

BATTLES IN THE AIR BETWEEN AEROPLANES AND DIRIGIBLES

Warring Nations Have Spent \$117,000,000 to Perfect Their Air Fleets and Clashes Between Opposing Forces May Prove so Deadly That War as It Now Is Will Be Forever Wiped from Face of the Earth.

GERMANY'S ZEPPELINS COUNTED ON TO OFFSET THE LIGHTER CRAFT OF FRANCE

Great Fleet Possessed by the Kaiser Carries Guns, Torpedoes and Bombs That May Render the Dreadnoughts of England Little Better Than Scrap Iron.

recently concentrated her efforts on sea planes, armed with a shell firing gun, with which she trusts to destroy the dreaded Zeppelins. Russia has about 500 aeroplanes, but had only trained eighty pilots at the end of 1913.

England's Royal Flying Corps musters 350 aeroplanes and as many pilots. Austria has six dirigibles of inferior power and 150 aeroplanes, and an insufficiency of pilots.

The aerial forces of both Germany and France are disposed with studied effectiveness along the frontiers. Eight Zeppelins and six Parsevals are stationed in the latest type of revolving airship sheds at Friedrichshafen, Strassburg, Metz and Cologne, on the French border.

These sheds are operated by electricity and permit a rigid airship to enter or leave always with the wind, thus avoiding the former risks of breaking the vessel if a sudden wind blows athwart the entrance.

The exact location of other units of the German fleet gazzeted not later than two weeks ago places Zeppelins in other stations at Frankfurt, Gotha, Thorn, Hamburg, Cuxhaven, on the North Sea; Berlin, and others at Koenigsburg, Breslau near the Russian frontier, and at the Island of Heligoland, in the North Sea.

Three passenger Zeppelins, the Hansa, Victoria Luise and Sachsen, used as training ships, are now converted into cruisers.

France relies on her "fifth arm," as her aeroplanes are designated, to repel aerial invasion. Practically her entire aeroplane "fleet" is assembled at her great flying camps—Rheims at Verdun, Touren and Beaufort, the great fortresses which stretch along the German frontier. But the aeroplane is a bird of the day, while the dirigible navigates equally as well at night, and on this great advantage Germany depends to escape the sharp eyes of the French.

The vulnerability of Great Britain to aerial invasion is emphasized by the fact that the government recently prohibited foreign aircraft from flying over seventy-six restricted districts, representing military or naval garrisons, fortified islands, piers, railway stations, dockyards, light-houses, railway stations, supply depots and towers.

The naval wing of her flying corps is situated at Salisbury Plain and Farnborough. But England's only possible resistance to Zeppelins flying overhead at night are her sea-planes, which carry two men and wireless to warn the British Isles. These planes have a flying time of six hours over sea, and much of their work will be to detect the approach of Zeppelins toward the British coast.

In the death grapple in the air hundreds of fighting machines and men must inevitably go down to death. The losses will without doubt be enormous, and it is interesting to study the preparedness of each nation to replenish its shattered air host.

France has twenty aircraft factories, all grinding away for dear life. Germany's twelve plants are working night and day. The two great Zeppelin works—the one at Friedrichshafen, the other at Berlin, employing 2,900 skilled workmen—are capable of turning out six Zeppelins a month. Five new Zeppelins were nearing completion at the outbreak of the war, and these will bring the Zeppelin fleet up to twenty-three ships, if some have not been destroyed in the meantime.

In England six factories are engaged not only in producing aeroplanes, but at Farnborough the British navy is constructing a great rigid dirigible of the Zeppelin type. Russian and Austrian factories are inadequate to keep them supplied.

The German air squadron also includes ten Parseval non-rigid dirigibles, armed with machine guns at the bow and a launching tube in the floor of the cars. To these twenty-eight formidable units must be added two of the largest rigid cruisers of the Schuette-Lauz type, which mount guns, as do the Zeppelins, on top of the hull, but also go the Zeppelins one better by having machine guns displayed in spacious projecting from the sides of the hull and reached by stairways. Six smaller non-rigid ships of the "M" type complete the great German air fleet.

