

THE ROLE OF AVIATION IN THE AIR DEFENSE OF GREAT BRITAIN DURING WORLD WAR I

Inna Pidbereznykh

Doctor of Legal Sciences, Assistant Professor,
Black Sea National Petro Mohyla University, Ukraine
e-mail: innaevgenievna2017@gmail.com, orcid.org/0000-0001-9906-4327

Viacheslav Nikolenko

Master Student, Black Sea National Petro Mohyla University, Ukraine
e-mail: slaventiy2308@gmail.com, orcid.org/0009-0004-1763-9465

Summary

The article is dedicated to analyzing the role of British aviation in the air defense of Great Britain during World War I. During this period, Britain faced a new threat – massive air raids by German military airships and bombers, which caused severe destruction and panic among the population. The lack of experience in countering aerial threats posed a significant challenge to British aviation units at the beginning of the war. The Royal Flying Corps (RFC) and the Royal Naval Air Service (RNAS) encountered numerous difficulties, including technical limitations and adverse weather conditions, which initially hindered their ability to effectively intercept and destroy enemy air targets.

The article examines how British aviation adapted its tactics and technologies to counter German air attacks, particularly through the development of early warning systems and night interceptions. It describes the improvement of British fighter aircraft, notably the B.E.2c model, and its adaptation for night operations against German bombers. Special attention is given to the formation of the Royal Air Force (RAF) in 1918, which significantly improved the management and coordination of the country's air defense.

The author analyzes the impact of these measures on reducing the effectiveness of German air raids and on the development of military aviation in the following years. The article also explores the successful operations of individual British pilots who managed to shoot down German Zeppelins and bombers, as well as the role of specialized squadrons in patrolling the night skies.

The article highlights the importance of the World War I experience for the future development of British military aviation and the organization of air defense in the 20th century. The work also sheds light on the cooperation between ground-based air defense forces and aviation, which played a key role in protecting strategic targets such as factories, ports, and infrastructure. A significant milestone was the organization of the London Air Defence Area, which integrated anti-aircraft guns, searchlights, and interceptor aircraft for better coordination. The author notes that through the implementation of new technologies, such as radio communication, British aviation achieved significant success in reducing civilian casualties and destroying enemy bombers.

Key words: Royal Flying Corps, Royal Naval Air Service, Royal Air Force, Zeppelins, German bombers, interception tactics, military innovations.

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1. Introduction

During World War I, Great Britain faced a new threat – massive air raids by German Zeppelins and bombers, which caused significant destruction and panic among the population. In the absence of prior experience in combating aerial threats, British aviation, which was still in its early stages of development, was forced to rapidly adapt to the new conditions of war. The challenge lay in how to effectively organize air defense using available resources and technologies to reduce civilian casualties and protect the country's strategically important targets. Despite initial difficulties and technical limitations, British aviation had to find ways to counter German air attacks, ensuring the safety of the nation and its citizens. Studying this issue is relevant for understanding the development of military aviation and the organization of air defense during global conflicts.

The aim of the article is to study and analyze the role of British aviation in the air defense of Great Britain during World War I, specifically how the aviation units of the Royal Flying Corps (RFC), the Royal Naval Air Service (RNAS), and the Royal Air Force (RAF) adapted to the new challenges posed by German air raids. The article seeks to evaluate the effectiveness of the tactical and technical measures taken by British aviation to protect the country and to explore their impact on the further development of military aviation and the organization of air defense in the 20th century.

The article employs an interdisciplinary approach, combining historical and military analyses to examine the role of British aviation in air defense during World War I. The primary research method is historical-comparative analysis, which allows for comparing the development of British air forces at different stages of the war and in the context of military innovations. A content analysis of historical sources is also applied, including scientific works, memoirs, military documents, and contemporary studies on the topic. This approach provides an objective assessment of the effectiveness of British aviation and the technological and tactical solutions implemented.

The article is structured to sequentially highlight the evolution of British aviation during World War I. It first addresses the threats faced by Great Britain, including German air raids and their impact on the country's defense. Next, it analyzes the early stages of aviation development, including the challenges faced by the RFC and RNAS. Special attention is given to the role of the RAF, formed in 1918, and its contribution to air defense. The conclusion summarizes the development of British aviation and its impact on the future organization of air defense in the 20th century.

2. Examination of the Issue

After the end of World War I, various works gradually began to emerge, focusing on the role of military aviation in this global conflict. The role of British aviation in the context of the war, with particular emphasis on the innovations and strategies implemented to counter German air attacks, was analyzed by John Morrow (*Morrow, 1993*).

