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Concepts and Nature of Air Warfare

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CONCEPTS AND NATURE OF AIR WARFARE

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by
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Gentlemen:

We of the Air War College team appreciate the opportunity to participate in your study of military theory and global strategy. For the next two days we will be considering together the concepts and nature of air warfare, for in a sense, all of our discussions will be dealing with different aspects and different views of this same subject. So much has to be left unsaid on so broad a topic that our problem for the next two days is really one of selection — the selection of the key ideas, facts, and relationships for study.

Since we will not have time to examine all the ramifications of selected subjects, it is all the more important that we have a common appreciation from the outset of the fundamental concepts, facts, and evaluations that we will be dealing with. We know that these profoundly affect our individual appreciation of specific aspects of this complex business of warfare.

Let us consider this first talk, then, as an opportunity for us to establish a common point of view or a frame of reference for our discussions. The object of an enterprise is certainly a good place to start, and since air warfare is only a part of the whole, we can relate the part to the whole by examining the object of the entire enterprise of war. In talking about achieving objectives in war, we should examine the dominant features of the means

to be used in achieving them. We should also try to visualize the vulnerabilities these means can exploit, and the effects of the application of the means.

Air warfare is a term which usually denotes a state of being or a condition. But when we use the term while thinking of warfare as a whole, we note immediately that we are talking about a means as well as a state of being or condition. A given means, when applied, creates characteristic effects. It is not always easy to see how these effects of the application of air force can serve our war objectives or, when the same means is in enemy hands, to see how it influences *our* proposed actions.

It seems that we could talk profitably about the concepts and nature of air warfare in terms of objectives, means, and effects. The means we are principally considering is air force. Let's try to undertake this examination by starting at the national level. Then we can move on to talk about objectives, means, and effects from strategic considerations to tactical ones. Let us begin by examining the basic concepts of the use of air force in war.

The idea of using air forces as the primary offensive power of a nation's combined arms probably took firm root in World War I. General Pershing had planned an extensive supporting air offensive and the Allies were preparing to build forces to undertake it when the war ended. The records indicate a remarkably open-minded attitude toward this unprecedented military plan. Perhaps the heat of battle and the unity of purpose explains this open-mindedness. But, we know that in the years subsequent to World War I a bitter conceptual struggle developed between U. S. airmen and their fellow Army officers. During this early period the Navy was only remotely involved with the *central* point of difference.

What was this conceptual struggle about? It was about the object of war and the application of military means to attain this object. Airmen argued that the *object* of war was to overcome the will of the enemy people or government and to impose one's own will upon them. They said the nation itself was the war-making entity. Its need for security, its aggressive ambitions and its purposes in any war were simply the expression of the needs and desires of the people and their government. Airmen reasoned that armies were merely instruments interposing barriers between the nations themselves. The airplane could avoid these barriers by flying over them to attack the people, their social and economic structure, and their war industries. The nation, in all probability, could be induced to yield to this direct attack; and in any event the attack would, in the long run, render its field armies ineffective.

Ground force officers contended that the enemy's will was dependent upon the relative success of the armies engaged, for it was only through capture and control in detail, or the inevitable threat thereof, that the enemy's will could be bent to yours. Firepower alone, without surface movement of troops into the enemy country would never suffice in conquering the country. The soldiers agreed that it was only when all hope was lost that the enemy would yield, but as long as his army remained intact the enemy could hope that the balance might be upset. Therefore, they said, the real object of military forces in war was to destroy the opposing army — and they cited those great military authorities, history and von Clausewitz, to support their argument.

In rebuttal we might put the air view another way. To argue that destruction of the army and capture is the objective is to confuse means with ends. In other words, to capture may not be synonymous with control — and other means can be and have been used to achieve control. Control does not automatically come with

the destruction of the army and capture. Witness the trouble of the Germans in Russia in World War II. The control gained by armies after the destruction of opposing armies results only from threat of further destruction of property and hardship on the people. If the people do not yield to the terms of the victor, the terms themselves must be changed or control must be gained through imposing greater degrees of hardship.

