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SPRING 1949



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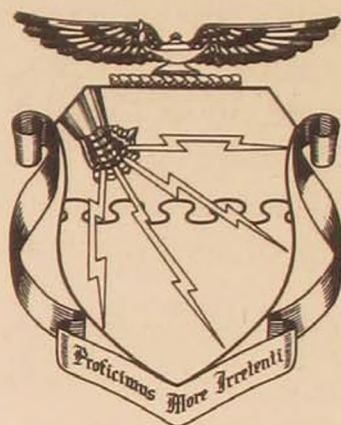
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## ATTENTION

The next issue of The AIR UNIVERSITY QUARTERLY REVIEW, Summer 1949, Volume III, Number 1, will contain an alphabetical index of Volume II, Numbers 1, 2, 3, and 4.

# THE USAF AND PSYCHOLOGICAL WARFARE

Major Bernard Peters

**T**HE purpose of this article is to explore, in general, the relationship between air warfare and psychological warfare and to determine, if possible, how the USAF can be most effectively employed in achieving the objectives of psychological warfare as they pertain to wartime operations. No attempt will be made to explore the detailed techniques of propaganda preparation or delineate and evaluate the various types.

Psychological warfare is defined as comprising the use of propaganda against an enemy, together with such other operational measures of a military nature as the effective use of propaganda may require. It may also be defined more broadly as any form of action which serves to reduce the enemy's military or civilian will to resist. Although psychological warfare is often considered as synonymous with propaganda, a more precise definition of military propaganda is that it consists of the planned use of any form of communication designed to affect the minds and emotions of a given enemy, neutral, or friendly foreign group for a specific strategic or tactical purpose.

The target of psychological warfare is morale. The overall effect of psychological warfare is cumulative. Doubt, planted by propaganda, rots the morale of the enemy as well as does the effect of successful military operations.

This article is based on the major premise that past wars, and particularly World War II, have proven conclusively that psychological warfare is a major strategic and tactical weapon when successfully employed by a combatant nation, and on

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a corollary premise that the USAF, as one of the components of U. S. armed force, will be required to exploit to the fullest its capacity for waging psychological warfare, as well as other methods available to it in the event of war.

In considering the problem of how best to utilize American Air Power in waging psychological warfare, it is first necessary to outline the objectives to be achieved by its use. In general, these are:

(1) To weaken and gradually destroy the morale of the enemy and his will to resist.

(2) To encourage and strengthen the spirit of resistance of friendly elements in territories overrun by the enemy.

(3) To promote distrust of the enemy's government and his armed forces among his own civilian populace, and among the civilian populace of neutral countries.

(4) To keep neutrals neutral, promote their friendship and sympathy, and if possible procure their active cooperation.

These objectives can be achieved strategically and tactically—strategically in overall application upon the political and economic elements of the enemy nation, and the on-the-fence neutral nations; and tactically through application, directly or indirectly, upon the armed forces of the enemy. Strategic propaganda is directed at enemy forces, enemy people, or enemy occupied areas in their entirety and, in coordination with other strategically planned means, is designed to effect results sought for over a relatively long period of time. Tactical propaganda (or combat propaganda), on the other hand, is directed at specific audiences and is prepared and executed in support of combat operations.<sup>1</sup>

When used as a synonymous term for propaganda, psychological warfare can be said to be waged through the employment of communications media. These media fall into four general divisions: (1) the spoken word (2) written material (3) pictorial material and (4) objects. The spoken word media includes radio (fixed and mobile), loudspeakers (airborne or vehicular), and direct oral address. Written media includes pamphlets, leaflets, newspapers, and books. Pictorial media includes posters, and still and motion pictures. Object media includes such items as packages of seeds, needles, or other items of a utilitarian nature in which propaganda messages

<sup>1</sup> Maj. Paul M. A. Linebarger, *A Syllabus of Psychological Warfare* (WD Gen. Staff Intelligence Div. report, 1946), p. 2.



can be inserted or printed on the package wrappings. In the main, such objects were used during World War II on relatively primitive people such as the Burmese natives. These packets displayed the U. S. Army Air Force insignia and American flag in color. Hundreds of American airmen were rescued and led to safety by the new-found friends who were influenced by these simple gifts.

In a broader sense, however, psychological warfare is not merely the production and dissemination of propaganda, but the psychological effect achieved by war itself—warfare psychologically waged. This is not a new concept, or a new technique as evidenced by the Biblical story of Gideon's employment of shock action with his lamps and trumpets against the Midianites. However, psychological warfare in the sense of being warfare psychologically waged was not generally recognized as such until World War II, nor was its integration into the overall military effort considered. That its importance was recognized in World War II is typified by the Joint Chiefs of Staff directive to the 20th Air Force to bring about "the earliest possible progressive destruction and dislocation of the Japanese military, industrial and economic systems *and to undermine the morale of the Japanese people to where their capacity is decisively defeated.*"<sup>2</sup> (Italics added by the writer.)

War itself—the tactical and strategic employment of men and material against the enemy and his resources—can therefore be considered as having psychological as well as physical value, militarily speaking. This being the case, it follows that the media for warfare psychologically waged include the combat troops, the guns, and most important, the Air Power capable of bringing mass destruction and subsequent morale collapse to the enemy.

**F**ROM the preceding data it can be concluded that psychological warfare is conducted in two ways: (1) by the production and dissemination of propaganda, and (2) by bringing about collapse of the enemy's morale through fire and shock action—warfare psychologically waged. While this is true, it is important that this fact not be made the basis of a fallacious conclusion; i. e., that these two methods are in-

<sup>2</sup> Col. H. D. Kehm, "Can Psychological Warfare Pay Its Passage?," *Military Review* (March 1947), p. 43.

dependent of each other and that either method is sufficient unto itself. The corollary fact is that the psychological results achieved through the use of fire and shock action cannot be clearly separated from the results produced by radio, leaflet, and loudspeaker. For example, "it was the bombs of our aircraft, the fire of our guns, and the skill and courage of our troops that placed certain channel port garrisons in a position in which they were receptive to the loudspeaker's message. On the other hand, facts given to them in leaflets and newspapers, as well as over radio and loudspeaker certainly predisposed them to an earlier surrender than would have occurred without them."<sup>3</sup>

The interrelationship and interdependency of the two methods were brought into sharp focus during World War II. A close integration of psychological warfare with national policy on the one hand and with military operations on the other was standard practice. All major participants, to a greater or less degree, utilized military propaganda units as aids to field operations. Affirmation of this fact was apparent in the Pacific War. During the early stages of the war the United States had few material successes upon which to base propaganda. Later, when successes began to occur, the propaganda tide also turned. Mr. Bradford Smith, the Office of War Information's Chief of Central Pacific Operations, in explaining this said, "Nothing succeeds like success. Nothing makes propaganda as effective as military power. Now that we have a continuous string of victories in the Pacific to point to, propaganda can be useful to save lives, American lives; to obtain valuable military intelligence; to shorten the war."<sup>4</sup> As was previously mentioned, the Joint Chiefs of Staff recognized the importance of striking at the enemy's morale as well as at his physical resources as evidenced by their directive to the 20th Air Force.

In considering the propaganda method of waging psychological warfare, it is important not to misjudge its capabilities. This method of psychological warfare, by itself, cannot win a war. It must be considered as subsidiary and auxiliary to military operations. It is used to exploit military victories and to accelerate, not cause, military defeat of the enemy.

<sup>3</sup> Ibid., p. 43.

<sup>4</sup> Leo J. Margolin, *Paper Bullets* (Froben Press, 1946), p. 116.

It might seem possible to refute this conclusion by citing Hitler's bloodless victory at Munich by mere threat of overwhelming armed forces in being. However, it must be remembered that he did have the military force available to enforce this threat as against the lack of such force by his opponents. His bloodless conquest of Czechoslovakia could not have been accomplished if psychological warfare had not been backed by a very real threat of armed force. He did not begin his major aggressions until he had a military edge on his opponents, and his propaganda made his strength seem greater than it was. Unless the force had actually been there, the powers of Europe would not have yielded. This demonstrates the axiom that the propaganda method of psychological warfare cannot work purely by itself; it needs the force of warfare or the very real threat of such force to make it effective.<sup>5</sup> The propaganda phase of psychological warfare must be closely interrelated to the morale effect from force, or the real threat of such force.

In the preceding pages, psychological warfare has been defined, its objectives and techniques of employment listed, and the two methods of waging psychological warfare determined. In addition, the interrelationship and interdependency of the two methods—propaganda and warfare psychologically waged—have been stressed. With these basic factors in mind, the next consideration is to study the relationship between air warfare and psychological warfare and to determine if, and how, the USAF can be utilized in achieving the objectives of psychological warfare.

