



# **Unknown War: Aerial Reconnaissance in 1915**

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The forces of the Central Powers, during the middle part of the year, pushed the Tsar's armies east over 400 miles, forcing them to abandon areas long part of the Russian Empire. Our team of contributors, historians Terrence Finnegan, Helmut Jäger, and Carl Bobrow, have conducted groundbreaking research in the emerging technology that made operations on such a grand scale feasible — aerial reconnaissance.

They will tell the story of the competing air services – all of which made dramatic advances – but here are a few key dates and a map to help follow the battles for which the aviators provided strategic support.



# AERIAL RECONNAISSANCE 1915 The "Unknown War" on the Eastern Front

## By Terrence J. Finnegan, Helmut Jäger, and Carl J. Bobrow

Now we are again right into completely mobile warfare. I fly over the enemy almost daily and bring back reports. I reported the retreat of the Russians three days ago. It is so much more fun for me... I am especially happy to be right here, in the most important theater of operations, and to be able to participate in it.

#### **Manfred von Richthofen**

Letter of 20 July 1915 during service as a Russfront [Eastern Front] aerial observer

Aviation, especially the seminal applications of aerial reconnaissance, was particularly valuable in supporting the campaigns of the mobile battlefield that developed on the Eastern Front in 1915. After the disarray of their defeat in the August 1914 Battle of Tannenberg, further attempts by the Russians to advance into the German heartland had proven inconsequential and costly. Their Southwest Front operations, however, posed the greatest threat of the war to Austria-Hungary. In order to keep the Eastern Front intact German High Command (OHL) was prompted to support their beleaguered Austro-Hungarian counterpart. The following year, Russian armies were pushed out of East Prussia to the north and Galicia to the south, resulting in the "Great Retreat" of 1915.

The Eastern Front in 1915 was the largest battleground of the entire war. The Russian Great Retreat witnessed the Russians abandoning 300,000 square kilometers of territory, including Galicia, Poland and Lithuania. The eventual front line extended 1,600 kilometers (990 mi) from the Baltic Sea (Riga) in the north to the Black Sea (Rumanian border) in the south. This vast area was intensely covered by aerial reconnaissance – a capability still evolving to support military decision makers in a timely manner. No other World War I battleground depended to such an extent on aviation's ability to conduct long-range reconnaissance to ascertain enemy intentions and movement.



Two Legends of Russian Aviation, General Vladimir Shidlovsky (X) and Igor Sikorsky (Y), and Their EVK Entourage in Front of an II'ya Muromets and Aerial Bomb. Courtesy Marat Khairulin

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Il'ya Muromets 'Kievsky' Over Yablonna Airfield. Courtesy Marat Khairulin The Largest Aeroplane in the World Set the Standard for Aerial Reconnaissance

Aerial reconnaissance held supreme in the East because there was little opposition, due in great measure to the extensive area of operations. Aerial combat was rare at this time. The only consequential threat posed to aviation by the enemy on both sides of the front line was anti-aircraft artillery, ironically including friendly fire. This freedom to operate in 1915 made aerial reconnaissance more prolific than at any other time in the war.

Aerial reconnaissance became a significant factor in the maneuvers of all the nations' armies. Positional war had forced aviation on the Western Front to be more meticulous, scrutinizing every meter for intelligence on enemy intentions. Such detailed information did not hold sway with the Eastern Front. The vast size of the region made actual encounters between enemy aeroplanes infrequent. Additionally, there were fewer aircraft flying sorties over No Man's Land. The technology that made the difference in aerial reconnaissance credibility was the addition of aerial cameras.