This difference between airman and soldier was, and still is, a basic difference in evaluation of vulnerabilities and weapons system capabilities. It is a difference as to which are means and which are ends in war. The confusion of means with ends could be a deadly military sin. Such confusion is a great impediment to exploiting new weapons and different strategies for accomplishing the same objective.

In looking for evidence as to whether capture or threat of capture is the object or simply a means, let's look briefly at Clausewitz, Mahan, and two historical experiences. In reading Clausewitz to see whether he agreed that the object of war is to destroy the military forces, we find this. He compared two countries to two wrestlers. He said: "Each tries by physical force to compel the other to do his will; his immediate object is to overthrow his adversary and thereby make him incapable of any further resistance. War is thus an act of force to compel our adversary to do our will. Force is thus the means; to impose our will upon the enemy is the object. To achieve this object with certainty we must disarm the enemy, and this disarming is by definition the proper aim of military action."

At the beginning of the second chapter of Book I entitled "End and Means in War," Clausewitz says, "A plan for war, that is a plan for disarming the enemy, must distinguish between three

things, which as three general categories include everything else. They are the military forces, the country, and the will of the enemy."

"The military forces must be destroyed, that is to say, *put into such a condition that they can no longer continue to fight.* We take this opportunity to explain," he says, "that in what follows, the expression 'destruction of the enemy's military forces' is to be understood *only in the sense.* Besides destroying the enemy's military force, the country must be conquered, for from the country fresh military forces could be raised. But even if these things have been done, the war, that is to say, the hostile tension and the activity of hostile agencies, cannot be regarded as ended so long as the will of the enemy is not subdued also, that is, until his government and his allies have been induced to sign a peace or his people to submit."

It seems, from these passages, indeed from the essence of everything else he says, that Clausewitz denies that the object of military forces in war must be the destruction of the armed forces. He visualizes them as means with which to impose one's will. That he could not foresee the development of another military "means" is not to his discredit.

Mahan very ably sets forth the critical importance of the homeland in war. Time after time he points out that the fruits of control of the sea is national power in a strategic sense. He, too, shows that the essence of strategy is to bring pressure on the center of power — the homeland. When the situation was right, blockade and economic strangulation could and did serve as the sole means of controlling the homeland and will to wage war.

The writings of Clausewitz and Mahan indicate that they

might well agree that in the final analysis, the object of war is control — control of the military forces, the country, and will of the people — and that varying degrees of control can be obtained by the application of varying degrees of force. The estimate of how much and where control must be obtained is a function of the political design and military strategy. To be controlled the enemy must be disarmed, but disarming need only be accomplished in those areas where the opponents have chosen or have been driven to fight for decision.

Final resolution of terms acceptable to both sides is a political problem and is assessed by the victor in relation to the cost of the effort required to secure better terms. If the price of yielding is totally unacceptable to the loser, the amount of force required will assuredly be greater. And we must never forget that as long as the enemy can hope to redress the imbalance of power and win through to a greater measure of success, just so long will he continue the struggle.

In amplification of this concept of control as the objective, that is, control of the military forces, the homeland, and the will, let's examine briefly two historical cases.

During the 30's the British replaced army contingents with air squadrons for controlling their vast empire. They then set about controlling the colonial people with air forces. It was accomplished by actual or threatened air attacks against towns and villages of these people. The story of this development that became Empire military policy is a facinating one, though too long to recount here. We are interested only in the central idea and the basic principle involved in this successful policy. The idea was that in controlling behavior of the people involved, military force should be applied for limited political objectives. The idea of capture and

occupation was abandoned, and punitive reprisals for their aggressions were replaced with the requirement that the people conform to a code of reasonable behavior. The behavior desired was made very clear from the outset and continuously repeated throughout the air operations.

