

August 20, 1945

Radar...a mysterious word, and an even more mysterious weapon...now it can be shown, as the U. S. Army and Navy lift the curtain of military secrecy. A scientific miracle of electronics, radar has revolutionized warfare...In the actual winning of the war, radar outranks the atomic bomb...This is the story of how radar works and what it can do. The heart of radar is the cathode-ray-tube such as is used in television...It acts as a screen, registering radio short waves transmitted by the "sender". When the waves strike an object, like a plane, they echo back and are picked up and recorded. The small peak, called a "pip", shows the distance the plane is from the transmitter...It's course and speed are registered and actually measured.

Radar picks up waves echoed back by all planes...Keep your eye on that little "pip"... Enemy planes show a constant, unvarying pattern...Allied planes are equipped with apparatus that varies the oscillation. Now, pipe that pip.

Here's how a war plant, or a city can be protected by radar...how, as a matter of historic record, the R.A.F. was able to beat the Luftwaffe in the Battle of Britain...radar waves blanketing the ozone in every direction. "Little Sir Echo" puts the finger on the first enemy plane, a hundred miles away.

When radar in the field picks up the first echo, information is phoned to the plotting center. There, the location, course, speed and altitude are calculated, and directions relayed back to anti-aircraft and search light batteries that are in constant communication with Radar Headquarters.

Radar detection gives interceptors time to get aloft, and it provides ack-ack batteries with definite knowledge of the range and position of their target. Civilians have thought of radar as some sort of giant ear...actually, it is more of a magic electronic eye...so sensitive, so precisely accurate that a searchlight can capture the target dead in the center of its beam.

When searchlights cross on the target, flak batteries open fire.

The U. S. Navy uses radar as a range-finder...The reflection of radio waves is like the echo of your own voice...You've all hollered at a cliff and heard the sound bounce back...Well, the radar echo registers on the oscilloscope which shows actual wave forms of electrical current and voltages. As the echo returns in a shorter time, the pip moves to the left, showing the range is decreasing...Not only ships and planes, but islands and shore lines can be definitely located by the magic of radar.

Admiral Halsey's U. S. Third Fleet, in the final weeks of the Battle of Japan, boldly steamed into Tokyo Bay...guided by radar in the dead of a storm swept night. With radio echoes locating targets unerringly, Halsey's warships bombarded Tokyo in the darkness.

The Air Forces use radar for practically everything...One patrol plane can spot every ship in an enemy fleet. The oscilloscope pips on the left side when objects to port reflect back the waves, and on the right for targets to starboard. Through clouds of fog, day or night, the electric detective never fails...Islands and land masses form distinctive indications...Unbelievable as it seems: radar-sets light enough for planes, produce power surpassing that of America's greatest radio stations. Radar can keep track of every ship in a convoy, spot a submarine fifty miles away...which accounts in large part for Allied victory over the U-Boats. Down there, the entrance to Tokyo Harbor...and here's the radar picture, as General MacArthur will see it when he arrives with U. S. occupation forces. To planes in distress, radar has proved itself aviation's greatest life-saver...Returning from a bombing mission, fire, the pilot's most feared enemy...The fire control equipment fails to do the job...the radar operator wends out the distress signal. Back at the plotting center, the flaming plane is charted, its exact position located on the map. Heading for a crash-landing on the sea...radar equipment destroyed to keep it out of enemy hands...The last act before they hit the sea. As the crew escapes the burning plane and takes to the life rafts, every man knows there'll be no necessity to hunt them, over thousands of miles of ocean...Thanks to radar, the rescue plane heads for the exact spot of the crash. Riding radar to safe landings in the night or through the fog, is one of aviation's greatest boons. It largely eliminated weather as a factor in the Allied bombings that beat Germany into submission. The radio operator in contact with the field gets instructions to switch in on radar wave...From here on, it's like riding on rails. The oscilloscope records the

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slightest variation of the plane from its course...The pilot can see for himself just where he goes off...And this is the meaning of the very descriptive expression: "You're on the beam". The result of British and American scientific co-operation, development of radar has cost the U. S. three million dollars...half again as much as the atomic bomb...It opens up for peacetime, a whole new world, where any miracle seems possible...just as it revised all the textbooks of war, and put the Allies "on the beam to victory"

PLEASE SERVICE ALL REELS.

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35. One more brought down by Radar as no visible sighting could possibly do. By a transponder Radar distinguishes enemy and friendly planes. All American planes and ships carry this transponder. A small automatic set that sends out an extra blip the moment it is touched by Radar waves from another set.

37. At sea Radar can spot individual ships in a fleet which appear as blips indicating relative size.

40. Land masses like this harbour appear in distinctive form on the scope.]

41. Scouting planes can detect any number of separate targets with Radar.

Although all equipment operates on the same basic theory there are many different types each of which does a special job. This planes radar shows large objects traced as large blips on the scope. Smaller objects appear as small blips. Blips received from a ship broadside to the searching aircraft will be larger than blips received from a ship head on. Islands and shore lines are registered of valuable navigational aid.)

47. Now Radar as an offensive weapon. Scouting planes spot an enemy cruiser with Radar and contacts the fleet, which speeds towards its target. At the ship's "Radio Centre" Rader sets the course to the enemy's exact location and directs and aims the guns with perfect accuracy, though no man aboard has actually seen the target with his own eyes. The scope shows on target and the guns finish the job.)

64. To a world once more at peace Radar will play a major roll in air Transport. A pilot forced to crash because of fire or accident gets a distress signal back to the plotting centre by Radar before disaster. A rescue plane will soon be on its way.)

72. Icebergs! - long the terror of ocean travel will be detected eliminating such tragedies as the Titannic.

75. Today a New age of the airways lies ahead. In spite of rain and fog and sleet

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and so on, Radar will bring tomorrow's planes back safe to Happy Landings.