Against this imposing array France marshals sixteen serviceable dirigibles, much smaller and slower than the German airships. Their engines are of less power. French expert opinion has stated that against the Zeppelins the French air squadron will not exist. But France has pending her splendid array of aeroplanes to offset the deadly work the German dirigibles may wreak on her supply depots and camps.

At the end of 1913 France had assembled 611 war aeroplanes, manned by 288 trained officers and 620 military pilots, giving her more than 1,000 air fighters. This force has probably been increased to 800 aeroplanes and 1,200 air men.

Germany must oppose interference with her mammoth dirigibles by hurling 700 aeroplanes fully as good as those of France against superior numbers. These machines are fully manned, in most instances by two men. Some French and German aeroplanes are known to carry light machine guns, the efficiency of which must be tested by actual war conditions. All of them can drop bombs of weights up to seven pounds. The only authentic information about the size of bombs employed by the German dirigibles is that four of its 22-pound bombs will completely wreck a railway station or supply depot.

Russia and England will not play any great part in the conflict with their dirigibles. Russia possesses eight built by French factories, all of relatively small power. England's dirigibles are not considered, because that nation has until only

shown what a Zeppelin could accomplish with its weapons. The airship was hit and bites in the air and perforated them at long range.

The problem of getting perfect range to maintain a constant distance between a detached object like a moving airship in space and some object on the ground was solved. Target practice developed a way to maintain a positive distance. The airship kept at a constant height above the ground and its altimeter indicated the least change in height above sea level.

The ship was then steered in a circle at a constant elevation around the target, the helmsman using the target light as a pivotal bearing in his steering.

Target practice began in 1910 over the artillery grounds at Jüterburg. It has been later carried on at the airship stations at Metz, Dohertis and Hannau. It was found that maneuvering in wide arcs did not prevent the airships getting perfect range.

The Germans were the first to realize that the machine gun was an ideal aerial weapon because it stays with an absurdly small and light bullet. Thousands of rounds of such ammunition can be carried on a big airship. Shooting point blank at 1,500 yards its stream of 500 bullets a minute can even batter through a brick wall as effectively as a cannon ball. After travelling three miles the bullets scatter like birdshot.

The report that an aeroplane destroyed a Zeppelin airship by plunging headlong into the side of the big dirigible does not have the true ring. Experts who understand the provisions that have been made for defending the dirigible against the attack of aeroplanes fail to understand why the guns which all modern aeroplanes are carried by modern aeroplanes were not used against the attacking aeroplane. The story that the aeroplane rose from the ground under the dirigible, unobserved, climbed at comparatively slow speed until it reached the dirigible's height or speed, and then it with a single stroke of its propeller being made to resist it, seems foolish.

During its climb, which must have occupied from twenty to thirty minutes, there was every opportunity to hit the aeroplane at point blank range with a solid stream of machine gun bullets. The dirigible, according to the story, must have laid to in the air, calmly awaiting its enemy to climb to its height and send it to its doom.

Another story that the aeroplane dived nose down and plunged through the top of the dirigible might mean that the gun on top of the dirigible hit the aeroplane, which fell on the back of the airship. This is most improbable, since no airship would be standing still in space, but under such conditions would be moving at top speed to escape its enemy. The falling aeroplane would hardly have found the dirigible under it.



RAMMING AERIAL CRAFT A WAR DEVELOPMENT

A recent accident near Vienna proved the effectiveness of the aeroplane in destroying a large dirigible airship, and a London Standard despatch from Paris a few days ago stated that the feat had been repeated on the Franco-German border.

A French aviator was then reported sacrificing his life in a headlong dive from above a dirigible, his monoplane crashing through the big airship, causing its collapse and fall with a crew of more than a score, who were killed. The picture by G. A. Coffin shows the effect of the crash.