**T**HAT Air Power is a major consideration in waging war, now or in the future, is an accepted fact. The question then is—can it be employed profitably in waging psychological warfare and in such manner as to achieve psychological warfare objectives? In considering this question any conclusions arrived at must be based for the most part on results obtained in World War II and in part on logical projection.

The results obtained in World War II leave little doubt as to the profit, militarily speaking, accruing from the employment of Air Power as a psychological warfare tool.

A striking example of the tactical value of propaganda dissemination by aircraft resulted in the European theater dur-

<sup>5</sup>

Maj. Paul M. A. Linebarger, *A Syllabus of Psychological Warfare*, p. 9.

ing World War II. It is estimated that over three billion leaflets were dropped in enemy or enemy occupied territory during the European campaign. Roughly 90% were disseminated from heavy bombers, five per cent by fighter-bombers, and the remainder by artillery. Leaflet newspapers distributed by aircraft reached a "circulation" of two million copies per issue. Available records indicate that in the campaign in Northwestern Europe roughly 75% of the prisoners taken had seen Allied leaflets and 75% of these were influenced by them.<sup>6</sup>

A similar situation existed in the Pacific theater. Early in the war Japanese prisoners were being taken by ones and twos. The closing weeks of the conflict saw them coming over to the American lines by the hundreds and thousands. The cumulative effect of psychological warfare is well illustrated in the results achieved in the Pacific theater. Our propaganda did not reach its peak of effectiveness until the beginning of 1945. The war of words against the enemy during 1944 resulted in more Japanese soldier surrenders than ever before, numbering in the tens of thousands. Added emphasis is given to this result when the fanatical "no surrender" nature and temperament of the Japanese soldier is considered.

The foregoing examples serve to illustrate the tactical application of Air Power in achieving the first objective of psychological warfare to weaken and gradually destroy the morale of the enemy and his will to resist. In both situations it must be realized that the effectiveness of propaganda was in direct ratio to the effectiveness of military operations.

In the China-Burma-India theater the dissemination of seed and salt, and needle-and-thread packets proved tactically profitable. Native leaders reported that these packets, plus leaflet warnings, not only saved American lives but also the lives of natives who stayed away from places that they had been warned were targets. The warnings also served to keep native labor away from the Japanese when the enemy needed it the most. The millions of leaflets dropped on the Chinese warning them from prospective target cities caused thousands of them to evacuate the cities, thus saving the lives of the Chinese and depriving the Japanese of acutely needed local labor. In both these cases the objectives of encouraging and

<sup>6</sup> Col. H. D. Kehm, *Military Psychological Warfare* (Ft. Leavenworth, Command and General Staff College report, undated), pp. 15-16.

strengthening the spirit of resistance of friendly elements in territories overrun by the enemy, and keeping neutrals neutral and procuring their active cooperation, were achieved through the use of Air Power in waging psychological warfare.

**T**HE most authoritative sources for information on the results obtained from the strategic application of air warfare psychologically waged in achieving the objectives of psychological warfare have proved to be the reports made by the U. S. Strategic Bombing Surveys. The following extracts from the Survey's report on the Pacific War are particularly enlightening:

Psychologically, the cumulative effect of strategic air employment against Japan was overpowering. The interdiction of supply routes by air attacks struck at the core of Japanese economy—food. The growing food shortage, caused by the severing of supply lines, was the principle factor affecting the health and vigor of the Japanese people. Undernourishment produced a major increase in the incidence of beriberi and tuberculosis, had an important effect on the efficiency and morale of the people and contributed to absenteeism among workers.<sup>7</sup>

The psychological effect of air attack insofar as lowered morale was concerned became evident after the fall of Saipan. All indices of Japanese morale began to decline thereafter. By December '44, air attacks from the Mariannas against the home islands had begun, defeats in the Philippines had been suffered and the food situation had deteriorated; 10 per cent of the people believed Japan could not achieve victory. By March 1945, with the beginning of incendiary attacks the percentage had risen to 19 per cent. In June it was 46 per cent, and just prior to surrender, 68 per cent. Of those who had come to this belief over one-half attributed the principal cause to air attacks.

A striking aspect of the air attack was its overall impact on the morale of the Japanese. Approximately one-fourth of all people in cities fled or were evacuated. These evacuees, of singularly low morale, helped spread discouragement and disaffection for war throughout the islands. This mass migration from the cities included an estimated 8,500,000 persons. The fact that U. S. planes crisscrossed the skies with no effective Jap air or AAA opposition was, to people who had always thought themselves remote from attack, an indication of impending

<sup>7</sup>

USSBS, Summary Report: Pacific War (GPO, 1946), p. 13.

defeat as obvious to the rural as to the urban population.

This progressively lowered morale was characterized by loss of faith in both military and civilian leaders, loss of confidence in Japan's military might and increasing distrust of government news releases and propaganda. People became short-tempered and more outspoken in their criticism of the government, the war and affairs in general.<sup>8</sup>

The interrelation of military, economic, and morale factors leading to surrender were complex. To a certain extent each reacted on the other. To establish a clear-cut line of demarcation between them would be impossible. The important point to retain is that these factors *were* interrelated and interdependent.

That the psychological phase of war was a vital one to the Germans also can be seen in the following declaration made by Heinrich Himmler, chief of the Gestapo, in September 1937: "In the coming war we shall fight not only on the land, on the sea, and in the air. There will be a fourth theater of operations—the inner front. That front will decide on the continued existence or the irrevocable death of the German nation." Certainly, the Germans could speak with authority on the efficacy of psychological warfare. Their use of it to bring Austria to submission, and make it easily susceptible to military conquest without firing a shot, illustrated graphically their understanding of this weapon. They employed both phases with complete success—propaganda dissemination through infiltration, and shock action through military attack after propaganda had accomplished its preliminary work. Their use of the Stuka dive bomber, with siren screaming, in strafing attacks on French evacuation columns can be cited as one among many methods by which they demoralized their enemy with air attack.

How then did these masters of psychological warfare react when this weapon was brought to bear against them?

**Not only did Allied bombing cause vast suffering among German civilians; it also created havoc sufficient to weaken the physical and propaganda stranglehold of the Nazi party and the Nazi police upon the German civilian population.**

**Bombing appreciably affected the German will to resist. Its main psychological effects were defeatism, fear,**

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<sup>8</sup>

Ibid., p. 21.

hopelessness, fatalism and apathy. It did little to stiffen resistance through the arousing of aggressive emotions of hate and anger. War weariness, willingness to surrender, loss of hope in a German victory, distrust of leaders, feelings of disunity, and demoralizing fear were all the more common among bombed than among unbombed people.

Bombing achieved its depressing morale effects both through direct impact and through modifications in the civilian way of living. The indirect consequences of raids were crucial in affecting morale. The disruption of public utilities in a community did much to lower the will to resist. The disruption of transportation facilities in a community was the most critical public utility for the morale of the civilian population; electricity was next, then water, then gas. A vital blow to the morale of a bombed community was the destruction of school and recreational facilities for children, necessitating the evacuation of school children.<sup>9</sup>

That Allied Air Power struck deep into the morale of the Germans is proven by the following extract from a report of the German intelligence service from Munich in March 1944:

Morale has reached a low point never before observed since the beginning of the war. One can hear it even from trustworthy citizens that one ought to make an end of the war, for it cannot be worse than it is now. . . . The air terror proves, as hitherto, to be the crux in the molding of morale. . . . People were particularly shocked that enemy bomber formations flew in orderly fashion at low altitudes, so that the number of planes could be counted, without any fighter interference. They can't even during the day repulse the Americans, let alone at night.<sup>10</sup>

THE above compilation of psychological effects, resulting from air attacks in both the Pacific and European theaters, has been concerned with the results achieved by the employment of conventional air weapons. Still to be considered is the effect achieved by use of the "absolute weapon"—the atomic bomb.

There can be no question of the psychological effect on, not only the Japanese victims, but the entire world when Hiroshima and Nagasaki disintegrated. Fear of power whose de-

<sup>9</sup> USSBS, *Overall Report: European War* (GPO, 1945), pp. 95-96.

<sup>10</sup> *Ibid.*, p. 97.

structive potential was so great as to be incalculable gripped the hearts of all who learned of its results.