The central principle upon which the success of the operation really depended probably was not understood clearly in the beginning. This principle is directly concerned with will of a people — It is this. Where people can take no effective action to defend themselves and the means they possess for retaliation or defense cannot even be employed, the costs become unbearable and they reach a state of utter frustration. They are then subject to control without capture. The British found the use of ground forces to oppose these people gave them an incentive and an object to fight. They could hope to make the British reprisals too difficult to carry through. The very fact that they had a capability to fight demanded that they do so, and once engaged they fought on until they were defeated.

This was an experience in control of backward peoples — but they were an organized people and they had a society and a government and needs and desires like all other people.

How would this concept of control without capture look in a major war? Our second historical example is World War II against Japan. In the Pacific we fought a great war of combined arms. We won control of the air and the seas. We pressed on to position ourselves for air attacks on the Japanese homeland in preparation for the defeat of the home army and capture of the nation. This strategy was fought to the political objective of unconditional surrender.

During the course of this war, however, we had considerable success in the naval and air interdiction of Japan's strategic lines of communication. The mining campaign, both on overseas and coastal traffic, further augmented this strategic interdiction. The B-29 campaign against the homeland was ushered in and the fire bomb attacks began to disrupt the social and economic integration of the nation.

What was the Japanese reaction? The wiser heads recognized more than a year in advance of the termination of the war that Japan had lost control in two interrelated and decisive areas of conflict — air and sea. The Emperor stated then, over a year before the end of the war, that all hope of victory was lost. All the Japanese could hope for was more acceptable terms. The strategic threats to the homeland of air and sea interdiction were not sufficiently developed at that time to cause capitulation in terms of unconditional surrender. The true strategic significance of Japan's plight was recognized by many with the progressive destruction of the nation's heart by B-29's and continued strangulation by sea. In spite of the fact that the army was still intact, from a national point of view the military forces had totally lost the ability to defend their homeland. (If we had put our army ashore, what then?) As a result of this defenselessness the controlling factions of the government lost any hope whatsoever of raising fresh military forces for the war, in the modern meaning of the word. The record is plain — they yielded to unconditional surrender without capture. They did so because they had lost all hope of either victory or better terms.

Up to this point we have been discussing concepts of warfare in terms of objectives. We have said that control is the object of war. The degree of control required is responsive to the

political design and the power of the enemy to resist. The *nation* is the entity and its *power* is represented by its armed forces, the homeland capacity to support and generate forces and its will to prosecute the war. Will is dependent upon hope — the hope for greater relative success in war, and, when losing, the hope for new strategy or new means for regaining the initiative or the *hope* for acceptable terms.

Let's talk now about strategic considerations resulting from the use of air force as a means in war. If a strong homeland, guarded by a strong army, gives an enemy hope for victory, how does air force fit the objective of control? A central part of the concept for the use of air force in war is built around one of the big problems of war strategy — that of preventing the enemy from developing greater relative power after war has started. The development of this power can be called a strategic threat. In the past, greater power could come by greater mobilization, seizure and occupation of resource areas, realignment of coalitions, development of new weapons, etc. Today, most of these strategic threats can be controlled by air force. That is, relative strategic power positions can be reversed at the very outset of a war by direct air attack against the homeland. The ability of air force to upset a carefully constructed power position lies in its ability to penetrate to the center of gravity. Resources cannot be processed if the industry is not available; military forces cannot be sustained and equipped if the weapons are destroyed; hope cannot be maintained if the very life processes of the nation are under severe attack. In other words, the homeland that Clausewitz nominated as a consideration in war must now be thought of as the prime strategic objective for the application of military forces at the beginning of a war, not as a consideration to be entertained after his forces are defeated. These concepts, and air force, have ushered in a pro-

found change in the nature of war. Part of this change is found in the simple fact that air force works *both ways*. Survival demands that the capacity of the enemy to concentrate firepower against the homeland be countered. This consideration of the security of the homeland drives us to fight for an intermediate military objective — command of the air. In this capacity of air force to penetrate to the heart of a nation and the resultant requirement to *fight for command of the air* we see the real nature of air warfare and the *dominating fact of warfare as a whole.* All other objectives for air and surface forces must be responsive and subordinate to this fact.