An explosion resulted in the Austrian accident, which cost nine lives. All aboard the dirigible and the two army officers in the biplane that struck it were killed. The modern French and German aeroplanes carry about three hundred pounds of explosives. Thirty-five of these would, therefore, carry five tons of explosives, as formidable a load as a Zeppelin. Attacking a dirigible by rising vertically over it, such a fleet of aeroplanes may stand a fair chance of destroying the airship if the guns on top of the Zeppelin do not get the aeroplane.

But the Zeppelins are not intended to encounter aeroplanes. The German scheme is to avoid French aeroplanes by travelling at night to the point that it is proposed to attack. These ships travel very high and their strategy is to arrive at early dawn over supply camps and wreck them by the dropping of bombs, depending on this new form of warfare to cripple the enemy and thus render him an easy prey for the army.

The Zeppelins are designed to change their armament to suit the kind of attack and the distances they must travel to meet the enemy and the general condition of the weather. If a Zeppelin were ordered to attack London it would, to conserve its endurance, be equipped with one quick firing gun and carry 250 rounds of artillery ammunition, besides two machine guns and their ammunition and several light machine rifles for emergency. A Zeppelin loaded in this way would not carry bombs.

Krupp's Successful Guns. German builders of guns ever since March, 1908, have been working to make German airship weapons certain to hit the mark, pierce protective covers and explode magazines. As far back as 1908 the Krupps turned out a light rapid firing gun capable of throwing six thousand shells a minute. The first trials of this gun were entirely successful, operating from the deck of the Zeppelin I.

Following up this success, Ehrhardt, of Dusseldorf, turned out a light, quick firing cannon which was mounted on top of the rigid hull of the Zeppelin type of ship. The description of the shooting of both the Krupp and the Ehrhardt guns, mounted on Zeppelins, was published in German army journals intended only for the eyes of its army officers, but one of the journals accidentally fell into the hands of the writer. It proved that the degree of accuracy, even at that early date, promised appalling results after refinement of aim had been attained by practice.

The more recent records with improved dirigibles have been fully published in the artillery and technical journals of Germany. No concealment was attempted by the government after practice had

Borders Patrolled by Great Numbers of Expert Pilots in Fast Moving Craft Will Make It Possible to Locate the Enemy—Bombs Dropped from Great Heights with Wonderful Accuracy.

QUESTION OF THE SUPREMACY OF VARIOUS TYPES OF AIRSHIPS WILL SOON BE SETTLED

Guns Perfected After Long Experiments That Are Expected to Create Haver Among the Fliers and Bring Them and Their Machines to Earth.

gives him a sense of security that is a moral advantage. It has been found that the observer who is not sure of his pilot will not only do incompetently work but sometimes work entirely without value to the commander on the ground. Single pilots have been found to do much better and more dependable work.

They have made excellent sketches while driving. So it has been found that the single seater has an advantage over the two seater. The single seat monoplanes for the French army are the machines which are the fastest.

The biplanes have been found to be the most serviceable machines for the dropping of bombs, since they carry an engine officer who does the aiming with a bomb ejector. The dropping of bombs in the present war will test the much argued question of the effect of bombs on troops.

Hudson Maxim, the powder expert, has insisted that bombs dropped from aircraft will do little damage, and the experience of the Italians in Tripoli tends to show that the moral and material effect on troops is very small. In many cases the bombs did not explode. Projectiles have been experimented with by France, but the results have been kept secret. Projectiles for use against aeroplanes and airships have been devised. They release peculiar bullets, which fly out in all directions. The bullets themselves release knives and hooks which tear and rend.

Aerial torpedoes have been fired from gun and maintained as flat a trajectory as possible. The bombs which have been dropped from Zeppelins in experimental work have fairly struck circles of fifteen feet in diameter, even when the bombs were sent from five thousand feet. Each of the great German air dreadnoughts carries at least four or five tons of explosives, and the marine Zeppelins transport as much as eight tons.