#### **Russia Holds Some Unique Technological Edges**

Russia possessed an amazing advantage over the rest of the world prior to the Great War's commencement. Igor Sikorsky's incredible II'ya Muromets, the world's largest aeroplane, set impressive aeronautical records for distance and duration. This capability translated into a military advantage that allowed aerial reconnaissance to become a valuable part of the army's combat effectiveness. No other combatant could match Sikorsky's aeroplane in 1915. Russia's military leadership at this time, though, did not have a vision for its effective employment. The impetus to successfully deploying II'ya Muromets was not an initiative undertaken by Russian military commanders; rather it was in large part a business interest as well as the patriotic vision of Vladimir Shidlovsky. Shidlovsky was the owner of the Russo-Baltic Rail Wagon Works (R-BVZ) that built the aeroplane in St. Petersburg. When war commenced, his stature allowed him a position on the Russian State Council and he had an advantage in his deliberations with Russian authorities, since his firm included Sikorsky's design team. This ensured that the II'ya Muromets kept pace with new demands and lessons learned from the operational front line combat experience.

Il'ya Muromets superior capability for gathering information was clearly demonstrated on 12 April 1915. Flying out of Yablonna, Il'ya Muromets II climbed to 3000 meters and proceeded north into Germany. For three hours the largest aeroplane in the world covered East Prussia. The aircrew included an intelligence officer from Russian Fourth Army providing real time assessments of what was being observed. The sortie gained a comprehensive view of German force disposition in the rear echelons. Thanks to the aerial camera package of a 70cm configured Potte aerial film camera and 25cm Ul'yanin plate camera, the sortie provided the most comprehensive view of an enemy's rear echelon observed in the war up to that time. The air crew was never at serious risk from anti-aircraft artillery. When II'ya Muromets II arrived back at Yablonna the film was processed and made into a mosaic that astounded senior officers at army headquarters. For modern-day enthusiasts of aviation, the sortie could be compared to a 21st-century Predator drone now patrolling the skies over Afghanistan, Syria, or Iraq.

Russian military leadership was slow in applying aerial reconnaissance to the rapidly evolving battleground. Stavka, Russia's most senior military council, eventually assumed control, and on 23 December 1914, Eskadra Vozdushnykh Korablei (EVK) [Squadron of Flying Ships], the most important Russian reconnaissance aviation operation of the entire war, was established. Shidlovsky was appointed EVK commander as a General. This posed a guandary for the Russian establishment at first because Shidlovsky assumed senior rank despite having served only in the Imperial Russian Navy many years prior to the war. To keep EVK's force under central control, Shidlovsky was subordinated to Stavka's General Kondzerovsky, Adjutant General of the Supreme Commander General Staff. The newly promoted General Shidlovsky set up his EVK headquarters close to the front at Yablonna, 16 kilometers from Warsaw, in January 1915.

Adding to Russia's aerial reconnaissance advantages were two aerial camera systems designed prior to the war and integrated into a few aviation units at the start of the war. The Ul'yanin plate and Potte film cameras became the mainstay of Russian aerial photography. The lack of an effective production line, however, limited the ability to field the numbers of cameras required to support military operations. Aerial photography's development was still undergoing refinement. A crude, canvas covered cart served as the photographic laboratory for developing film and plates.

Russia's leading spokesman for aviation prior to and throughout most of the war was Grand Duke Aleksandr Mikhailovich, who became an enthusiast following the successful English Channel flight by Louis Blériot in 1909. The Grand Duke's naval background gave him the depth to understand what aviation could do to support Russia's military objectives. He assumed a godfather role for Russian aviation and led Russia's effort to acquire a tactical reconnaissance inventory through purchase of French aeroplanes and initiating indigenous aeroplane production within Russia. The latter was not substantial, and reliance on French airframes became the standard in 1914 -1915.

To the Russians' credit they applied roles and missions to the II'ya Muromets that became the standard for 20<sup>th</sup>-century aviation. Aerial photographs from UI'yanin and Potte cameras supported target analysis and bomb damage assessment. II'ya Muromets aircrew sometimes included intelligence officers and artillery observers, providing the most definitive real-time assessment of what was observed below combined with the ability to direct fire. EVK's missions included a mixture of high explosive, fragmentation, and incendiary aerial bombs to provide clout to the reconnaissance. Military aviation also witnessed the first air supply of a combat unit when a single II'ya Muromets dropped zinc-lined boxes of rifle cartridges to an encircled Russian division in March 1915.