Let's talk about force capabilities for a little just to get a feel of the revolution that has occured. This will give us a few facts against which to measure the ideas we have just been dealing with and a background as we move on to discuss objectives, concepts, means, and effects in military strategy. Since our next session will deal with capabilities at greater length, we will examine only the dominant features here.

Today, the atomic bomb gives us a new order of magnitude of firepower at an amazing reduction in force requirements. Let us make a comparison that is a stiff reminder of this fact. The comparison is based on rough calculations from World War II statistics and the explosive power of the 20 KT atomic bomb. We are only trying to see order of magnitude. It has been said that a 20 KT bomb is worth about 2 KT, or 2,000 tons of conventional bombs, when employed against large military or industrial installations and built-up industrial areas. This reduction in efficiency is primarily due to the concentration of the blast in one relatively small area in which more blast is obtained than is needed. Consequently, it cannot be applied over larger areas. There were roughly

450,000 bomb-carrying sorties required to deliver 1,350 KT of firepower against *Germany* itself in World War II. And this was over a period of 4⅓ years. (Sorties figure on the basis of 3 tons per bomber.) This would now require 675 bomb-carrying sorties, as opposed to 450,000 in World War II, with 20 KT bombs reduced, for comparison, to 2 KT. We now refer to 20 KT bombs as the hand grenades of the A-bomb family.

From this sort of comparison it should be obvious that in any effort to destroy a nation's war-making capacity through air attack, or to destroy military installations or concentrations of military forces, the A-bomb represents the most revolutionary advance in offensive capabilities of all times. It has certainly had a revolutionary impact on air strategy, concepts of target selection, phasing of effort, tactics, and force composition. When we look at this advance in aircraft firepower, along with advances in navigational and bombing equipment, and couple with them the considerable advances in speed and range, we must conclude that every aspect of previous air warfare experience has to be examined in the light of these specifics. Seizing upon World War II successes and failures as representative lessons to be learned is not only inadequate but dangerous.

Let's do some reasoning about the capability of air force to strike directly at the heart of a nation. Let's see how this *means* and its *effects* must be taken into account in national military policy and strategy. But above all, if we are to see how this capability affects the nature of warfare and national military strategy we must take a two-way look. We must consider it in relation to the actual and potential capacity of an enemy on the one hand, and our own capacity on the other.

The power of air forces to penetrate air defenses was dem-

onstrated in World War II when tens of thousands of sorties were flown aginst Germany before the German air defense system was crippled by direct attack. Of course, this was under the specific conditions of the time. An assessment of the technological facts and trends indicate that the offense can always keep pace with the defense. Conditions of penetration today may differ markedly from World War II. Nevertheless, the same technical advances which may be applied to a system of defense can also be applied with greater effect to the offense. The real question is *not* whether an offensive air weapon can be shot down — of course it *can*. The question is whether the firepower that can be delivered is sufficient to accomplish the objectives.

Examination of the offensive capabilities of today's air forces inevitably leads to the conclusion that the air weapon has the capability to destroy the economic and social fabric of a nation. In a very short time a nation can be reduced industrially and economically to the status of a third-rate power. Vital political, social, and economic processes can be destroyed. Political control can be seriously, perhaps fatally, disrupted and capitulation brought about without capture.

Professional competence and national determination can maintain and develop this kind of force at relatively reasonable and sustainable cost. The questions then are: For what purpose should it be maintained? Why must we talk about air capabilities in terms of widespread destruction of a nation?

