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"AIR CRAFT AND WAR"

Henry H. Arnold witnessed and was an important part of the growth of American air power from its infancy to maturity. He was graduated from West Point in 1907 and commissioned a second lieutenant of Infantry. On 21 April 1911 Arnold was detailed to aeronautical duty with the Signal Corps and was ordered to proceed to Dayton, Ohio, to take a course of instruction from the Wright brothers on the operation of their aeroplane. He was thus launched upon a career that was to have far reaching effects on both himself and his country.

At the time Arnold completed the course in 1911, the United States Army had three aircraft, and the young lieutenant was one of the two qualified pilots in the Army. In 1945, the Army Air Forces numbered 2,411,294 officers and enlisted men and possessed 79,908 aircraft. Between those two dates two World Wars had been fought and the concepts of air power and the mission of air forces had undergone revolutionary changes. Arnold's own writings present both the earlier and the later views. Writing for the Infantry Journal in October 1913, First Lieutenant Arnold vigorously recommended that aircraft be given a greater role in warfare. In 1945, Arnold, as a General of the Army and Commanding General of the Army Air Forces, reviewed air accomplishments in World War II and made recommendations concerning the future employment of air power. The following comparison of his views in 1913 with those he held in 1945 graphically illustrates the tremendous advances made by air power in the interval between the two dates.

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¹The title of this article is the one used by Lieutenant Arnold in a study that appeared in the October, 1913, issue of the Infantry Journal.

FIRST LIEUTENANT HENRY H.
ARNOLD, U.S. INFANTRY

Mission of Air Force

Experience has demonstrated that the value of air craft as instruments of war will more than repay the work involved in fitting them out and transporting them. The extent of their use is at present indeterminate, but it seems probable that their sphere of operations will increase with improvements in their construction. At their present stages of development, their demonstrated value is limited to reconnaissance, beyond which their use is more or less a matter of conjecture.

Employment of Air Power

According to the best authorities . . . the use of aircraft in the order of their relative value seems to be:

1. Reconnaissance
2. Warding off hostile aircraft.
3. Messenger service.
4. Observing artillery fire.
5. Carrying supplies.
6. Offensive operations

Intelligence

By using aircraft, the movement of troops will appear like the movements in a map problem; each side will see a greater number of moves made by the other side than has heretofore been the case. Few turning movements will be made without discovery unless the troops are moved in a severe storm, at night, or under cover of a heavily wooded country. In any case, such movements will be slow and made with great hardships to the troops. The

GENERAL OF THE ARMY HENRY H.
ARNOLD, COMMANDING GENERAL,
ARMY AIR FORCES

Mission of Air Force

The Strategic Theory, as applied to the United States air warfare concept, postulates that air attack on internal enemy vitals can so deplete specific industrial and economic resources, and on occasion the will to resist, as to make continued resistance by the enemy impossible.

Employment of Air Power

It is entirely possible that the progressive development of the air arm, especially with the concurrent development of the atomic explosive, guided missiles, and other modern devices, will reduce the requirement for or employment of mass armies and navies. These latter forces must have sufficiently dispersed at all times to avoid location and destruction by future airborne power.

Air superiority accordingly is the first essential for effective offense as well as defense.

Intelligence

Our past concept of Intelligence needs was insufficient to cover the requirements of modern war.

Detailed and movement-by-movement knowledge of all aspects of civilian and military activity within the territory of an enemy or potential enemy is essential to sound planning in times of peace or war. Continuous knowledge of potential enemies, covering their entire political, social, industrial, scientific and military life, is also

position of reserves will have to be selected with greater care, for the reverse slope of a hill will not shield them from aerial observation. Troops marching along roads will be visible to the aviator for miles unless masked by trees. On a clear day an aviator at an altitude of 6,000 feet can see groups of two or three people very easily, and can discover a single person at altitudes up to 4,500 feet without the aid of glasses. The roads and wagons passing along them are very distinct. Rivers and streams are visible for about 10 to 20 miles. . . . Sketches and photographs showing the necessary details will be made by the observers. Thus a great many military features will be exactly located and detailed information concerning them will be given by maps or sketches. Reports will be sent back by wireless unless interference by the enemy's wireless makes it impossible to do so. . . . The data thus obtained will cover a large area, and will be far more complete than that obtained by any other means, with the possible exception of a report by an actual observer at a particular locality.