#### Cameras – Advantage Russia!



A view of the Ul'yanin 21cm aerial camera that worked with photographic plates. Photo from Marat Khairulin.



Unique for aerial cameras in the war the Potte 21cm aerial camera that worked exclusively with film. Other combatants relied on photographic plates for aerial reconnaissance. Photo from Marat Khairulin.



Il'ya Muromets Aerial Image of an Austro-Hungarian Rail Yard at Mlawa, Poland. Taken With an Ul'yanin Aerial Plate Camera. Note the Large Bomb Being Dropped on the Target. Courtesy Marat Khairulin

#### **Germany's Lead on Aerial Reconnaissance**

Germany's aviation and aerial reconnaissance benefited from a dynamic cross-fertilization of ideas from fighting a two-front war on the Western and Eastern Fronts. The Western Front's positional war created a laboratory for defining modern intelligence. Tactical lessons learned from the West were applied on the Eastern Front's expansive Russian and Galician battlegrounds. This cross-fertilization between Eastern and Western Front gave the German military a force multiplier that made a difference in applying strategies and tactics in the war. Aiding in the war effort was a vibrant German aviation industry (particularly Albatros, Aviatik, and LVG) producing large numbers of reconnaissance aeroplanes that in 1915 covered both Western and Eastern Fronts. Austro-Hungary's aviation industry followed the German lead later in the war.

German aviation reorganized in March 1915 to apply lessons learned in the first eight months of combat. It quickly gained acclaim due to its successful role at Tannenberg. Major Hermann von der Lieth-Thomsen was appointed chief of the German Air Service and charged with the task of enhancing the combat strength and reorganization of the German air arm. Thomsen was a powerful personality; in advocating what he believed in or considered to be important, he was tenacious, even when confronting a higher authority. His ideas found support from General Erich von Falkenhayn, chief of the German General Staff. German aviation now was being shaped and upgraded through the staff serving Thomsen. In Austro-Hungary a similar reorganization took place in July 1915 when Colonel Emil Uzelac became commander of Austro-Hungarian Imperial and Royal Aviation Troops and directed staffs to manage aviation resources assigned to an operational theater.

# Key Reconnaissance Aircraft of the Central Powers



Aviatik C.I., German Workhorse for Aerial Reconnaissance and Bombardment on Both the Eastern and Western Fronts. Courtesy Aaron Weaver



Demonstration with *Pistolenkammer* [25cm focal length] by Austro-Hungarian Aircrew from an Aviatik B.II Series 34 Courtesy Aaron Weaver Adding to German aviation's combat effectiveness was a military culture familiar with aerial photography. Thanks to the pioneering efforts of Lieutenant Carl Fink, who worked for Thomsen, the Germans gained an advantage with their aerial photographic reconnaissance in which the Austro-Hungarians participated. Not only had Lieutenant Fink helped to create the first operational aerial camera, the *Pistolenkammer*, he was also instrumental in creating the aerial photographic architecture that developed, interpreted, and analyzed aerial photographs – the most lucrative intelligence source in the Great War. Major Thomsen was so impressed with Fink's talent and vision that he made him head of the photo department on his staff.

This resulted in Fink establishing army-wide aerial reconnaissance standards. Aerial photographic reconnaissance proved so crucial to the German Army that the expanding role became organized through the Photographic Organization, giving purpose to one of the most vital sources of Central Powers intelligence in the entire war.

# Brieftauben Abteilung Ostende (BAO)

An example of German innovation applying aviation to operational campaigns was *Brieftauben Abteilung Ostende* (BAO) – a new concept in modern warfare – an OHL-controlled aerial bombardment wing deceptively code named "Pigeon Detachment Ostende." The BAO was established in November 1914 by Major Wilhelm Siegert under direct control of OHL. The secretive BAO functioned as an early rapid deployment aviation force, completely mobile with all support housed on a dedicated railroad train that deployed where the critical situation required. BAO aviation assets comprised Aviatik B and L.V.G. B type aeroplanes. Lieutenant Fink configured four railroad cars

> This article is the product of recent research by three World War I aviation historians. We recommend their earlier works related to this article.



with aerial photographic labs. The BAO was deployed to East Prussia in March 1915 to support the Eastern Front command under Field Marshal Paul von Hindenburg, victor of Tannenberg. In April 1915, the BAO transferred to Galicia to support newly established *11. Armee* in final preparation for the impending Gorlice-Tarnow offensive. Under Fink's leadership, accurate large- and small-scale maps of all Russian defenses and artillery positions covered in the planned offensive area were created and disseminated.