Suppose, for a moment, that an enemy nation had a capacity to devastate our homeland and we had a very limited force for offensive action. If we examine that situation, we can see that the devastation of our homeland would leave us with little strategic potential for sustaining our forces or for further mobilization. Air

defenses alone are not adequate to stop the attacks. If we could not strike back and saw no hope of stopping the attacks, we would certainly not be able to stand the continuing punishment. That nation would need only to attack on a modest scale and threaten on a large one.

Whether we like it or not, modern technology has created this nation-killing potential. Apparently, to an even larger degree other major powers are building toward such a capability. We will have to live with this threat knowing that relative security and relative success can only come from doing a more efficient job against both an enemy nation and her threatening forces. This is not a happy thought, for relative success in the near future has all the appearance of being worse than what we have known in the past as defeat. That is why we must think of war strategy first in terms of survival and freedom. As time wears on, the destruction of the physical monuments of our culture may be the minimum price of war.

We might review for a moment the capability we have just been examining, and its strategic effects. Perhaps this will help us to see better how it must relate to total strategy. Suppose we, as a nation, attempted to defeat the enemy's deployed air forces. The probability of completing the task of defeating the enemy air force through these means alone is not very great. Hence, we are ultimately forced to attack the homeland to complete the defeat of the air force. But, we must not forget that the attrition of our forces in the first campaigns might be so great that we could not complete the job. Then what would be our strategic position if the enemy chose to use the balance of his undamaged air force to destroy our national power structure? What would happen to mobilization? What would happen to continued support of the

forces in the field? Would the ultimate outcome be in doubt? The point is, you can't choose. This is a strategic advantage which you can't yield to an enemy. You must build and maintain the force capable of doing a more efficient job than he does.

This is little different from Mahan's theory that opposing fleets must keep their quality weapons, their ships of the line, so disposed that the enemy cannot meet and defeat them in detail. He further contended that a navy must have sufficient "forces in being" to meet and defeat the most powerful force the enemy or coalition of enemies can muster. This did not necessarily mean the most, but the sum total of numbers, quality, and command had to be greater than that of the enemy. The very existence of the "fleet in being" influenced the entire disposition of enemy forces. This fact made is possible that one combatant might find the benefits of this threat of greater advantage than meeting the opposition, with the attendant chances of destruction. In this event, an aggressive navy seeking the engagement might find it difficult to bring the enemy to bay. Or, they both might choose to maintain the threats, not daring a decision, while letting the situation develop in other areas of conflict.

When we compare this with air against a nation, the same theory applies at the national level. The major difference is that the aggressor can bring the other to bay if he desires. In this case, if neither dares, there may be no total war.

A number of people have put it this way. We have entered a new era of warfare. No longer can we talk about security as we have known it in the past. Time is now the most important factor in strategy — time for preparation, time for decision, and time in action. No longer can the political leader seek the military leader on the brink of war, asking that he then provide security. Perhaps

the only way to use this power to gain our political ends is never to unleash it. Certainly our vital national interests may be better served by *successful* limited economic, psychological, military, and political warfare. But as Clausewitz says, "This is a slippery path on which the God of war may surprise us. We had best keep our eyes on the enemy lest we be forced to defend ourselves with a dress rapier while he uses a sharp sword."

In carrying this examination of the nature of air warfare beyond the considerations we have been discussing up until now, let us remember that we are only trying to draw out the dominant features against which all other considerations have to be weighed. We have talked about the objective and the concept of the use of air force as a means for attaining it. We have discussed capabilities and vulnerabilities and the strategic implications of possible effects to be attained through air warfare. We have examined the impact of air force on total strategy. Let's move into some specific strategic considerations now. This will help to develop the picture of the nature of air warfare in greater detail.