Aeroplanes make a small target and may be able to keep out of the range of the airship's guns. The armor plated bodies of the latest offensive aeroplanes provide comparative safety for the pilot; and it has been proven that bullet holes through the wings do not have any great damaging effect. During the Balkan war the gasolene tanks were frequently hit without disastrous results.

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The news that aeroplanes and dirigibles have been dropping on defenceless towns is only another evidence of the tremendously conflicting reports that will attend war in the air. The vast theatre of action afforded by the air is conducive to just such misconceptions of what aeroplanes are really doing. Their appearance on the scene is so sudden and their attack so swift that there can be no clear realization of what has occurred until investigation follows. Bombs which have already been dropped on towns in France seem to have been directed against the Russian joined Great Britain in the air, defended by aeroplanes, any such attack does not violate the agreement reached at The Hague by the nations.

The conference of the Powers decided that there was no precedent governing the use of aircraft in advancing the cause of a belligerent. The language of the protocol from dirigibles was placed in the same class as the subjection of coast cities to ransom at the demand of a powerful fleet. There is no prohibition against firing upon aircraft. This would make them subject to attack, but would deprive them of their proper defence. Great Britain was naturally interested in having the dropping of bombs prohibited. It was a menace to her military isolation and because her strongest naval vessel might not be proof against destruction through air bombardment.

Germany naturally refused to vote for the prohibiting of bomb throwing because of her progress in the use of dirigibles and the great expenditures of money she was making to achieve supremacy in the air. The effort to render unfortified places immune from attack by aircraft. Under The Hague prohibition undefended towns, villages and dwellings cannot be bombarded from the air.

Crews of captured aircraft under The Hague rules will not be treated as spies, but will be taken as prisoners of war. At the last Hague conference it was agreed that the use of aircraft in war would ultimately make for the maintenance of peace. It was suggested that dirigibles being able to pass over protecting armies on expeditions aimed at the capital of a nation itself, where the particular individuals most responsible for the war reside, would tend for the first time to shift the responsibility of individuals to personal danger under the declaration of war. And so the development of aerial navigation would make for peace.

Retreat of Enemy is a France Will be Engaged Are Making

PARIS, Sept. 14.—6.20 a.m. The retreat of the armies of General Von Kluck and Von Bülow is continued at last accounts with considerable rapidity. The official comment last night of the allies were keeping contact with the enemy and crossed the River Aisne.

The whereabouts of the German army was not revealed, but it is evident that they do not intend to make a stand on the line of Rheims to Seissons, and it is hardly likely it is thought that they will halt their retreat before reaching Belgium. They have already made two-thirds the distance from Provins, in department of Seine-et-Marne to the frontier. The heavy gun Saturday and Sunday are not to be taken as prisoners of war. The famous 420 millimetre gun which require forty horses to draw them.

The armies of General Hausen and the Prince of Vaudenberg, which constituted the center seem to be headed to Reims and Metziers, though the distance of the crown of this force is reported as resisting at the south end of the forest of the Argonne.

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LONDON, Sept. 14, 4.51 a.m. A Times correspondent, who reports from five miles south of Provins, in the department Seine-et-Marne, says: "I have travelled to this position practically along the whole line of the allied army, through course always in the rear of General Von Kluck's host in command over the Marne and the Grand Morin rivers to Sezanne, 25 miles southwest of Epernay. I met little opposition, and I believe little opposition was intended. The allies in fact led the offensive straight into a trap. The English cavalry led the attack, and the German army followed. The Germans believed the English were running away. When the tremendous advance reached Provins the allied plan was completed and it got no further.

The fighting on Sunday, Sept. 6 was of a terrible character. It began at dawn in the region of La Grande Gauthier. The allied troops who were drawn up to receive the Germans understood would be their duty to hold the very best in order that the attacking force at Meaux might achieve its task in security. The battle lasted all night and until late Monday.

The German artillery fire was severe but not accurate. The French and English fought steadily on and slowly beat the enemy back.

The attempts of the Germans to cross the Marne at Meaux, failed. Sixteen attempts were foiled by the French.

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