The primary reaction of the Japanese was fear, uncontrolled terror, strengthened by the sheer horror of the destruction and suffering witnessed and experienced by the survivors. The state of shock induced by the explosions are shown by two typical impulses of the survivors: aimless, even hysterical activity or flight from the city to shelter and food. In the target cities themselves, 40 per cent of the reaction reported defeatist feelings induced by the bomb, while 28 per cent of those in the islands as a whole attributed such reaction to the news of the bomb.<sup>11</sup>

It is not believed necessary to dwell on the tremendous psychological reaction to the use of the atomic bomb. It is believed to be generally conceded. "Consequently there can be no doubt that employment of this weapon in a future war must be characterized by the most carefully planned and executed psychological warfare—before, during and after operations. In this way, and only in this way, can the full effect be achieved and the termination of the war expedited."<sup>12</sup>

The preceding data based on the Strategic Bombing Surveys graphically reveals the decisive part played by air warfare in weakening and gradually destroying the morale of the enemy and his will to resist, and in promoting distrust of the enemy's government among his own people.

Earlier in this discussion the results of psychological warfare by air were outlined and evidence was offered to show that these results were profitable, militarily speaking. The use of propaganda coupled with the shock action of Air Power on the enemy's morale saved American lives and brought military operations to earlier success in both theaters than might otherwise have been possible. Can it be deduced then that the results of psychological warfare by air are pure profit from an operational standpoint?

UNFORTUNATELY, the answer is no. Certain limitations must be considered, certain requirements must be met, and certain disadvantages overcome in order to employ Air Power successfully in waging psychological warfare. A basic

<sup>11</sup> USSBS, *The Effects of Atomic Bombs on Hiroshima and Nagasaki* (GPO, 1946), p. 12.

<sup>12</sup> Col. H. D. Kehm, *Military Psychological Warfare*, p. 43.



limitation is the necessity, to some extent at least, of gaining and maintaining air superiority. In both types of psychological warfare the effective use of Air Power will be limited to the combatant's ability to fly his propaganda to the enemy and to strike at his morale through the shock action of successful air attacks. The great range required to deliver bombs containing high explosive, atomic reaction, or propaganda leaflets makes the limitation of air superiority a very real consideration.

Another basic requirement in waging psychological warfare by air is the need for competent personnel. Utilization of propaganda techniques require specially trained personnel of the type not normally found in the military services, such as newspapermen, authors, radio announcers, advertising experts, anthropologists, psychologists, and public opinion experts. During World War II these types of skills were recruited from civilian life. A complex personnel situation resulted from the unusual nature of the skills required and because there was no quick and simple way of bringing properly qualified people into the armed forces. The intermingling of civilian specialists of high, but temperamental ability with military personnel created confusion and some loss of efficiency.

Lack of understanding by commanders of the importance of psychological warfare is one disadvantage that was overcome to a great extent during World War II. Although American field commanders in North Africa, for instance, initially opposed the assignment of psychological warfare units to their commands, their opposition was overcome when they saw live German and Italian prisoners, who could have continued shooting, stopped from shooting and captured with "paper bullets." The commanders also discovered that "live ones" talk and frequently give valuable information.<sup>13</sup> Consideration must be given, however, in a future war to insuring an understanding of the value of psychological war, particularly by Air Force officers who according to present thinking will be concerned with manning the first line of defense and mounting the initial offensive action.

Outranking all other requirements for effective psychological warfare planning and operations is the overwhelming

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Leo J. Margolin, *Paper Bullets*, p. 93.

necessity for intelligence. Quantitatively, one has only to consider the amount of material printed in a newspaper in one day to reach a staggering estimate of the data required for a long-term cumulative effort. Qualitatively, intelligence must be comprehensive and, above all, accurate. Bad propaganda is worse than no propaganda; good propaganda requires correct background. Basic historical, economic, political, social, religious, and other data concerning the enemy (and certainly the neutral and/or friendly) audience must be available and must be accurate. The target audience must be studied minutely from a psychological standpoint, and, based on that study, careful and timely selection and placement of psychological ammunition must be effected. It is believed that the requirements for accurate, timely intelligence upon which to plan air attacks designed to achieve psychological as well as purely military results are self-evident and require no further delineation.

A primary disadvantage, or limitation, in the use of Air Power as a propaganda-dissemination agency is the problem of logistics. Sufficient raw material (newsprint) and equipment such as printing presses, radio sets, and photographic material must be on hand in time for immediate use. Since timeliness is a prime factor in the successful dissemination of propaganda, this material must be ready and operative to take advantage of situations as they arise. Air transport is certainly the answer in an air war. But air transportation is costly and facilities are limited.

**A**T first thought it might be the opinion of the casual observer that the only limitation to the psychological benefits achieved by the use of fire power and shock action would be the number of bombs that could be laid on the target. In other words, the greater the volume of destruction poured on the enemy, the greater would be the collapse in morale. Unfortunately, from the air tactician's standpoint, such is not the case. The national temperament and traditions of the enemy must be considered.

In the case of the Japanese, for instance, national traditions of obedience and conformity, reinforced by the police organization, remained effective in controlling the behavior of the people. The Emperor, having largely escaped the criticism

directed at other leaders, retained the people's faith. It is likely that most Japanese would have passively faced death in a continuation of the hopeless struggle had the Emperor so ordered. Even the atomic bomb drops, widespread as were their psychological effects, had the adverse and natural reaction of inculcating hate and anger against an enemy using an unorthodox and all-destructive weapon, an important consideration to an enemy required to occupy conquered territory.

Detailed surveys of the psychological results achieved in Germany point up the fact that a saturation point can be reached. Continued severe bombing of the same targets did not result in increasing loss of morale for two reasons. In the first place, the cities undergoing heavy raids lost the people with low morale through evacuation; the strong-fibered remained. Secondly, very severe bombing changed active dissent to apathy about political matters and to preoccupation with keeping alive. In a police state with totalitarian controls, an apathetic, passive population has better morale from the point of view of the existing regime than an actively disgruntled people. Such passivity facilitates their control and manipulation. In addition, intense bombing increased the difficulty of operation by underground units due to frequent disruption of their communications and organizational facilities.<sup>14</sup>

In Germany continued severe bombing did not have a cumulative psychological effect on (1) Nazi Party members (2) people who accepted the Nazi ideology (3) civilians who had a vested interest in a German victory (4) people who felt that air raid precautions were adequate and (5) people who had not given too much thought to the possibilities of destruction as opposed to those who attempted to become mentally prepared, a significant point to consider from the propagandist's point of view. It is well worth noting that German authorities had foreseen most of the adverse effects of bombing upon morale and had, to a great extent, prepared countermeasures. As the tempo of attack increased greater and greater emphasis was laid on countermeasures against the breakdown of morale.<sup>15</sup> From the overall strategic standpoint this is worth noting inasmuch as the more effort required from

<sup>14</sup> USSBS, *Overall Report: European War* (GPO, 1945), p. 96.

<sup>15</sup> *Ibid.*, pp. 97-98.

the enemy defensively the less effort he is able to expend offensively.

**I**N summary, it is logical to conclude that Air Power is a major weapon with which to wage psychological warfare. The methods by which the USAF can be employed to achieve the objectives of psychological warfare are propaganda dissemination and air warfare psychologically waged. Such employment must be a carefully planned, thoroughly coordinated effort at the highest levels. The global striking power of the wartime B-29 was such as to require direction from Washington. Future aircraft will even more obviously require such direction.

A definite requirement exists within the USAF for understanding of, and training in, psychological warfare. This understanding and training must be common to all echelons of command.

Finally, the most important conclusion to be drawn from an operational standpoint is that successful employment of Air Power in psychological warfare will depend on securing and maintaining air superiority. Any planning for propaganda dissemination or morale disruption through shock action will depend for its success upon aircraft being able to deliver on the target. Unless air superiority at least sufficient for penetration is assured, this ability will be in doubt.

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*Stick a pin into the globe at a point just southeast of Nantes near the western coast of France; with that as a center draw a circle on the surface of the globe, distant half-way to the point directly opposite, around the world. . . . Within this hemisphere lies nine-tenths of all the ice-free land areas of the world. In this half-sphere are found the major portions of the world's natural resources, technical skill, and financial strength. Of the more than two billion people on earth, 94 per cent are concentrated in this half, together with 98 per cent of the world's industry.*

# THE AIR COORDINATING COMMITTEE

Walter H. Wager

**E**XIGENCIES of war have always produced changes in the structure of government, and study of the administrative mechanisms developed in the United States between 1941 and 1945 clearly reveals the impact of a global struggle upon the regulatory processes of a great nation. Accustomed to innovation and experimentation after seven years of New Deal liberalism, the federal government generated numerous agencies, boards, committees, and altered techniques to meet the impatient demands of the most powerful military, naval, and air forces in history.

On a planet which has recently emerged from one costly war and which offers no substantial assurances that another global conflict may not be anticipated, the importance of Air Power and an intelligent policy to guide it is obvious. It was to maintain and guarantee America's lasting preeminence in the skies that the Air Coordinating Committee was organized.