Great military theorists of the past and our top men of today seem to agree completely that the essence of strategy is concentration in time and space. The dominant characteristic of air forces is their ability to concentrate firepower in time and space; speed, range, bombing accuracy, and individual aircraft firepower in a three dimensional medium are the means to this end. This flexibility presents a wide range of target objectives. It is apparent that determination of what is to be hit, with what force, and in what sequence, or what is to be defended in response to what threats, is of vital importance in air strategy.

Fusion and fission weapons have established a new order of magnitude of capabilities for concentrating firepower in time and

space. These weapons in quantity, coupled with far-ranging aircraft, are completely changing the problems of national strategy and security. Formerly, farsighted diplomacy in combination with adequate force could determine where the war was to be fought. Alliances properly conceived to balance land and sea power could force an aggressive enemy to fight for a decision at predetermined places and on given lines. Even then, sea power had to operate under a fluid concept of control of all vital sea areas. On land, however, concentration of firepower could only be gained by a painful and time-consuming massing of huge quantities of men and materiel. Only those forces in close proximity to the front lines were in the battle zone.

The German General von Bechtolsheim, in discussing battle lines, made the observation that a battle line was not a line of soldiers but a line of fire. If this is true, then a fact is already with us and the trend is clearly visible — in the future the determination of surface battle lines are lesser included problems of grand strategy. Today, and in the future, firepower may be delivered simultaneously from front to rear. In the air-atomic age concentration is a function of the weapon and not the massing of great forces. There are no strategic reserves that can be held out of the line of fire in complete security. The problem of depth in strategy is not essentially geographic anymore but a problem of time — time in decision, time in readiness, and time in action. The surface battle line becomes just one of a series of strong points on a global scale, with the nations themselves and the concentrations of striking forces constituting these points.

The strategist with weapons in hand individually capable of destroying the strongest man-made structures finds the strategic defensive posture unacceptable. He must seek to destroy the

most remunerative targets in a strategic offensive-defense against deployed forces. This brings home the fact that in air warfare both sides can wage a strategic offensive at the same time — though strategists contend this is impossible with surface forces.

The strategic offensive is an integral part of the fight to gain command of the air. Not only will attacks against the government and military control centers help in winning control, but production of weapons of mass destruction will have to be stopped as soon as possible. Just as in control of the seas, control of the air does not mean that all forces can be destroyed or neutralized. With the atomic weapon, however, it becomes imperative to destroy production of the weapon that makes the remaining forces effective.

Let us think for a moment of two opposing air forces operating in a vital theater of operations in conjunction with ground forces. In the light of our discussion of the significance of firepower and the ability to penetrate defenses with air forces, what does the future hold in store for such an operation? What about the World War II concept of getting close to your work in order to mass and sustain high sortie rates? What about the concept of local air superiority? What about the concept of a strategic defensive posture on the part of air forces in a theater of operation?

The firepower available in nuclear weapons puts a premium on offensive action and proper selection of targets. It inevitably forces strategy of air war away from any major reliance upon air-to-air attrition for success. The vulnerable surface installations, planes on the ground, and logistics are the most remunerative objects of attack. The air war will be won or lost through attacks on forces on the ground. The massing of installations and logistics within range of enemy short-legged aircraft close behind some predetermined surface battle line or behind some surface barrier

seems to be the surest road to defeat. As long as nuclear weapons are available to either side considerations of vulnerability must be the over-riding ones. Forces and installations must be dispersed and hidden under the best possible system of passive defense. Greater aircraft range in operation now becomes a priceless asset that can hardly be over-emphasized. It is a quality factor that permits you to move your installations out of reach of an otherwise superior force. It permits you to devote your efforts to war-winning offensive action rather than to excessive commitments to air defense. The future seems to hold success for the side which follows the concept of out-ranging the enemy rather than getting close to his work.

