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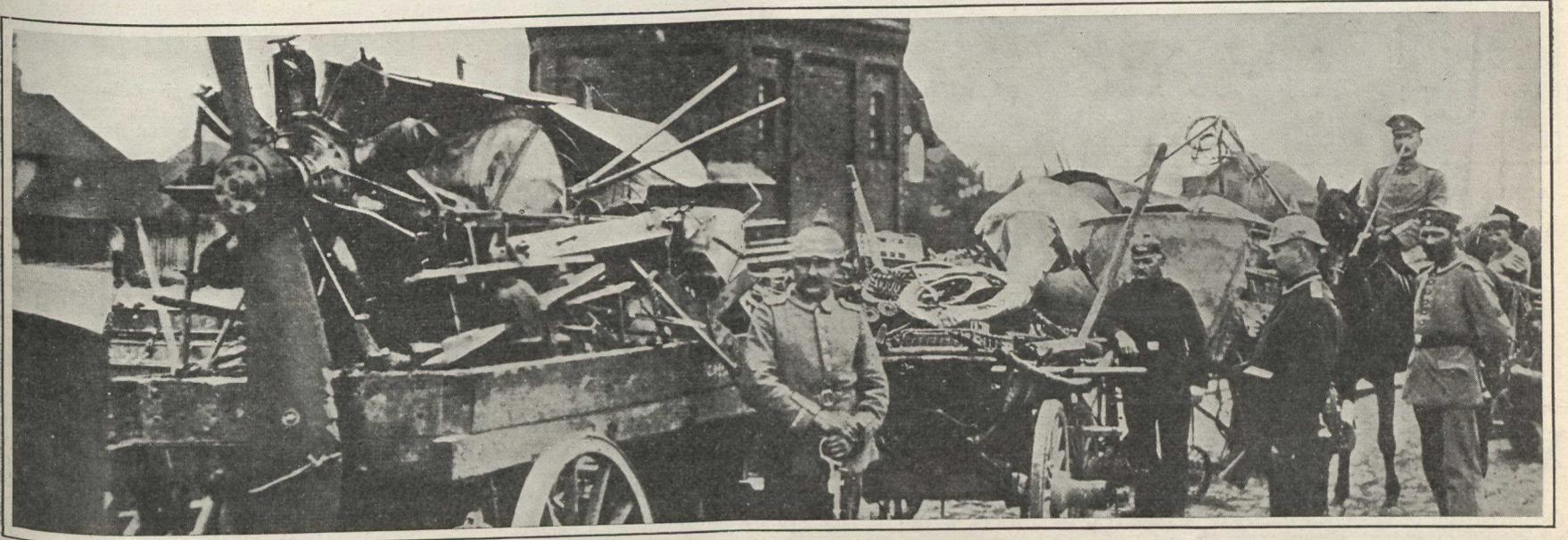
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CAN ZEPPELINS DAMAGE LONDON?

When Destruction of Aircraft Has Become a Practical Science of Warfare



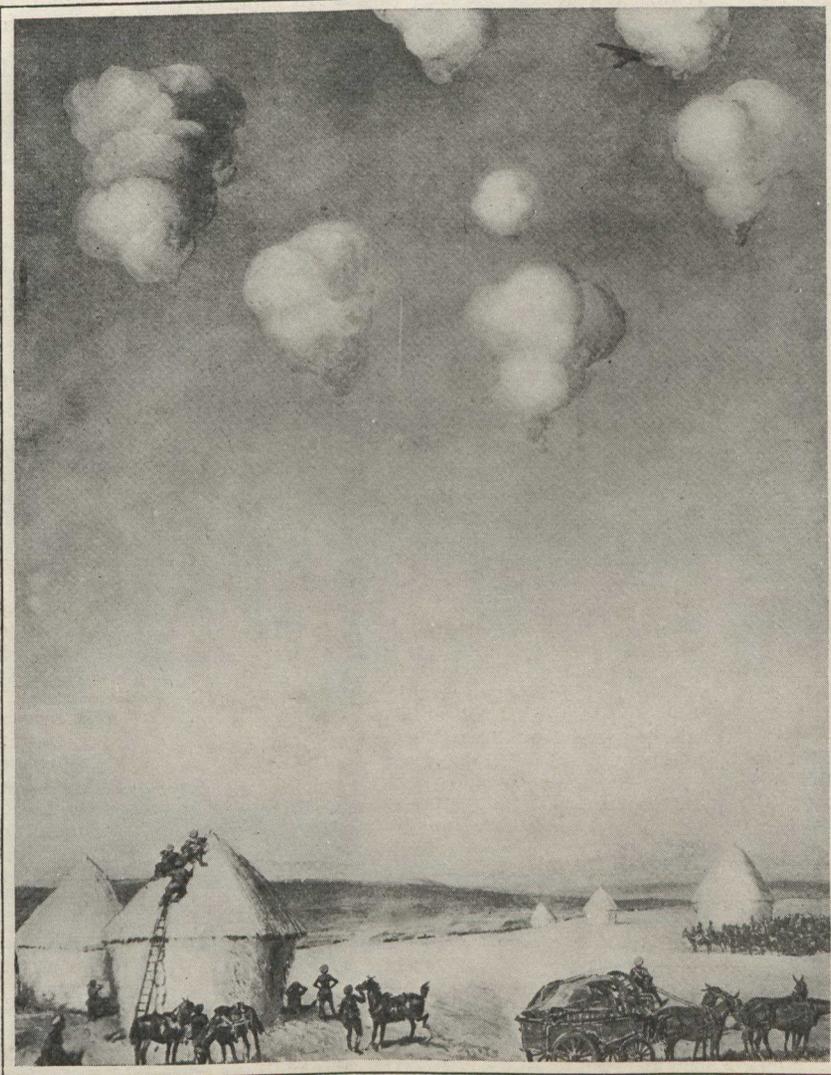
This Russian aeroplane was disabled somewhere above Tamenburg in the eastern lines. The Germans salvaged the remains of the machine. Operator and observer were both killed.