The Air Coordinating Committee is an interdepartmental body composed of spokesmen for the State, Air Force, Post Office, Navy, and Commerce Departments and the Civil Aeronautics Board. Its purpose is to enable the various segments of the federal executive branch to develop and present an integrated policy on the economic, technical, legal, and diplomatic problems relative to the production and operation of civil and military aircraft in foreign and domestic flight. *It holds the key to the United States air policy.*

This powerful unit was not born full sized. It had its antecedents in a number of interdepartmental committees which

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grew up during the early New Deal era, especially the Interdepartmental Committee on Civil International Aviation.

During this period and in the years that followed, the rapid strides which vast technical progress permitted led to additional problems in the determination and coordination of the United States policy. From time to time, other committees were formed to handle these and related issues.

In 1937, President Franklin D. Roosevelt, directed the Secretary of Commerce to form a Committee on Aviation Legislation with the cooperation of other federal departments to advise him "what should be done legislatively for civil aviation under the Act of 1926." Consisting of representatives of the War, State, Navy, Treasury, Commerce, Labor, and Post Office Departments, the Bureau of Air Commerce and the Senate Legislative Counsel, this group met three times a week in a series of October hearings before passing on its program to the Chief Executive. Many of the recommendations were the subject of serious consideration in drafting the crucial Civil Aeronautics Act of 1938. A number of joint Army-Navy teams were also striving to help keep America abreast of developments in a swiftly moving air world. Then came the war.

SOON after the outbreak of hostilities, almost all of Europe learned the bitter lesson of Air Power. Germany was a hard teacher. Then the moral was reemphasized at Pearl Harbor and Hickam Field. Working around the clock, U. S. factories poured forth deadly new fighters and bombers in fantastic quantities. The airlines were mobilized to provide transport lift, and the Air Transport Command and Naval Air Transport Service were erected. Then the grim generals and the angry admirals put their fleets aloft, and they scoured the skies. They cleansed the air of German and Japanese planes. They gave the whole world an education in Air Power.

Behind the heroism and strategy, there was organization. Although evidence of formal action constituting it is lacking, a unit known as the War Aviation Committee was established early in 1942. Records indicate that the first meeting was held on January 29 of that year. The original membership consisted of Assistant Secretary of War for Air Robert A. Lovett, Assistant Secretary of Navy for Air Artemus L. Gates, Assistant Secretary of Commerce for Air Robert H. Hinckley, and

Civil Aeronautics Board Chairman L. Welch Pogue. Initial objectives were such matters of general interest to the aviation industry as manpower allocation and proposed airline contract operations for the War Department.

The President indicated an awareness of these interdepartmental meetings in identical letters of March 6, 1942, to the Secretary of Commerce and the Chairman of the C.A.B. concerning the creation of the Interdepartmental Air Traffic Control Board, although Mr. Roosevelt did not specifically identify the group as constituting the War Aviation Committee. He expressed a desire to strengthen the position of the IATCB, an organization formed to minimize conflicts in the use of the navigable air space, and registered the hope that the Secretaries of War, Navy, and Commerce and the Chairman of the Civil Aeronautics Board would jointly report concerning the IATCB.

After this, the Committee was increasingly concerned with Traffic Control Board activities, and by March of 1943 the War Aviation Committee was limiting its work almost entirely to supervision of the IATCB. The War Aviation Committee disappeared shortly after the creation of the Air Coordinating Committee, which new unit assumed responsibility for the supervision of the Interdepartmental Air Traffic Control Board.

During the course of the war, the Secretary of State invited the War, Navy, and Commerce Departments and the C.A.B. to join in an informal group to prepare a statement of post war air policies for the President. This team functioned under the able chairmanship of Assistant Secretary of State Adolph A. Berle, and was known as the Interdepartmental Committee on International Aviation. Its final report has not been circulated outside the government, but it is known that the Post-War Program Committee of the State Department utilized it in its March 24, 1944, discussions of a program for the United States Delegation to the International Civil Aviation Conference in Chicago that November.

As time went on, however, each agency concerned felt increasingly the need for a more formal organization. This was particularly true in the case of the two armed services. The War Department and the Navy Department secretariat, and particularly the Assistant Secretary of War for Air, foresaw without much difficulty a multitude of serious questions pertaining to the eventual transition

from war-time to peace-time conditions. Not the least of these was the matter of our rights in airfields and airways constructed and utilized by the Air Forces, including the Air Transport Command, during the course of the war. Another related to the disposition of our surplus flying equipment, both civil and military, and the many potential and eager purchasers both at home and abroad. There were many others.<sup>1</sup>

**O**N March 27, 1945, Acting Secretary of State Joseph C. Grew, Secretary of War Henry L. Stimson, Secretary of the Navy James Forrestal, and Secretary of Commerce Henry A. Wallace signed an "Interdepartmental Memorandum Regarding Organization of Air Coordinating Committee." It stated:

1. There is a steadily increasing number of subjects pertaining to aviation which call for consultation and coordinated action by the departments and agencies of the Federal Government that are charged with responsibilities in the aviation field. In order to facilitate and promote these objectives the undersigned believe it desirable to create, and hereby do create, an Air Coordinating Committee which shall consist of representatives, hereinafter designated, of the State, War, Navy and Commerce Departments.

2. The functions of the Air Coordinating Committee will be to examine aviation problems and developments affecting more than one department or agency, to coordinate the activities of the Government departments and agencies interested in this field, and to recommend integrated policies for and action by the departments represented on the Committee, or by the President or any other Government agency charged with responsibility in the field, all in accordance with and subject to the provisions of any present or future applicable Federal statutes.

The document went on to stipulate that items for consideration might be submitted by a member agency, the President, or any federal department, and listed significant problems for early treatment. The interdepartmental agreement also made provision for organization and procedure.

There was some surprise in Washington and aeronautical circles when the initial membership was announced, for the important Civil Aeronautics Board was not scheduled for full

<sup>1</sup> George A. Brownell, "The Air Coordinating Committee," 14 *Journal of Air Law and Commerce*, pp. 414-15.



active participation. This situation was clarified in an "Amendment to Interdepartmental Memorandum Regarding Organization of ACC" issued shortly thereafter in which the Board joined the Committee.

Two rooms on the fifth floor of the Department of Commerce Building were allocated as office space for Working Secretary Howard C. Westwood after the Committee recommended his release from the Marine Corps. A pair of clerical employees completed the staff. Mr. Westwood returned to private law practice on October 1, 1945, and was succeeded by Mr. Myron A. Tracy. Funds for ACC were contributed by the member agencies, a common practice among interdepartmental groups. Soon subcommittees began to appear as the flow of complex problems swelled the agenda, and while most of the projects were highly classified, it gradually became known that the Air Coordinating Committee was both effective and influential.

This was in a period when every member agency was deeply concerned with the future of a large U. S. aircraft manufacturing industry without the support of war orders. Both the Administration and the industry agreed that the country must maintain sufficient production capacity for rapid expansion in emergency. But as contracts were cancelled and surplus transport planes dumped cheaply, plants were closing and skilled personnel leaving. Research teams moved elsewhere. The situation was extremely serious.

In a letter to the Assistant Secretary of the Navy for Air dated 26 December 1944, the Assistant Secretary of the War for Air, Mr. Robert A. Lovett suggested the establishment of an interdepartmental committee 'to obtain the information and guidance necessary to make demobilization policies and procedures as effective as possible in preserving the productive capacity required for future national defense.' For a number of months the War, Navy, and Commerce Departments had been pursuing independent studies of demobilization and post-war aviation problems, and the purpose of establishing this Committee was to correlate these individual efforts in a joint study of the problems of mutual concern. Mr. Lovett's suggestion was adopted by the Assistant Secretary of the Navy for Air and the Assistant Secretary of Commerce and the appointment of members of the Committee was completed on 30 January 1945.

With the organization of the Air Coordinating Committee on 27 March 1945, it seemed appropriate to give

this informal Committee formal recognition as a subcommittee of the Air Coordinating Committee, the interdepartmental organization for dealing with aviation matters requiring coordination between the interested government agencies. On 2 June 1945, the Interdepartmental Committee was reconstituted as the Air Coordinating Committee Standing Subcommittee on Demobilization of the Aircraft Industry.<sup>2</sup>

**B**ECAUSE of its intimate connection with many critical issues involving national defense, the Air Coordinating Committee has had a permanent security problem. Although classified material could not be released for publication, Working Secretary Tracy felt that the American people were entitled to know about the impressive way in which the Committee was handling a tough job. He finally secured permission to put out a press release on November 1, 1945, pointing out that the ACC is not an "operating agency." This indicated the structural relationship between the coordinating body and the components: "By confining itself solely to policy matters it does not introduce another administrative layer in the handling by the Federal Government of aviation's activities and leaves each agency free to administer its activities as assigned by the Congress."