### **General August von Mackensen**

General August von Mackensen, who commanded the XVII. Armee Korps at Tannenberg, recognized how extremely valuably the newly employed aerial reconnaissance assisted in planning and executing operations. As commander of 11. Armee, von Mackensen worked brilliantly with Colonel Hans von Seeckt, 11. Armee chief of staff, in synthesizing the needs of maneuvering infantry on the Eastern Front with the rapidly evolving potential of field artillery and Minenwerfer (trench mortars). General von Mackensen, a career cavalry officer, naturally gravitated toward any role that enhanced reconnaissance. His son was an aviator flying sorties on the Eastern Front. Mackensen's aeroplanes supplanted and eventually replaced traditional cavalry, making modern war targeting on a mobile battlefield more effective. Colonel von Seeckt served as the mastermind behind the detailed operational planning. The culmination of their effort was the astounding success of German heavy artillery and Minenwerfer in destroying and overrunning Russia's field fortification networks antiquated defenses designed to counter any invasion force that employed nineteenth century battlefield weapons, strategies, and tactics.

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Finnegan, Terrence J. *Shooting the Front, Allied Aerial Reconnaissance in the First World War*. The History Press, 2011. Sadly for the Russians, other than the technological leap offered by Sikorsky's II'ya Muromets, aviation languished in 1915 and did not pose an effective counter against the German military's staff brilliance in creating and employing war fighting concepts for aviation such as the BAO on the Eastern Front.



**General von Mackensen** 

#### **Gorlice-Tarnow**

General von Mackensen and Colonel von Seeckt's brilliant and aggressive application of aerial reconnaissance to support the massive artillery and Minenwerfer force brought forward to neutralize Russian defenses, including the fortresses of the region, paid dividends in one of the greatest yet surprisingly unknown campaigns of the Great War, the Gorlice-Tarnow Offensive. As a team, they surpassed Hindenburg-Ludendorff accomplishments in partnership at Tannenberg. Gorlice-Tarnow was a paradigm shift in German military thinking. General von Mackensen's objective this time was not to outflank and encircle the Russian enemy. Rather, it was a head-on attack supported by his vast arsenal of artillery and Minenwerfer. This rapid application of military force such as that demonstrated at the Gorlice breakthrough later became standard in the German army of WWI.

11. Armee made aerial reconnaissance their primary intelligence on the Russians by emphasizing aerial reconnaissance reports and aerial photographs for subordinate commanders in battle. Mackensen's staff became accustomed to aerial reconnaissance updates

of Russian troop maneuvers and logistical operations based on rail and road traffic observations. Daily coverage gave notice of Russian positions being reinforced or constructed. German intelligence officers closely cooperated with the Austrian Intelligence Service under the command of General Max Ronge. Ronge installed an elaborate agent network in addition to maintaining an unprecedented capability to intercept and decipher Russian radio messages. Russian prisoners, taken weeks prior to the planned May execution date, stated their front lines were not being reinforced to counter what was known about German intentions. German planning showed effective use of available intelligence. Additional German flying units (1, 8, 21) and the BAO were deployed along with two Austro-Hungarian flying companies (FLIK). By 28 April 1915, German aviators confirmed Russian movement was not directed at reinforcing the lines. The fusion of aerial reconnaissance with signals intelligence and prisoner interrogations made German and Austro-Hungarian military intelligence the bestinformed combat forces of 1915.