Raymond Fredette, in his scholarly research, focused on the early large-scale air battles over Britain during World War I. He examines the raids of German Zeppelins and Gotha bombers on British cities in 1917–1918, highlighting how British aviation adapted to this new threat (*Fredette, 2006*).

Ralph Barker's studies provide important insights into how British aviation evolved from the early days of the conflict to the end of the war, including its role in air defense. He

emphasizes the successes and failures of the RFC in combating German aircraft and Zeppelins, which constantly improved their tactics (*Barker, 2002*).

Douglas Robinson, in his book, focused on the history of the German Naval Airship Division and its operations during World War I. Although the main focus of his work is on the German side, it contains important details about how British aviators countered the Zeppelins (*Robinson, 1980*).

Raymond Rimell studied the air war over Great Britain during World War I, focusing on the interaction of British aviation with German bombers and Zeppelins, the development of night interceptors, and the first anti-aircraft guns, which became a significant achievement for the British military (*Rimell, 1987*).

Lee Kennett explored the evolution of aerial warfare during World War I, highlighting the significant role of British aviation in air defense. Kennett focused on the psychological and tactical challenges faced by pilots and how British aviation gradually shifted from defense to active interception and neutralization of the enemy. His study provides a comprehensive context in which air defense developed, emphasizing the innovations and risks encountered by aviators (*Kennett, 1999*).

Norman Franks examined air combat tactics during World War I, focusing on both the individual actions of aces and broader tactical approaches. Franks highlighted the actions of British pilots, who honed their skills and developed new strategies to combat enemy aircraft and Zeppelins throughout the war. Compared to other authors, Franks placed greater emphasis on the human factor and its role in shaping successful tactics, which helped British aviation advance in countering German threats (*Franks, 2015*).

Peter Hart, in his works, concentrated on the events of April 1917, when British aviation suffered heavy losses during the Battle of Arras. Hart analyzed the causes of these losses and concluded that, despite temporary setbacks, British aviation learned important lessons that helped it improve its tactics and better prepare for the defense of the country. He emphasized that "Bloody April" became a turning point for the RFC, forcing the command to rethink its approaches to managing and coordinating air operations (*Hart, 2006*).

Although Alex Imrie's book focuses on the history of German aviation, it contains important details about how British aviation countered German air attacks. Imrie used photographic material and documents to show the evolution of German aircraft and tactics, which were the primary targets for British pilots. A significant aspect of this study is its ability to contrast the actions of German and British forces (*Imrie, 1973*).

Ian Castle provided a detailed examination of the threat posed by German Zeppelins to London in the early years of the war. Castle described the evolution of Britain's response to these threats, from early failures to the development of effective night interception tactics and the use of specialized aircraft. His work adds significant detail to the overall picture of air defense, showing how the Zeppelin threat influenced the development of aviation in Britain. Compared to other studies, Castle's book focuses on the urban dimension of the war and provides insight into how enemy raids changed the strategic thinking of British commanders (*Castle, 2008*).

3. New Military Challenges

During the First World War, Great Britain faced a serious challenge: air raids carried out by German military airships known as "Zeppelins" and a new type of aircraft – bombers. These attacks caused widespread panic among the population, considerable destruction, and led to the development of new air defense tactics and strategies (*Baughen, 2014*).

In the early years of the war, German Zeppelins were the primary means of air attacks on Britain. Initially, the British air force struggled to intercept and destroy these airships due to their high altitude and ability to maneuver swiftly. However, over time, British pilots began to successfully engage such targets. One of the first successful interceptions occurred on June 4, 1915, when pilot Reginald Warneford destroyed the Zeppelin LZ37, for which he was awarded the Victoria Cross (*Robinson, 1980*).

As German Zeppelins became more vulnerable due to improvements in British air defense and the emergence of new types of fighter aircraft, Germany began deploying a new type of aircraft – heavy bombers to carry out raids on British cities. The bombings often took place at night, which led British aviators to develop the complex practice of night flights and interceptions. Fighters of the Royal Flying Corps (RFC), such as the B.E.2c, were adapted for night operations and began to more effectively counter German bombers.

A key development in British air defense was the creation of new early warning systems and coordinated interception strategies. This allowed for more efficient coordination between aviation and anti-aircraft batteries, reducing the effectiveness of German attacks.