All during this period, effective ACC procedures were being hammered out in the light of practical experience, and gradually most of the interdepartmental friction dissolved. The agency representatives toiled steadily to achieve successful, informal, efficient liaison for the timely resolution of aeronautical issues. They came to know and trust each other, and the system improved constantly. It was hard sledding at first, but the high quality of the personnel involved helped.

As the scope of the Committee expanded to meet the need for joint policy to direct the diverse activities of the federal entities concerned, many of those engaged in the ACC program indicated that they were not wholly satisfied with the foundation upon which the project rested. An organization based on a simple memorandum is not too secure, for any member can shatter it by withdrawing from the team. Something more stable was desired.

<sup>2</sup>  
"Report to the Air Coordinating Committee of the Standing Subcommittee on Demobilization of the Aircraft Industry," 11 October 1945, p. 1.

At the same time, the Air Coordinating Committee realized that this might be a good moment to take stock and reassess both structure and methods. A subcommittee was set up to suggest modifications, and reported in the summer of 1946. The full Committee considered the recommendations carefully, and then the matter went up to the President.

It is the task of the President to provide for clearance and coordination in the rule-making process throughout his administration. To forestall or iron out conflicts between the various agencies, and to keep administrative regulations in line with Presidential policies, consultative procedures are often useful. If coordination of administrative rule-making is to be effective, consultation must be employed while policies are 'in the formative stage, before men's views have hardened, or they have taken public positions on the questions involved, or conflicts have been aired in the press.'<sup>3</sup> Moreover, the use of consultative techniques can be greatly encouraged by giving them the sanction of Presidential approval through an Executive Order. An important interdepartmental committee will almost always receive recognition in an Executive Order.<sup>4</sup>

**T**HEREFORE, on September 19, 1946, President Harry S. Truman issued Executive Order 9781 formally establishing the Air Coordinating Committee:

By virtue of the authority vested in me as the President of the United States, and in order to provide for the fullest development and coordination of the aviation policies of the Federal agencies, and in the interest of the internal management of the Government, it is hereby ordered as follows:

1. (a) There is hereby established the Air Coordinating Committee (hereinafter referred to as the Committee) which shall have as members one representative from each of the following-named agencies (hereinafter referred to as the participating agencies) the State, War, Post Office, Navy, and Commerce Departments and the Civil Aeronautics Board. The members shall be designated by the respective heads of the participating agencies. The President shall name one of the members as the Chairman of the Committee. The Director of the Bureau of the Budget shall designate a representative of

<sup>3</sup> James Hart, "The Exercise of Rule-Making Power," Report and Special Studies, President's Committee on Administrative Management (Washington, D. C., 1937), p. 319.

<sup>4</sup> Mary Reynolds, "Interdepartmental Committees in the National Administration" (Columbia Univ. Press, 1939), p. 45.

the Bureau as a non-voting member of the Committee.

(b) Each officer or body authorized under subparagraph 1 (a) hereof to designate a member of the Committee shall also designate one or more alternate members, as may be necessary.

(c) The Committee shall establish procedures to provide for participation, including participation in voting, by a representative of any agency not named in subparagraph 1 (a) hereof in connection with such aviation matters as are of substantial interest to that agency.

2. The Committee shall examine aviation problems and developments affecting more than one participating agency; develop and recommend integrated policies to be carried out and actions to be taken by the participating agencies or by any other Government agency charged with responsibility in the aviation field; and, to the extent permitted by law, coordinate the aviation activities of such agencies except activities relating to the exercise of quasi-judicial functions.

3. The Committee shall consult with Federal inter-agency boards and committees concerned in any manner with aviation activities; and consult with the representatives of the United States to the Provisional International Civil Aviation Organization or to the pertinent successor thereof and recommend to the Department of State general policy directives and instructions for the guidance of the said representatives.

4. The Committee, after obtaining the views of the head of each agency concerned, shall submit to the President, together with the said views, (a) such of the Committee's recommendations on aviation policies as require the attention of the President by reason of their character or importance, (b) those important aviation questions the disposition of which is prevented by the inability of the agencies concerned to agree, (c) an annual report of the Committee's activities during each calendar year, to be submitted not later than January 31 of the next succeeding year, and (d) such interim reports as may be necessary or desirable.

5. The heads of the participating agencies shall cause their respective agencies to use the facilities of the Committee in all appropriate circumstances and, consonant with law, to provide the Committee with such personnel assistance as may be necessary.

It might be noted at this time that one of Mr. Truman's Special Assistants, Edwin A. Locke, Jr., had also been used to keep the White House abreast of aviation matters both in the agencies and ACC. The Executive Order simplified the liaison problem so that such administrative practice is no longer re-

quired.

The President appointed Under Secretary of State Clayton as Chairman, but in recognition of his frequent absences on vital assignments abroad, C. A. B. Chairman James M. Landis was designated Co-Chairman. This situation was modified when Mr. Garrison Norton was elevated to the new post of Assistant Secretary of State for Aviation, Shipping, and Telecommunications, at which time he became chief executive of the Committee.

**L**ESS than a month after the Order, a new and larger secretariat was organized. On October 17, 1946, former Assistant Director (International) of the Economic Bureau of the Civil Aeronautics Board John Sherman took office as Executive Secretary. Mr. Tracy was named Assistant Executive Secretary, and Industrial, Economic, and Technical Divisions were set up under the administrative direction of staff secretaries to aid the several subcommittees.

On October 31, 1946, a draft directive was distributed setting forth the duties of the Executive Secretary as to general responsibility for administration of the ACC and coordination of its individual divisions and subcommittees within the Committee and with other Government agencies. This same directive also delegated important responsibilities to the carefully selected staff secretaries of the divisions, the ICAO panel and the Legal Subcommittee.

Aviation manufacturers and operators had manifested views that the Committee might function more effectively if it could draw upon the stores of information and experience of these successful executives. Therefore on issuing the Order, the President instructed the Air Coordinating Committee to create an Aviation Industry Advisory Panel "with suitable membership drawn from private organizations, and to consult freely with this Panel." This group held its first meeting in the Commerce Building in Washington on November 8, 1946, with representatives of the National Aeronautics Association, the Air Transport Association, the American Federation of Labor, the Congress of Industrial Organizations, the Institute of Aeronautical Sciences, and the Aircraft Industries Association present.

The Economic Division was allocated four subcommittees

to handle its assignments, and on October 17, 1946, the role that each was to play was made public:

*Facilitation of International Civil Aviation*—including matters relating to customs, public health regulations, travel documents and monetary and tax questions.

*Area Aviation Policy*—economic and political aspects of U.S. aviation policy in various world areas; coordination of matters relating to U. S. foreign air bases and rights.

*Financing Air Services*—including United States and international financing of aviation facilities and installations.

*Aviation Information and Statistics*—including central aeronautical Indexing and coordination of statistical work.

By early November of 1946, meetings had been held and work begun by the Economic Division. Mr. Russell B. Adams, former Director of the Economic Bureau and now member of the Civil Aeronautics Board, served as Chairman. The Technical Division was functioning under its Chairman, Civil Aeronautics Administrator T. P. Wright, and the PICAQ Panel had met under the direction of Mr. Livingston Merchant of the State Department.

THE organization of the Economic Division today is somewhat different. One subcommittee has been added and two dissolved. The Subcommittee on Alaska is charged with responsibility for conducting a study into the relationship between the cost and necessity of federal aviation programs for that northern outpost, with the object to achieve the utmost practicable integration and economy of American air activities there. Previously extant subcommittees on Latin American Aviation, Arctic, Panama, Foreign Air Bases and Rights, and Civil Aviation in Japan were transferred to the Subcommittee on Area Aviation Policy in the reorganization, and the functions of the Subcommittee on National Aviation Policy went to the Economic Division proper. The units dealing with Area Aviation Policy and Financing Air Services have been terminated, and their work has been absorbed by the Division itself.

This permits overall economies of personnel since the Division can assign preparatory work to one and two-man working groups instead of the seven-man subcommittees. Only where the subject is of a highly specialized nature, as statistics, has it been found preferable to utilize subcommittees in-

stead of working groups. At present, the Economic Division has approximately twenty *ad hoc* working groups, each set up to collect the basic data on one specific problem. These working groups have no permanent organization, no staff or formal meetings. They will be dissolved automatically when their final reports have been accepted by the Division.