While efficient German and Austro-Hungarian intelligence preparation was a force multiplier for their coming offensives, Russian intelligence was failing. On the Russian side, limited reports from tactical aerial reconnaissance did note an increased German presence, but Russian army commanders failed to act. What the Russians didn't know was that a complete enemy army had secretly deployed forward opposite them. The Allies learned of this reconnaissance shortfall when a Russian aviator complained to a British military attaché.



Austrian Troops Temporarily Stalled During the 1915 Advance

Prior to the offensive, *11. Armee* held back aerial reconnaissance except specific missions tasked directly by the command. Captain Volkmann, *11. Armee* flying troops staff officer (*Stofl.*), ordered extensive aerial coverage, using 25cm *Pistolenkammer*, of the Russian wire entanglements, dugouts, flanking machine gun and artillery positions, observation and battlefield command posts, rear artillery batteries, and supplies. The information acquired gave the planners and the ground commanders a better idea of where to concentrate forces to achieve a breakthrough.

When 1 May 1915 arrived, German aerial reconnaissance intensified and continued reporting. Russian forces were limited to movements behind their lines. General von Mackensen's forces proceeded to their jumping-off points that night. An intermittent artillery fire commenced, harassing the Russian defenders crouching in shallow trenches. At 0600 hours on 2 May 1915 1,500 German and Austro-Hungarian artillery and *Minenwerfer* commenced a four-hour massive bombardment. By mid-morning General von Mackensen's artillery and *Minenwerfer* had erased most of the

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Pre-attack Photo by BAO of the Gorlice Area Taken with a Handheld *Pistolenkammer*  Russian trench line and shredded its barbed wire obstacles. *11. Armee* emphasized aviation where possible to observe and report on artillery effectiveness. Damage from heavy howitzer shells was clearly visible and reported through command channels. The secretive BAO flew aerial bombardment and aerial reconnaissance sorties against Russian rear-area targets. For the first time in the war, aviation was employed in ground attack missions supporting a major offensive as well as flying rear-echelon aerial photographic and visual reconnaissance. By the evening of 4 May 1915 General von Mackensen's forces had driven a 25-mile wedge eight miles into the Russian lines, achieving what every commander in the war desired, an effective breakthrough.

Facing 11. Armee was General Lesh's Russian Third Army. Four of Lesh's Russian Corps lost over 75 percent of their forces. The Russians threw more reserve divisions against the Germans but the lack of artillery support, weapons, and even accurate maps meant their counterattack proved disastrous. After ten days of battle only 40,000 Russians were left of the original 250,000. Ordered to make a last ditch effort at the San River, the remaining Russians found they didn't even have spades to build entrenchments. Corrupt staff officers had sold the spades, barbed wire, and timber acquired from their previous victories over the Austro-Hungarian field armies. The horror continued with no artillery shells to fire back at the massive German assault. Russian ammunition remained within the fortresses of Kovno, Grodno, Osowiec, and Brest-Litovsk.

With the breakthrough underway, the biggest problem now facing General von Mackensen and Colonel von Seeckt was to divine the intentions of the Russian Southwest Front. Although aerial reconnaissance clearly showed the Russians to be retreating, there was nothing definitive to indicate where they were going to make a stand. A radio intercept on 12 May 1915 indicated the Russian Southwest Front command had a change of heart regarding the question of the former Austro-Hungarian fortress at Przemyśl. Aerial observation confirmed the radio intercepts and gave the Germans and Austro-Hungarians a clear picture of the Russian retreat to a line from Przemyśl to the San River. On 13 May the Central Powers' advance reached the San, where a temporary halt was ordered to repair communications and to bring up materiél and personnel to face stiffening Russian resistance.

