. The robot airplane will be used for all these purposes, as well as against ground targets. But it will also be developed for launching by planes against planes, and that, in my view, may prove to be its greatest military value.

To use it from fixed emplacements, as it is being used now, limits the robot's usefulness. Suppose the ordinary water torpedo were chained exclusively to coastal installations; its use would then be extremely circumscribed and its accuracy at great distances would be poor. But by bringing the torpedo close to the target on a fast-moving ship it becomes many times as effective. The same thing will happen in the air. We are certain to see the flying bombs launched from aerial destroyers and torpedo planes, equivalent to naval destroyers and torpedo boats.

The flying bomb, released by a plane in flight, will constantly grow in size and destructive power. As airplanes increase their lifting capacity and speed, they will be able to carry and launch aerial torpedoes of two, three, and four tons.

Such flying bombs, encased in an armor-piercing jacket, propelled by rocket or jet engines, will smash irre-

sistibly into the hull of any battleship afloat, or any other mass on the surface of the ground. The attack will be launched from a safe distance, beyond the effective range of anti-aircraft artillery — and with very high accuracy, because the robot plane eventually will have such terrific speeds that any ship will be, for all practical purposes, a stationary target. Nothing on the surface of land or water will be able to withstand their attacks — only opposing air power will be able to cope with them.

II

The present robot, naturally, has limiting factors. Its accuracy necessarily diminishes with distance. As a free-moving projectile, it can pick out a target as enormous as London, of course. But at longer distances an infinitesimal error at the starting point means a substantial deviation at the finish line; and no matter how scientifically the course is set, atmospheric disturbances must divert the aim.

The alternative would be to control the movement of the flying bomb by radio. But that is easily countered by the defender's electronic devices. In this war, various efforts have been made to use robot tanks and ships guided by radio. They have failed invariably. The basic flaw in all such devices is that electronic control by the sender diminishes in power, roughly, by the square of the distance. When the missile nears the target it takes a lot of power to keep it on its course,

very little to deflect it. The antidote to remote control weapons will easily be found and perfected.

The history of automatic devices thus far has proven that there is no adequate substitute for the human mind. Wherever a robot competes with a machine under human control, the latter ultimately wins out. We need only compare the haphazard nuisance bombardment of London by robots with the calculated precision bombardment of Berlin by piloted bombers to get the measure of this contrast.

The robot plane is a triumph for German science, but a demonstration of military short-sightedness. It has done much damage and will do more, but it will not divert the course of Allied strategy or seriously undermine the total strength of our war-making set-up.

The enemy, in effect, is seeking to use the innovation as a substitute for air power when, in fact, it is an integral part of air power, and becomes decisive only when used in that way. To repeat, the flying bomb is just another kind of artillery.

The monster gun, Big Bertha, with a range of 76 miles, brought Paris under fire from behind the German lines in the last war. In this war, the Dover coast has been under fire from across the Channel for a long time. Now the robot, with a range of 175 miles, has brought London under fire. Increasing the range of artillery, however, does not alter the fundamental pattern of war. The elimination of the

enemy's means of waging war, of his industrial set-up for war-making and his will to resist, is still the primary objective.

The best way to do any of these things is, by plane. In other words, the answer to the robot flying bomb in this war or any future war is overwhelming airpower.

Until some entirely new principle of destruction of life and substance directly through space without any structural vehicle — by "death rays" or electronic means, let us say — is developed, air power will remain the decisive military force in the world. And until then, wars will be won by men in planes not by robot devices.

The robot plane may be expected to be extremely useful in time of peace. There is no reason why it should not carry mail and other goods, instead of death and destruction. Just as containers now move through pneumatic tubes, pilotless airplanes will fly swiftly and accurately along radio beams between points farther and farther apart. Remote control by radio will be perfectly feasible when there is no enemy interference but, instead, coöperation at both termini. The pilotless plane will be guided into its "stall" at its destination with perfect precision by radio beam; arresting devices something like those used on airplane carriers to check the speed of landing planes will bring it to a smooth stop.