Additional written direction has been supplied for the operating techniques to be followed by the various segments of the Committee:<sup>5</sup>

6. The Subcommittee on PICAQ Matters is reconstituted as the PICAQ Panel. The functions heretofore performed by the various Technical Committees, including the Regional Route Service Organization, of the Subcommittee on PICAQ matters are transferred to the Technical Division for appropriate Subcommittee allocation within the Division. The PICAQ Panel shall coordinate and review PICAQ work performed by the several new Divisions and Subcommittees. It is authorized to act for ACC in connection with the foregoing function, whenever its members are in unanimous agreement.

7. Each Division and each Subcommittee shall be composed of one member (with an alternate) from each member agency of ACC which elects to participate therein, except that the appropriate Division may, in specific instances, authorize the designation of more than one member on Subcommittees. Each agency shall be entitled to one vote on each Division and each Subcommittee. Each agency's member will, insofar as possible, (a) have authority to speak for his agency on matters within the jurisdiction of the Division or Subcommittee on which he serves, and (b) have available sufficient time to devote to the Division or Subcommittee matters. The PICAQ Panel will be constituted in a manner similar to the Divisions.

8. Each of the new Divisions is authorized to act for the ACC whenever its members are in unanimous agreement, except that (a) matters of major policy shall be referred to ACC, and (b) PICAQ matters shall be referred to the PICAQ Panel for review and coordination, and (c) any member may reserve approval of action taken by his division pending informal clearance by his agency. The foregoing delegation of authority to Divisions may be redelegated to Division Subcommittees, in specific instances, when agreed to by ACC.

9. The ACC shall designate the agency to provide the Chairman for each Division and for the PICAQ Panel.

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See Exhibit "B" of ACC 1-17.

Each Division will designate the agency to provide the Chairman for each of its Subcommittees.

10. Each Division, Subcommittee, and the PICAQ Panel shall have a qualified Secretary.

11. Each Division may constitute and reconstitute its own Subcommittees and apportion its work among them. The Divisions shall maintain a continuing appraisal of problems of interdepartmental concern arising within their respective jurisdictions and will initiate to the ACC, from time to time, proposals for particular studies.

In regards to relations with and policies in the International Civil Aviation Organization, it is interesting to note that the top members of the U. S. delegation to that body frequently come down from Montreal to report to the Department of State and consult with ACC units as non-voting participants. The Bureau of the Budget's representative, also without a vote, has been used to accelerate approval of funds for projects derived from ACC recommendations. Having sat in on the considerations, he can certify the need for such expenditures to the Bureau to avoid a lengthy reexamination of the substantive merits of the programs involved.

**T**HE significance of the diverse activities of the Committee's Technical Division can hardly be overemphasized in a world striving to subdue the skies and the sonic barrier, and some insight into the wide scope of that group may be garnered by scanning the list of subcommittees:

Air Navigation Facilities and Systems (FAS)

Communications (COM)

Air Space—Rules of the Air and Air Traffic Control (ASP)

Aviation Meteorology (MET)

Flight Operations (OPS)

Airworthiness (AIR)

Accident Prevention, Investigation and Reporting (AIG)

Search and Rescue (SAR)

Airmen Qualifications (AMQ)

Aeronautical Maps and Charts (MAP)

Publications and Manuals (PAM)

Dimensional Standardization (DIM)

The ACC has manifested a continuing interest in improving safety through navigation techniques, and in 1948 created a panel (NAV) to implement the momentous SC-31 report of the Radio Technical Committee for Aeronautics for the long-



range development of an all weather traffic control system.

Primary responsibility for integrated policies to maintain strength in the manufacture of airplanes and aircraft components lies with the Industrial Division of the Air Coordinating Committee. By early 1947, the Division had established several committees to handle these crucial duties.

The Air Coordinating Committee also moved to improve liaison with aviation units of local government in the summer of 1948, establishing a State-Local Advisory Panel with functions like those of the Industry Advisory Panel mentioned previously. Its initial meeting was held early in September 1948 in Washington.

As for the Committee's procedures, there are basically four ways in which a problem may come before the ACC:

- (1) A federal agency may feel that a certain matter warrants ACC attention and suggest it for action.
- (2) A department may believe that another governmental unit has not handled the question properly or has wrongfully kept it from interdepartmental consideration, and request that the Air Coordinating Committee assume jurisdiction.
- (3) The Secretariat of the Committee may decide that a problem might benefit from interagency treatment and recommend study.
- (4) An issue might be submitted by the U. S. delegation to ICAO.

Once a request has reached the Executive Secretary, he reviews the matter and makes a preliminary judgment as to whether it should get Committee action. If he feels that it is not really fit for interdepartmental analysis, he so informs the initiating agency. These differences of opinion are settled with a minimum of friction and a maximum of intelligent understanding. If the Executive Secretary approves the item, he refers it to the appropriate Division, the legal Subcommittee or the PICAQ Panel. The latter two bodies are semi-autonomous in the system.

Assuming that the question goes to the Economic Division, it is then reassessed by the alert Secretary of that team, currently Mr. Norman Seagrave. Should he find that it is not suitable for his group, he will resolve the question of routing via informal discussion with the Executive Secretary.

Once the Secretary of the Economic Division does assume

jurisdiction, he looks into his files to ascertain whether the item has an ACC history. He will consult briefly with the initiating agency and with those government departments which will be interested because of the very nature of the problem. The Secretary attaches an analytical memorandum and any related ACC documents to a notice that this issue has been placed on the agenda of the next meeting, circulating the whole to all members.

There may be additional informal consultation between the agencies, with the Secretary assisting in liaison. This helps to eliminate a number of minor obstacles which might slow down the Division meeting. Unless a subject patently merits the attention of a specialized subcommittee, it usually goes before the Division.

At the meeting, each department expresses its view. It had had time to prepare a position, and may submit papers on the question for consideration by other agencies. Unless a fairly rapid and unanimous decision can be reached, the problem will be referred to a smaller subdivision for further handling. The Air Coordinating Committee can move only by unanimous consent.

THE unit which has been found best suited to handle most issues is the working group. It ordinarily consists of one or two members, who do not approach the problem as departmental representatives but as pure fiduciaries. The delegates of the other agencies monitor the diligent enforcement of the trust. They approve or reject the working group paper. The latter is supposed to represent an impartial evaluation and recommendation. The activities and achievements of the working groups, which are specially constituted or *ad hoc* bodies, present a substantial step forward in the most efficient utilization of functional tools in public administration.

If the report is not acceptable, there will be more talks and more study. When agreement has been reached, the Secretary of the Division sends the paper around and offers it for informal action. That consists of each agency signing a note that it will act in accordance with the working group plan. If the decision to do so is made by vote at divisional meeting, that is classified as formal action.

Most questions can be treated at Divisional level, and only

about ten per cent of the items go up to the Committee for resolution. If the top echelon personnel on the Committee itself cannot attain unanimity, a problem may go up to the President if it is important. There is no evidence as to what may have reached the White House via this route thus far.

Throughout this process, the Secretary of each Division plays a major role in keeping the machinery functioning smoothly. Much of the credit for the Air Coordinating Committee's success must go to its fine staff.

There are also a number of weaknesses in the ACC structure. "First, the Committee has no efficient way of settling acute differences of opinion among its members. . . . Second, the Committee has no power of its own to implement its policy decisions and see that they are carried out. . . . Third, the Committee has no full-time Chairman. . . . Fourth, and perhaps as a result of the other three defects, the Committee has not held the position of prestige and strength that the importance of its subject matter demands."<sup>6</sup>

If there should be a full-time Chairman to be nominated by the President and confirmed by the Senate, it seems advisable that he should be an important figure with plenty of prestige despite the danger that he might be viewed as a *de facto* Secretary of Civil Aviation. The President's Air Policy Commission has recommended that the Chairman should in fact and law be the Secretary of Civil Aviation in its proposed revision of the organization of federal air activities.<sup>7</sup> The Committee served as a support group to back up both the President's five-man team and the Congressional Aviation Policy Board, both of which would hardly be necessary if the ACC had sufficient prestige and stature. Future policy surveys should be assigned to the Committee if it is to maintain any real hold upon the confidence of the industry.

It might be fruitful if the Committee were to attempt to increase liaison with Congressional groups, despite (a) the problem of maintaining security and (b) the difficulties in joint policy determinations by the executive and legislative branches. Moves to build up public knowledge and confidence might be considered, although it must be stated that the ACC

<sup>6</sup>

George A. Brownell, "The Air Coordinating Committee," pp. 430-31.