On the morning of 16 May pursuing German and Austro-Hungarian columns came forward vigorously and didn't encounter resistance, except from the ubiquitous Cossack cavalry patrols employed by the Russians to screen retreats. Aerial reconnaissance now provided General von Mackensen, Colonel von Seeckt, and staffs with plenty of information on the movements of Russian troops and rail traffic. In addition, aeroplanes delivered photos to headquarters of new Russian positions being constructed. 11. Armee emphasized rapid dissemination of aerial reconnaissance to subordinate commanders, reporting roads in front of 11. Armee and the Austro-Hungarians' 2. Armee advance. Visual sightings confirmed long columns of Russian troops of all arms on the roads moving east. Intercepted Russian radio messages continued to help German and Austro-Hungarian commanders discern Russian intentions. Very early on 17 May 1915, intercepted radio messages revealed the Russian corps heading east lacked both artillery and ammunition. On 18 May, German commanders tasked their flying units to cover Russian positions for depth and strength at Radymno, west of the Przemyśl fortress.

A Russian aviation response of note came in mid-May. Stavka sent General Shidlovsky a telegram ordering EVK to deploy two ships to the Southwest Front to support Russian operations against General von Mackensen's advancing armies. Il'va Muromets "Kievsky" piloted by Flying Officer Bashko and Il'ya Muromets III flown by Staff Captain Brodovich were ordered forward to the landing ground at Lemberg. This marked the beginning of the First Combat Detachment of the EVK, which now emphasized deployments to various parts of the Eastern Front to reinforce the Russian campaign. General Lesh made it clear that II'ya Muromets was to lead aerial reconnaissance in support of his Russian Third Army. His tactical aerial reconnaissance force was not capable of covering the territory needed for effective planning. Russian Third Army staffs now directed the Il'ya Muromets sorties. One sortie showed II'ya Muromets' potential. Flying Officer Bashko's II'ya Muromets "Kievsky" flew over Lezhaisk, where it discovered two trains at the station. Aerial bombs were dropped and aerial photographs taken. The II'ya Muromets then discovered six more trains at the Przeworsk junction station, an important hub for Austro-Hungarian reserve transport and supply. Bombs were dropped resulting in large explosions and great columns of smoke. Mechanic A.M. Lavrov operated the Ul'yanin

and Potte camera station. The bombardier, Artillery Officer A.A. Naumov, requested Bashko to return over the rail station. More destruction was observed, with balls of smoke rising into the air and exploding like artillery shells upon impact. Naumov released more bombs and more smoke arose from the area. Bashko, satisfied with the results of his four-hour combat sortie and recognizing they were running low on fuel, turned back to Wladaw, and the crew filed an extensive report including aerial photographs that captured the dramatic moments. The Austro-Hungarian response was to move more anti-aircraft artillery and more aviation assets forward.

Ongoing German and Austro-Hungarian intelligence analysis paid off on 23 May 1915. Aerial reconnaissance and intercepted Russian wireless messages provided an understanding of the Russians' retreat, revealing their uncertainty in holding the Przemyśl fortress. The next day German aviators noted confusion among the Russian columns at the San bridges east of Radymno and brought this to the attention of the German artillery, which proceeded to direct fire and contribute to the chaos. Aerial reconnaissance now confirmed the Russians were evacuating the fortress and supported the German and Austro-Hungarian forces as they retook Przemyśl on 3 June 1915.

General von Mackensen believed that the Russians were now heading east to Lemberg. On 6 June 1915, *11. Armee* issued detailed orders for aerial reconnaissance and photography of new Russian positions. German and Austro-Hungarian flying units were tasked to conduct a close reconnaissance five miles beyond the front line. Additional coverage extended out to 30 miles. The demands for timely information now called for ten copies of aerial reconnaissance reports so that subordinate commanders were included. A shift in thinking was in progress. Aerial reconnaissance increased in value over traditional cavalry in describing an ongoing mobile campaign.

On 19 June aerial reconnaissance spotted a long column of Russian infantry leaving Lemberg with concentrations to the northeast. General von Mackensen and Colonel von Seeckt ordered a renewal of the advance to both widen and strengthen *11. Armee's* hold on the railroad line between Rava Russka and Zolkiew. The next day's reporting confirmed that the Russians were in headlong retreat. Russian aviation, to

include the II'ya Muromets, moved back into Russian territory. By 22 June 1915, Lemberg fell back to the control of the Central Powers and the Russians were removed from almost all of Galicia. Aviation now scrutinized an array of sparse lines of communications from Riga to Czernowitz.