The scientific developments which will perfect the robot will be applied to other aircraft, to help pilots navi-

gate more safely and easily. If a plane can fly without a pilot, surely piloting can be made so simple that any child can drive the family airplane.

I confidently expect that the robot plane, born for the uses of war, will actually reach its greatest development in peace times.



Behind the News: 1

CENSORSHIP of war news is not dictated solely by security; and when political considerations actuate it, good newspapermen consider that they may evade it legitimately, if they can.

A noteworthy example of such evasion enabled the New York *Times* to be first to print the news, during World War I, of the replacement of Joffre as general-in-chief of the French forces.

When Wythe Williams, the *Times* correspondent in Paris, got the news from a reliable source, censors eliminated all his hints at it from his dispatches. Then Alden Brooks, correspondent for *Collier's*, happened to come into Williams' office. Williams knew Brooks had written a piece for *Collier's* on the Battle of Verdun and the heroic performances there of Petain and his second-in-command, Nivelle. This, as Williams relates in his autobiography, *Dust of Empire*, gave him an idea. When Brooks had gone, Williams wrote a message to Carr Van Anda, managing editor of the *Times*:

MANAGER LOCAL OFFICE LEAVING STOP BROOKSMAN
WANTED JOB BUT APPOINTING HIS ASSISTANT AS PER COL-
LIER'S ARRANGEMENT OF APRIL TWENTYSECOND STOP
PLEASE RELIEVE ME OF FURTHER RESPONSIBILITY.

The acute Van Anda looked up *Collier's* and caught on that Brooksmen was Petain; his assistant, Nivelle; the local office, command of the French armies. Next morning, the *Times* carried an eight-column head over a Washington datelined story, announcing that Joffre had been relieved and Nivelle was in supreme command.

The *Times* withstood the flood of denials and the demands that the source be disclosed — thereby taking care of "further responsibility." The story was confirmed officially a few days later.

TEACHER'S PET

A Story

BY GOLAND ZIRAN

DURING the first afternoon of her Christmas holiday, Agnes Trudden was at home, feeling terribly fidgety. Everything required her personal attention, because she couldn't rely on Eva, her maid, to do the least thing right. Scolding Eva invariably upset her for the entire day; but what did she accomplish by scolding her? Eva would always retort saucily that if Miss Trudden didn't like her work she could find a job in some defense factory where, working half as hard as she did for Miss Trudden, she could realize twice as much pay.

As she sadly contemplated the disintegration of the world, and in particular the moral dissolution of maids, Miss Trudden opened a large box of bonbons and placed it temptingly in the center of the coffee table. Nearby she put a platter of ham sandwiches, delicately piled to form a pyramid. Her brother, Windsy, who was a Methodist minister, said that Jews don't eat ham. But Windsy was such a stuffed shirt that she always had a

perverse impulse to prove him wrong.

A smile of mischievous anticipation stole over her face. She settled her glasses firmly on her nose and moistened her lips. Glancing restlessly at the Terry clock on the mantelpiece, she fervently hoped that Jacob would appear soon, and that she could again see his deep brown eyes which always seemed to her so charmingly sad.

Every Christmas it was Miss Trudden's custom to invite the honor student of her class to spend an afternoon in her home, sitting before a warm fire and eating her delicacies. To take such trouble with students gave Miss Trudden a slightly dubious reputation among her colleagues. But Miss Trudden believed firmly that good pedagogy dictated her actions, and no flood of gossip could divert her from her high purpose.

Her students considered Miss Trudden an eccentric old maid, and behind her back they railed at her thin figure, her shrill voice and bony hands. But they envied the boy who was selected

GOLAND ZIRAN, a native of Brooklyn, studied at Syracuse University and was graduated from New York Law School. This is his second published story but the first to appear in a national magazine. He now is working on a novel.