<sup>7</sup>

Survival in the Air Age. January 1, 1948, pp. 144-45. See also the report on National Aviation Policy of the Congressional Board of March 1, recommendations 77-80 and both S. 2448 and H.R. 6144 introduced to the 80th Congress, 2nd Session, to implement them.

attitude towards the press has improved perceptibly during the past year.

It appears that the most controversial aspect of Committee administration is the veto power, but without the requirement for unanimity some agencies might be reluctant to submit certain problems to interdepartmental action. By compelling strenuous effort for agreement on critical issues, it tends to minimize partisan thinking and emphasize mutual problems and goals.

The Air Coordinating Committee has been fortunate in its combination of top quality personnel with a determination for effective action. It was not the first interdepartmental air group, but it is probably the most successful. The Committee seems destined to play an increasingly vital part in United States aviation. There is a splendid reason for this. It works.

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*More than 40,000 people were killed in the British attacks upon Hamburg in July and August, 1943. In the great March 1945 attack on Tokyo 125,000 people perished and 75,000 more were rendered homeless in a single night by some 3,000 men in only 279 airplanes. Three attacks within 15 hours wiped out Dresden and buried perhaps sixty thousand in its ruins. These terrifying magnitudes of destruction were brought about by airpower with only the conventional high explosive bomb.*

*The destructive power of the present atomic bomb, measured by military standards, has been exaggerated by laymen. Yet the fact remains that it injects a multiplier of destruction into the effectiveness of each bomber on the order of hundreds to one. Wars that might otherwise last years may be ended in weeks, perhaps days. And campaigns that would otherwise cost the lives of hundreds of thousands of soldiers and sailors may now be the work of a few hours by a few men. Much that would have been impossible becomes possible with the atomic bomb.*

*What potential aggressor, with the world to win, would pass up such a weapon? The only realistic answer, I think, is that the bomb would be used.*

—General Carl Spaatz  
in Life (16 August 1948)

# FUTURE OF THE TACTICAL AIR FORCE

Colonel William H. Wise

**S**TUDY of the tactical air force and its employment can best be undertaken by viewing the subject from two separate standpoints: the functional and the organizational. In the first instance we must consider the tactical employment of military Air Power—that is, the tactical mission or tactical function; secondly we must consider the organizational requirements for such employment.

We can begin with the premise that the tactical mission is closely tied to the action of surface forces. This is clearly shown in Field Manual 100-20, dated 21 July 1943, paragraph 14 of which states:

a. In a theater of operations where ground forces are operating, normally there will be a tactical air force. Modern strategy and tactics derive success to the degree that air power, sustained and in mass, is employed properly by the theater or task force commander.

That the tactical mission is identified closely with surface action is further shown by an Army study which describes the tactical air force as being “specifically organized, equipped, and trained for operations against the enemy armed forces within, moving into, or withdrawing from a combat zone” and “. . . characterized by mobility and the ability to coordinate its operations closely with those of the ground and naval forces.”<sup>1</sup> That this doctrine is well established within the United States Air Force was indicated when Lieutenant General E. R. Quesada, formerly Commanding General, Tactical Air Command, in speaking before the Armed Forces Staff

<sup>1</sup> Command and General Staff College, Paper 706, Class 27 (1946).

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*The views expressed in this article are not the official views of the Department of the Air Force or of The Air University. The purpose of the article is to stimulate healthy discussion of Air Force problems which may ultimately result in improvement of our national security.*

College on 4 March 1947, stated:

We feel our efforts must be utilized when the land and sea forces are engaged. . . . We do not believe for one moment that we could engage in combat as a solo effort. Our purpose for existing is to contribute to the efforts of the other two services, and we hope to survive through the contributions made by the forces of the other services to our own.

SINCE it logically follows that unless we have surface action there will be no tactical air function, we should next examine the nature and probability of surface action in a future war. World War II was a war of "theaters" and affords us rich examples of the "theater concept" of warfare. Can we apply the lessons learned in those theaters of war to a future war which may see the entire globe as the combat theater? The difficulties of carrying on surface warfare of the World War II type in a global theater appear to be of such magnitude as to make such operations unlikely. When we recall the months of preparation for the Normandy invasion, the massing of forces, the delivery of untold quantities of materiel required to make our cross-channel invasion successful, it becomes apparent that a similar operation on a global scale would present staggering obstacles if attempted prior to the decisive weakening of the enemy's capability to resist. Major General John R. Deane in his book, *The Strange Alliance*, points out that the decision to undertake the Normandy invasion in the spring of 1944 was subject to three conditions: (a) There must be a substantial reduction of German fighter strength; (b) The German reserves in France and the low countries must not be more than twelve full strength, first quality, mobile divisions, exclusive of coastal, training, and airborne divisions; (c) It must not be possible for the Germans to transfer more than fifteen first quality divisions during the first two months of operations.

If, in spite of the magnitude of our invasion preparations, it was still necessary to meet the above conditions before undertaking the Normandy invasion, what then would be the nature of preparations required to invade a nation with enormous industrial potential, modern atomic and supersonic weapons, and tremendous strength in manpower?

When we consider the probable methods and nature of a

future war we see nations rather than armies fighting each other. War will become a conflict aimed at the destruction of national economy, industry, politics, and peoples. Advances in psychological, biological, and atomic warfare point toward total national capitulation rather than toward decisions reached on the field of battle, or in limited theaters, through the defeat of one army by another. That victory or submission can be achieved without invasion was demonstrated in our war against the Japanese: that victory can or will be achieved through mass surface assault is to be doubted.

It appears, then, that decisive action must be effected by means other than that of overpowering the enemy with surface forces, and it follows that surface action of a combat nature will in all probability be limited to "mopping up" action connected with the occupation and control of enemy territory once the enemy nation has capitulated.

Tactical employment of air may well be used in connection with such surface operations in what may be termed the "exploitation phase" of a future war. Further, similar employment may also be found in connection with a United Nations police force. Operations of this latter nature must be considered as taking place on a limited scale, however, and against what could hardly be called organized opposition of major proportions. This mission might well be assigned to the Marines and to Marine Aviation. Should such operations develop beyond the limits of relatively minor action, it is likely that total war would ensue and only the broader concepts of total war would then apply.

From the above, then, it would appear that the tactical employment of military Air Power, anchored as it is to the employment of surface forces in combat, can have little place in the decisive phases of modern warfare of global proportions.

**L**ET us turn now to the question of organization for the tactical employment of our air elements. We are not here concerned with the details of such organization, with the exact make-up of a tactical air force, or with the operating procedure to be followed in such employment. Rather we are concerned with the broader question of whether or not there should be a specially constituted Tactical Air Force or tactical air organization, in being, as a part of our peacetime air strength.

It must be recognized that our national peacetime economy program will habitually keep our air strength at such a level that our national security may depend entirely on the quality and alertness of those forces that we are able to maintain in being. For in the words of General Carl Spaatz, "The all important initial crisis of any future war must be met by the Air Force we have when war starts. We cannot rely on a cadre Air Force, for during a war of hours, days, or weeks, we would have no time to expand it."

With so much dependent on the effectiveness of the forces in being at the onset of an emergency, we cannot afford to divide our military strength in a piecemeal fashion in an attempt to provide a little for each of many purposes. Rather we must focus our efforts and concentrate our strength in accordance with sound concepts of employment and in the manner designed best to insure our national security. This point has been emphasized by Major Alexander P. de Seversky:

**If war comes in five, ten or fifteen years, the main issue will be an air battle for control of the air ocean: victory in the skies will be the decisive factor. That is why we dare not repeat the mistake of the last war and proceed to squander our resources by building anything that comes to our minds. We simply cannot afford to create an endless variety of weapons, lay them on the shelf and then, when war comes, pick those we think are needed and throw the rest in the ash-can. We simply haven't the manpower and the materials for such a wasteful, unscientific procedure.<sup>2</sup>**

It is sound to assume that in the employment of military Air Power there may be a strategic function, a tactical function, and a defensive function. It is not sound, however, in the face of limitations imposed by economic and other similar considerations, to design and organize separate forces tagged and earmarked for specific functions to the exclusion of others. To permit such organization and specialization not only dilutes our strength but tends also to narrow the thinking of those engaged in the specialized fields.