**Russian Troops Retreating from Warsaw** 

#### The 1915 Campaign Concludes

General von Mackensen had achieved a stunning success - in seven weeks, his divisions had advanced some 250 kilometers from Gorlice to Lemberg (dwarfing the movement of the Western Front's fouryear record). Russia again suffered horrendous losses. Stavka reckoned that its frontline armies after the fall of Lemberg were down by 500,000 men. German and Austro-Hungarian superiority in heavy artillery and Minenwerfer had done the important work of smashing Russian defensive positions and forcing Russian divisions into open ground and mobile warfare, an operation which gave the Germans the advantage. The Gorlice-Tarnow breakthrough and regaining the Austro-Hungarians' Przemyśl fortress had major strategic consequences on the Eastern Front. Russia's position in the Carpathians collapsed, alleviating what remained of a threat to Hungary.

Russia's strategy against the Central Powers centered on their fortress network, with each fortress having its own dedicated aviation unit. Novo-Georgievsk, Kovno, Grodno, and Osowiec were a few of the formidable defenses set up by the Russian military. The most important was Novo-Georgievsk. A testament to Russian recognition of Il'va Muromets's potential came from Novo-Georgievsk in 1915 in a message to Stavka – "The flights of the II'ya Muromets aeroplanes demonstrated the great advantages of this type of aeroplane over other types. Reconnaissance from on board the II'ya Muromets can be conducted thoroughly and with ease, owing to the convenience of observation and the possibility of taking photographs. These factors allow for excellent intelligence gathering. Reconnaissance may be also conducted with serenity and assurance." The vaunted fortress of Novo-Georgievsk fell on 19 August 1915. Stavka learned about the fall of Novo-Georgievsk that day when the last of the fortress pilots landed at Baranovichi - despite being fired upon by Russian infantry nearby. Russian postwar memories reflected frustration and dismay over the failure of fortresses to hold back the Central Powers' advance. The strong, heavily armed fortresses did not offer the expected resistance and surrendered to the enemy as they advanced. Such fortresses as Novo-Georgievsk, Kovno, Grodno and even Osowiec (considered "inaccessible") were given up.

General von Mackensen remained a strong advocate of aerial reconnaissance for the remainder of the war. He suffered personal tragedy on 14 April 1916 when his aviator son, Captain von Mackensen, was shot down and killed while attacking II'ya Muromets II over the Eastern Front.

The Russians were exhausted by their lengthy retreats, and the Germans and Austro-Hungarians were almost as exhausted by their pursuit. Positional war came to the Eastern Front in late 1915, when both sides used the pause to construct much more elaborate trench systems such as those resulting from the 1914 Western Front "Race to the Sea." What developed was a strengthened defense of three trench lines of resistance on both sides of No Man's Land. When this positional war took hold it was primarily fought on Russian soil, a tribute to German leadership and planning to keep the Russians at bay. As on the Western Front, positional war required careful scrutiny of trenches and supporting infrastructure to determine enemy intentions.

For the Imperial Russian Air Service it was necessary to improve their capability. General Brusilov's tasking them to acquire in-depth aerial reconnaissance of the Southwest Front for his June 1916 offensive would exonerate them.



**Brusilov's Moment Would Come in 1916** 

The remainder of the war, however, would continue to be challenging for Russian aviators. One, Lieutenant G. L. Sheremetevsky, perhaps spoke for the harsh realities being experienced by the Imperial Russian Air Service, in his postwar reflections, writing:

My aerial battle was for me the beginning of the war in the air, which became more and more serious on our front with every passing day. The Germans moved large aerial forces from Verdun on the Western Front to the Kovel and Vladimir-Volynsk area, and among them were some famous fighter pilots. In addition they began to bombard our airfields and railway junctions, and attacked our reconnaissance aircraft, not letting them cross the front line, which was established not far from the Vladimir-Volynsk-Kovel line. In spite of the successful breakthrough, our offensive faltered. If the cavalry had been flung into the breach, the results of our victory would have been immeasurably better.