Aircraft - Range and Speed

The number of different types of aircraft that will be necessary for military purposes will have to be determined by future experience. It is, however, almost certain there will be at least three types: the light, fast aeroplane; the heavier observer aeroplane, and the dirigible. . . .

The light machine will probably carry but one person, the pilot. It must . . . have a wide range of speed from 48 to 75 miles per hour. This will permit the pilot to . . . make a reconnaissance flight of 30 miles to the front and return. . . .

nesessary to provide warning of impending danger.

Strategic air warfare can be neither soundly planned nor efficiently executed without a continuous flow of detailed information of this kind. In the future it will be suicidally dangerous to depend upon reports of military attaches and routine or casual sources of information regarding foreign states.

There is a great need for a permanent national organization which not only deals with broad questions of policy but also collects, evaluates and disseminates a continuous stream of intelligence organization within the Air Force working with such a national organization in times of peace and war.

Aircraft - Range and Speed

Air Force is a complex combination of many types of airplanes, weapons, personnel, units and tactics, supported by the industrial and scientific resources of the nation.

Operations of an Air Force can no longer be considered as being local in range. Bombers can now range the world. . . .

Aircraft, piloted or pilotless, will move at speeds far beyond the velocity of sound, well over 700 miles per hour.

The heavier weight carrying machine will be equipped for two men. . . . A speed variation of from 40 to 62 miles per hour will be sufficient. . . . The fuel supply must permit a flight of 4 hours so that under average weather conditions, a distance of 200 miles may be covered.

Logistical Support

With the increased power and improved construction, the live load that can be carried by an aeroplane has greatly increased. Eleven passengers have been carried in flight by an aeroplane, five people have been transported to an altitude of 2,000 feet, and machines carrying loads of 700 pounds have remained in the air for more than an hour. Such machines will be used to carry supplies and will cover considerable distances in a remarkably short period of time. Their speed will not be less than 48 miles per hour; they will thus make about 12 miles to every mile made by a team of mules--and this regardless of the condition of the roads.

Night Flying

The use of the aeroplane at night need not be considered at the present time in spite of fanciful pictures of aeroplanes fitted with searchlights. A considerable number of flights have been made at night, but the field of view is so limited that leaving aside the great risk taken by the aviators, their value is negligible. Just before daybreak, however, the aviators can start a flight and arrive at a place 40 or 50 miles away, make observations and return before the troops have left camp.

Logistical Support

In the closing nine months of the war in the Far East, the Air Transport Command's Pacific Division doubled its aerial support of the final offensive. From January through August, this Division flew 262,248,900 ton-miles and 1,071,480,000 passenger miles, and moved 26,000 air evacuees from all branches of the service to the U. S.

Night Flying

Accurate day and night operations in all weather are essential in maintaining pressure on the enemy, magnifying his requirements for defense, interfering with his production, and attacking movements of troops and supplies which have been driven to rely on protection of darkness and bad weather.

Fighter Aircraft

Just what means will be employed to drive off hostile aircraft is an open question. Every country except ours seems to have aeroplanes armed with efficient rapid-fire guns. These can be used to great advantage if the target is not too distant, but at long range, few or no hits will be made at a fast moving aeroplane. To hit an aeroplane flying at an elevation of 6,000 feet will be so difficult a task that any hit may be considered as the result of a chance shot.

Fighter Aircraft

The reluctance of the Luftwaffe to give battle except under favorable circumstances meant that our fighters often finished their leg of the bomber escort mission with surplus fuel. So they began attacking ground targets on the return trip. . . .

These ranging expeditions developed into organized fighter attacks. Our planes, equipped with external long range gas tanks flew over enemy territory, back and forth for hundreds of miles at treetop level, searching out and strafing the hidden airfields to which the Luftwaffe had dispersed, and hitting other targets such as locomotives, gun emplacements, barracks, trucks, and river boats. The negative effect on German morale was also considered.

The fighters also developed special bombing techniques. Only a fighter can swoop low and drop a bomb within the entrance of a railroad tunnel to collapse a mountain upon a railroad line, or glide in diagonally to skip a bomb into the piers of a great bridge or against the gates of a canal lock. P-38 Lightning fighter groups also developed a technique of precision high-altitude bombing, with their speed making enemy interception extremely difficult.