AVIATION AT WAR

Tau Beta Pi

University of Maryland

College Park, - - - Maryland

September 4, 1942

Hugo G. Sheridan, Jr.

FOREWORD

Today, aviation is playing an important part in the battle for democracy and freedom. Yet the first successful balloon ascension took place only a little over two hundred and fifty years ago, and it was not until the beginning of the twentieth century that man conquered the air with the heavier than air craft.

Scarcely less than a week had elapsed after Rozier made his famous balloon ascension before it was suggested that it be used in warfare. The balloon was given several trials in war during the nineteenth century but with little success. It was not until the first World War that the usefulness of the balloon became apparent. Closely coupled with the balloon is the rigid airship. No other person in history was more closely connected to the military development of the dirigible than Count Zeppelin of the German army. It was through his efforts that the dirigible reached its highest stage of development, and it was only because of the fact of the high inflammability of hydrogen that led to its eventual downfall.

The first large scale development of heavier than air craft was brought on by World War I. It was during this war that the military value of the airplane was fully realized. Both sides were quick to adapt the airplane, and through their

efforts it developed rapidly and was destined to have a great bearing on military tactics. This has been amply demonstrated by Hitler in his use of military tactics, mobility, and speed in which the airplane has played a major role.

This thesis attempts to trace the history of aircraft in warfare and to show the influence that each has had one upon the other.

Hugo G. Sheridan, Jr.

Hyattsville, Maryland
September, 1942

AVIATION AT WAR

War, perhaps more than any other factor, has influenced the development of aviation. And aviation in turn has had its effect on the art of waging war. It was through the desires of nations to produce a weapon more formidable than their enemies that men were able to obtain the funds necessary to make the rapid advancement that was made during war time. We are witnesses to the fact that aviation is the greatest single development in creating total war and making it not a war of armies but a war of peoples.

Shortly after the historic balloon ascension in 1783 of Francois de Rozier, who was the first human being to rise from the earth, Girond de Villette proposed that the balloon could be adapted to war for the use of reconnaissance. However, Villette was unable to convince France of his idea, and nothing was done. It was not until the outbreak of the French Revolution and the wars which followed that the balloon was actually given a trial in warfare. It was used against the Austrians by the French in 1794 with what was recorded as a great success. After the defeat of Napoleon Bonaparte, however, no further attempts were made to use the balloon in warfare until it was revived by Napoleon III in 1859. He used it in the Italian campaign where the balloon had little, if any, effect on the outcome of the battles in which it was used. The outbreak of the American War Between

the States provided the first large scale adaptation of the military balloon. Most of the work was done by Thaddeus S. C. Lowe in the employ of the Union forces. The Union side did practically all of the aerial observation, although the Confederates did, on a few occasions, use balloons in battle. However, the use of balloons was abandoned by both sides after 1862 because of the difficulties of transportation.

Although the balloon was recognized by the leading nations of the world in 1883 as valuable in warfare, it was not until the first World War that the balloon was really developed as a military asset. The Germans built their balloons in long cylindrical shapes, popularly known as sausage balloons. On this balloon the Germans devised a successful method for stabilizing them. It consisted of a pair of small sails and a large inflated bag placed in the rear which acted as a rudder and kept the nose of the balloon in the wind. This type was followed by other types, the best being the Caquot balloon. It was more stable than the sausage balloon and was soon adopted by both sides of the conflict. While they were used for observation and direction of artillery fire, they were also used to combat the submarine menace around the British Isles. During the air raids against England they were used by the English in combatting the bombers. Also in the present World War the balloon barrages have played an important part in the defense of English cities against German bombing attacks. However, in the present war the airplane

has taken the place of the balloon for the purpose of aerial observation.

Up until the time of World War I the rigid airship or dirigible was never used in warfare. Although work had been done on the rigid airship, it was not until the time of Count Zeppelin that the dirigible reached its highest peak of success. Zeppelin and his associates constructed 120 successful airships, 72 of which were used by the Germans in the first World War. They were often used in raids in the North Sea against English shipping. The few raids that were made against English cities while they did not do great material damage did have great effect on the morale of the population. The great stresses set up in the structures and the limited supply of helium have brought about the rapid decline of the dirigible.

The development of heavier than air craft as a military weapon covers a period of less than forty years as compared with a period of development of lighter than air craft of over two hundred and fifty years. And yet, today, the importance of heavier than air craft has increased tremendously while that of the lighter than air craft is declining. Soon after the successes of men such as the Wright brothers, Curtis, Bleriot, and others, the major powers began developing the airplane as a means of observation for military purposes. The first use of the airplane in warfare was made by the Italians in 1912 against the Turks. Also during this cam-

paign aerial bombing and aerial mapping were attempted.

When the first World War began the airplanes of both sides were built with the trend towards stability. However, this made them very slow. The Germans, and the Allies as well, soon recognized the desperate need for speed and began to revise their designs. Anthony Fokker, who offered his services to the Allies and was refused, created a new type of warfare. First, he produced airplanes that were both speedy and maneuverable. Second, he included a machine gun on the fuselage of his craft. And, third, he invented a synchronizing control mechanism which allowed the machine gun to be fired through the propeller. These gave the Germans an initial advantage over the Allies and which, coupled with Germany's production methods, were never fully overcome.

When the United States entered the war in 1917, military aviation was practically nil. The air force consisted of but 60 airplanes, 65 officers, and 1120 enlisted men. But through generous appropriations by Congress the air force was expanded rapidly. At the time of the Armistice the United States had increased its air arm to 14,230 officers and 124,760 enlisted men. America had built 3,290 airplanes and 13,386 aircraft engines. This clearly shows the impetus that World War I gave to aviation in the United States.

While World War I had an important effect on the development of aviation, the airplane did not alter greatly the general plan of battle. However, this is not true of the

present World War. The efforts of the Germans in this war have shown the influence that aircraft have already had on modern warfare. The development of the dive bomber and medium bomber in large quantities has changed the tactics of battle from the slow trench fighting of 1918 for which the French, Belgians, Poles, and other nations were prepared to a rapid war of movement. Aircraft played a definite role in the blitzgreig by Germany of many of the subjected countries. Also with the development of the long range bomber, no country is now safe from attack. This is shown by the bombing of London, Tokyo, and Pearl Harbor. In naval warfare aircraft, especially the torpedo airplane, has lessened the importance of the battleship and has increased the importance of the aircraft carrier. This is witnessed by the sinking of the Price of Wales and the Repulse which were sunk entirely by airplanes. Also the fact that the United States and Great Britain are building more aircraft carriers in proportion to battleships than ever before substantiates this statement.

The desires of men to produce a weapon that is more deadly and effective than any in use by their enemies have played an important part in the development of aviation. Aviation is now paying back man threefold for his efforts. The development of aviation for war purposes has been positive and quick which gives to the victor a powerful weapon but gives to the vanquished death and destruction of, unfortunately,

the irreplaceable monument of civilization and culture.

Bibliography

Encyclopaedia Britannica, 1936, Encyclopaedia Britannica, Inc., New York, New York, Volumes 1 and 2.

Haydon, F. S., Aeronautics in the Union and Confederate Armies, 1941, Johns Hopkins Press, Baltimore, Maryland, Volume 1.

Magoun, F. A., and Hodgins, E., A History of Aircraft, 1931, Whittlesey House, McGraw-Hill Book Company, Inc., New York, New York.