FIRING on aircraft is becoming a practical science. Before the war it was a manoeuvring pastime. Two months ago no nation knew anything of effective value in actual warfare about the ability of one aircraft to fight another. Now, with the varied and constant use of aero-belligerents, it is pretty well known what is the danger from one kind of winged craft and what is the best way to meet it. Aeroplanes and Zeppelins have been destroyed by aircraft and by machine guns mounted on high elevations such as steeples and tall buildings, and by rifles firing either from the ground or from an altitude.

On the field of war the aircraft engagements have been as varied as the operations on the field. Besides scouting and signalling for artillery and generally directing operations over a vast area of conflict, the aircraft have engaged in actual warfare. Aeroplanes and Zeppelins have been brought down on both western and eastern lines of war. The picture at the top of this page shows the remains of a Russian aeroplane smashed by German shells. One not long ago showed the relics of a German aeroplane brought down by a party of English riflemen.

So far as England, and especially London, are concerned, it is the probability of a Zeppelin raid that is most feared and guarded against. Most people in England have faith in the power of the air-patrols and the high-elevation fire both of artillery and rifles to ward off a Zeppelin raid. Why? The reasons are well set forth by the London Daily Express, which first of all believes that Germany has at the most five or six Zeppelins left capable of invading England, and that Germany cannot possibly be building Zeppelins of immediate use in this war, because that kind of craft takes a period of time to build not much less than that required for a warship.

Admitted that a Zeppelin could make the round trip from a coast base and back on her charge of fuel, or say 400



Even a haystack is an aid to riflemen in bringing down aircraft. A modern rifle can kill an aviator at 3,000 feet and disable him at 6,000.

miles, what are the chances for fighting them off? No Zeppelin would make such a trip carrying four tons of explosives without selecting some big, centralized, national mark to aim at. Such a mark is well known to Germany through her system of spies. It is the tremendous group of government buildings that centre about the Houses of Parliament and Westminster Abbey. It is this group of buildings that the authorities are determined to protect from any Zeppelin raid.

ONCE a Zeppelin gets within effective distance, which is said to be 3,000 feet, she is within range of both land rifles and machine guns. Bombs, arrows or shrapnel bullets dropped from this height would strike with a velocity of about 450 feet per second, and in the case of shrapnel bullets twenty to the pound, the missile would have a striking energy of about 100 foot-pounds, which is almost twice as much as is necessary to destroy any object not protected against that kind of fire. It is the business of both aircraft and land guns to make such an attack impossible. One of the most effective means of prevention is the machine gun posted at a high altitude and capable of sending an eight-pound, two-inch projectile 3,000 feet in one and a half seconds. The next most efficient protection is rifle-fire. A rifle bullet capable of killing five men at a mile range is able to hit an aviator or damage his engine at 3,000 feet in height in about three seconds. At the height of a mile such a bullet would be able to give the aviator a knockout in six seconds. As the striking power of a Zeppelin is always vertical, and that of a machine gun or a rifle at any angle at all, the chances for a Zeppelin being allowed to get near enough to any group of buildings to wreck them are reduced to a minimum. At least this is the expert's view of the case. And until it is tried out and found wanting we shall continue to accept that view.