The Royal Naval Air Service (RNAS) also played an important role in air defense. Their pilots often intercepted German Zeppelins and bombers approaching the British coast. Despite many unsuccessful interception attempts due to the technical limitations of the aircraft at the time, some missions, such as the successful attack on the Zeppelin LZ38, demonstrated the effectiveness of British aviators (*Robinson, 1980*).

By 1917, the British air force had become more organized and efficient in combating German air threats. Special squadrons were established to patrol the night skies and intercept enemy aircraft. The growing number of aircraft participating in these missions, along with improvements in interception tactics and techniques, led to a significant reduction in the damage caused by German attacks.

Starting in 1917, British military leaders began implementing new tactical approaches that involved more coordinated use of fighter aircraft and anti-aircraft batteries. For example, after the appearance of German heavy bombers such as the Gotha, British aviation focused on conducting regular night interceptions, which became a key element in protecting London and other major British cities. On May 25, 1917, RNAS and RFC pilots successfully intercepted a group of German bombers in Belgian airspace. It was documented that Lieutenant Leslie effectively shot down a Gotha bomber at an altitude of 3,700 meters, causing it to catch fire and crash to the ground (*Parker, 2019*).

One of the important steps was the creation of the so-called London Air Defence Area, which included new anti-aircraft guns, searchlights, and communication systems that improved the coordination between aviation and anti-aircraft forces. It was crucial to remain adaptive, as German raids became more organized and massive, requiring a corresponding response from the British (Home Air Defence).

4. Fundamental Decisions

The founding of the Royal Air Force (RAF) on April 1, 1918, was a response to the need for more effective management of air forces and coordination between different types of aviation. This organizational change allowed for the concentration of resources and attention, particularly on-air defense, which significantly enhanced the efficiency of British aviators. One key aspect was the improvement of the command-and-control system, enabling quicker responses to threats (*Cole, 1984*).

After the establishment of the RAF, British pilots began using more modern aircraft, such as the Sopwith Camel, which greatly improved their combat capabilities in fighting against German bombers. Specifically, the increased altitude and maneuverability of these aircraft led to a higher interception rate of German planes and airships approaching British cities. On May 19, 1918, RAF aviation units successfully shot down six enemy bombers, with another forced to land due to sustained damage (*Hanson, 2008*).

By the end of the war, British aviation had achieved significant success in defending the country from German raids. Night patrols and the use of specialized aircraft notably reduced civilian casualties and protected key state enterprises, factories, and industrial sites. However, despite these successes, British pilots faced numerous challenges, including technical malfunctions of aircraft, limited resources, and occasionally difficult weather conditions.

By the war's end, thanks to the efforts of the RAF, German air attacks had lost much of their effectiveness, significantly reducing their psychological and military impact. This was made possible through a comprehensive air defense system that included not only aviation but also ground forces and technical innovations such as radio communication and early acoustic radar systems (sound amplifiers).

Thus, British aviation played a crucial role in defending the country during World War I, constantly improving its methods and technologies, which allowed it to effectively counter German air threats and safeguard the British population.

5. Conclusions

During World War I, British aviation underwent a complex journey of formation and development, transforming from a nascent branch of the armed forces into one of the key elements of national defense.

At the beginning of the war, British aviation faced numerous challenges in countering a new threat – air attacks from Germany. The initial raids by German Zeppelins caused significant destruction and panic among the population, demanding an immediate response from the British military. The Royal Flying Corps and the Royal Naval Air Service were initially unprepared to effectively counter these threats, but gradually began to adapt, developing new tactics and improving their aircraft.

A key stage in the development of British air defense was the creation of a unified command structure – the Royal Air Force (RAF) in 1918. This allowed for more efficient use of resources and improved coordination between different units, which in turn significantly enhanced the effectiveness of aviation operations. With the establishment of the RAF, British pilots were equipped with more modern aircraft, as well as improved communication and control systems.

Despite the initial difficulties, British aviation gradually achieved significant success in defending the country from German air attacks. Successful interceptions of German Zeppelins and bombers became possible due to improved aerial combat tactics, particularly the development of night patrols and the increased accuracy of anti-aircraft gunfire. Both technical innovations and the experience of pilots, who quickly adapted to the new conditions of warfare, played an important role in these achievements.

Overall, British aviation made a significant contribution to ensuring effective air defense during World War I. Thanks to constant technological and intellectual progress, British military forces were able to significantly reduce the effectiveness of German air raids, protecting their cities and population from severe destruction and loss. This experience became an important

lesson for the future development of military aviation and laid the foundation for future successes in aerial confrontations of the 20th century.

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