The concept of local air superiority seems to be invalid for the future during the decisive stages of the air war. In any area where the outcome is of *critical* importance, opposing forces can and will be committed in the amount that the total air situation permits. Great firepower, as we have noted, makes it possible to concentrate powerful new forces overnight from widely separated places. In a critical area local air superiority can only come as a result of general command of the air. Conversely, general command of the air can only come from the proper employment of all air force in an integrated effort to win it. The first consideration in this over-all effort is and will be that of security, not freedom of action as it was in World War II (see JCS definition of air superiority). We must not visualize one air force on defense and another on the offense fighting for freedom of action in a given area. The facts have changed. There can be no such thing as a defensive air posture in a vital theater where the fight has been joined both on the surface and in the air. Attrition of an attacking force in the air through air defense cannot succeed. Forces now have the capacity to gain a critical level of destruction against surface structures

in depth. One penetrating a/c with enough firepower to destroy an entire air base, depot or port gains more than the defense does in shooting down numbers of a/c. With this in mind, we can say there are no fronts to be stabilized. The air war in a vital area cannot be broken off; it must be fought offensively; and the force must be committed to win. And for the reasons we have discussed, if the war is global it must be fought and won globally. The air must be controlled for survival.

The subject we have been examining is concepts and nature of air warfare. We set out to examine this subject in terms of objectives, means, and effects. We said to achieve objectives we must have means, and means produce effects. Our evaluation of means and how they must be used to produce effects constitutes our view of the nature of air warfare. But don't you think we can agree that the nature of the condition we have been examining is warfare, not air warfare? Haven't we actually been talking about air force as a *means* in warfare, and how it has affected the nature of warfare in its entirety? Perhaps we shouldn't even use a term like air warfare. Perhaps we only wage air campaigns, army campaigns, naval campaigns, and psychological campaigns.

Air force must be taken into account in war both as a means and as a threat. Its existence opens up new ways of achieving objectives, new opportunities to exploit, and new vulnerabilities to defend. It demands an over-all strategy for its use that maximizes opportunities and minimizes vulnerabilities. The effects of its use must be taken into account in any examination of the nature of warfare.

In conclusion, at the national level we have examined the objectives of war and have found it to be a problem of control. We have said that different combinations of means can be used in war to put the enemy in a condition where he can no longer continue to fight or hope to redress the balance of arms in his favor.

We have examined air force as a means and as a threat. We have discussed its impact upon strategy and the consequences of its use against the homeland.

We have talked about command of the air and why it must be won by a combined strategic offensive against the homeland and an offensive defense against enemy air.

We have discussed the implications of firepower and vulnerability from the national level to tactical level.

The one big fact that seems to emerge is this. The ultimate victor in a total war will be the nation that has decided upon its strategy in advance. Its forces must be prepared to *win* in offensive action, command of the air, and control of the enemy homeland in the first phase of the war. In the progress of the air war, no nation can afford to have its top airmen report that his forces have been reduced to ineffectiveness and his firepower expended before his job has been done. If the enemy can continue the air attack, all hope of victory will be lost, and with the loss of hope the loss of national will.

The old shibboleth that democracies must of necessity always be unprepared at the outset of a war must be banished from our thoughts for it is a counsel of destruction.

BIOGRAPHICAL SKETCH OF LECTURER

Colonel Brown was born in Fayette, Mississippi, on 28 December 1912. He received his B.A. degree from the University of Texas in 1935. He was a Flying Cadet in 1939, and was commissioned a 2nd Lt. in 1940.

From 1940 to 1942 he was in the Training Command as flying instructor, Training Squadron CO, and Assistant School Operations Officer at Barksdale Field, Louisiana. He was in the ETO from September 1942 to May 1945 with the 9th Bomb Division as Staff Officer, Chief of Staff, 98th Bomb Wing (M), Commanding Officer, 322nd, and Commanding Officer, 287th Bomb Groups.

He served in Headquarters, USAF, Deputy Chief of Staff, Operations Directorate of Intelligence, 1945-48, and then attended the Air War College, Class of 1949. He has been a member of the faculty of the Air War College since then, and is presently assigned as Deputy Academic Director.