Further, it is doubtful if such specialization can be considered completely realistic. World War II examples can be found wherein strategic forces performed defensive and tactical functions, tactical forces performed defensive functions,

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<sup>2</sup> "A Lecture on Air Power," The AIR UNIVERSITY QUARTERLY REVIEW, Vol. 1, No. 2, Fall 1947.



and so on. For example, the heavy bombers and strategic fighters of the Fifteenth Air Force were used in close cooperation with surface forces in the North Italy spring offensive in 1945. Strategic bombardment aircraft were often used in close cooperation with surface action in the Pacific. Similarly many missions of strategic aspect were performed by tactical air units in the European war. An appreciable percentage of the missions performed by tactical air units in North Italy during the winter of 1944-45 were strategic in nature and the AAF Evaluation Board reported that the tactical air force had contributed materially to the success of the strategic programs in the ETO. It cannot be doubted that, should we be subjected to sustained air attack today, any available fighter units, regardless of the Air Command to which assigned, would be called on to aid in the performance of the defense mission. Regardless of the specialization we may contemplate or the "tag" that we may place on them, our forces can and must be used to perform the mission dictated by circumstances. In this connection it is to be noted that the recent reorganization which established the Continental Air Command, embracing the Tactical Air Command and the Air Defense Command, provides a degree of flexibility heretofore lacking and, accordingly, is a step in the right direction.

**I**N any major conflict it is to be expected that our first air efforts will be strategic in nature, accompanied concurrently by the necessary defensive action. In all probability tactical air operations, as such, will not take place until the exploitation phase. Further, it has been demonstrated that the tactical function can be performed, when necessary or expedient, by the same people and the same organization, and with the same equipment used in the earlier phases. This does not deny the benefits that naturally accrue, in any undertaking, from the use of tools specially fashioned for the task. It is recognized that tactical air operations differ in many respects from other types of air operations, that special techniques, special training, and special equipment can be expected to produce better results than can be achieved by employing means designed for other types of operation. The factors that must be weighed here are questions of relative merit. Heavy and medium bombardment aircraft *can* be used

to perform tactical operations but light bombardment aircraft *cannot* be used for long-range missions. If, owing to our limitations in overall strength, improvisation may become necessary, it is obvious that the more flexible arrangement should be chosen. That the more flexible arrangement is in keeping with the premise that tactical operations will not be undertaken on a large scale in the early stages of war only serves to strengthen the case against specialization in the field of tactical air operations.

Would it not, then, be better to consider the problem in terms of function rather than in terms of special organization? That is to say, to consider the strategic, tactical, and defensive *functions* of our air organization rather than to divide our strength into separate specialized *organizations* for each specific function. In so doing we can organize in such a fashion as to emphasize the job at hand, letting first things come first. Thus, if at the onset it is seen that strategic operations are required in force, we can throw the bulk of our strength into the strategic effort rather than just that portion of our force labeled "strategic." The same organization would be charged with the defensive function and, being able to weigh the relative importance of the strategic and defensive requirements, would be able to allocate an appropriate portion of the effort to each, depending on the circumstance. The same principle would apply to the tactical function, if and when the requirement developed. Peacetime training requirements, including necessary joint training with surface forces, could be met in the same manner.

This might lead to the conclusion that we should organize along the lines of the Air Combat Command recommended by the 1947 Air War College organizational study. While details of the organization of the USAF are beyond the scope of this article, it is perhaps appropriate to point out that although the overall concept of an Air Combat Command is considered sound, the organization recommended by the 1947 study envisaged, within the Combat Command structure, specific organizations for the strategic and tactical missions. Such an organization, while a step in the right direction, continues the practice of earmarking its components and adheres to the organizational concept rather than to the functional concept. It is believed, rather, that an Air Combat Command should be so organized and constituted as to make it readily feasible to

employ maximum strength in the performance of the mission at hand, be it strategic, tactical, or defensive. Any unnecessary earmarking, compartmenting, or specializing will detract from the flexibility required to achieve this goal.

NOT to be overlooked in considering the aspects of this question is the impact of our military stature on the world. It is generally accepted that the United States will not strike the first blow in a future war but that our first move will be retaliatory. Hence, the nature of our air establishment and our ability to strike back will be closely scrutinized by any potential aggressor and will be carefully weighed against that nation's ability to prevent or withstand our retaliation. To prepare to meet a land power nation with ground armies and tactical aviation would be to point toward conflict in the sphere most suited to a land power's capabilities—in other words to fight such a country on its own terms and with its own choice of weapons. Such a course would not only reduce our chances of waging a successful war but would also increase our likelihood of becoming involved in such a conflict. If, to maintain peace, we are to rely on our own strength as a deterrent to hostile action against us, then it follows that we should design our forces to be as formidable as possible. This will not be accomplished if we fashion our weapons for the type of warfare the enemy is best equipped to fight.

A review of the factors considered in the above discussion would indicate, in summary, that the tactical employment of military Air Power, being anchored to surface action, is unlikely to assume a place of importance in any major conflict of the future before the decisive action has neared completion. Since an Air Force properly organized and equipped to achieve success in the decisive phase will be capable also of performing the necessary tactical operations in the exploitation phase, the peacetime maintenance of a specialized tactical air arm at the expense of the strength and effectiveness of the decisive air echelons is unwarranted. The soundness of this concept is already widely recognized in the Air Force, but how soon corrective action can or will be accomplished is a matter for conjecture.

# AVIATION AND SOCIETY

William G. Key

**S**Ocial existence has been revolutionized through successive civilizations by the application of invention to human existence. By and large, these revolutions go unrecognized, particularly by the masses, until they have been chiseled into their historical perspective. Aviation, however, has been so dynamic, and the forces of history so impelling, that today even the layman recognizes much of the imprint that the airplane has stamped across the faces of our years, the faces of war and of peace, of commerce and of disaster, and of time and of space.

Looking backward to elemental history, we know that the wheel imposed profound social changes on our world—probably the greatest single pattern of change ever wrought. The turning of the first wheels began the history-long process of narrowing the world. Primitive wagons, railroads, and automotive transportation had each in their turn an accelerated impact.

The wing is destined to have as profound an implication for society in centuries to come as the wheel has had in the development of our own civilization.

To frame the airplane into its proper perspective today, a primary hypothesis is that ships, trains, trucks, and automobiles are limited to their respective elements of sea and land. The airplane, on the other hand, operates in the universal element, air, and need recognize no barriers of coast or terrain, rights of way or highway. It can create, by itself, a new geography.

In the forty-five years of the airplane's practical existence, it has laid the rough foundation of a civilization such as the world has never known. No other development—not even the

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*The views expressed in this article are not the official views of the Department of the Air Force or of The Air University. The purpose of the article is to stimulate healthy discussion of Air Force problems which may ultimately result in improvement of our national security.*

smashing of the atom—can so affect our ability to move virtually at will in the air, with all that implies for our society. When the destructive potential of the airplane can be harnessed, then the peaceful potentialities of this vehicle become almost limitless.

Fortunately, there are guideposts in our own country, and in isolated islands of air civilization around the world, that can be used to measure the potential of a Pax Aeronautica.

In the early 1930's fewer than half a million persons used the scheduled airlines of the country. The number of pilots was gauged in the more simple thousands. Today, passengers are counted in the two-prefix millions, and the pilots are measured in the hundreds of thousands. More than 6200 airports are recorded by the Civil Aeronautics Administration in our land alone. Thousands of additional landing strips are to be found on farms and in other areas in every section of the country.

From the half million passengers of the early 30's, some thirteen million passengers are carried annually by the airlines of the United States. To each of these the airplane has brought profound and far-reaching changes in social habit and thought. Were we to set up a human record on each of these passengers, we could establish a pattern of the current phase of the social evolution stemming from the modern airplane. To this, then, we would add the passengers who utilize the thousands of business-owned aircraft, the often huddled masses of those who travel by non-scheduled aircraft, and then compound these effects by stirring in the social implications of the millions of air mail letters, the packages of express and cargo, and now, parcel post. We would range through human existence from the grandmother who sees her new grandson within hours, to the wife of a B-29 crewman whose husband is one day in Tucson, Arizona, the next at a bomber base in the front lines in Great Britain. We would range from the speeded-up tempo of monetary circulation to the life-saving speed of delivery of serum and plasma brought to the scene of illness and disaster. The whole tenuous thread of human existence would have been woven into a fantasy of speed and service.

**M**ILLIONS of persons now derive their livelihood from the airplane and literally every person in the United

States benefits, at least vicariously, from activities surrounding this relatively new factor in existence. If we were to take one single example, none could be more pertinent than that universal subject—weather. The requirements of the airplane are such that the science of weather forecasting has been undergoing a virtual revolution. From an oft-times inexact, one-day-in-advance science, weather forecasting now ranges the world and forecasts of weather weeks ahead can be made with a reasonable degree of accuracy. While these forecasts are primarily the tool of the aviator and stem from his needs, they enable the forester to foretell his fire danger periods, the Atlantic or Gulf Coast resident, farmer or business man the course of hurricanes, the farmer his harvesting probabilities, and even the city dweller the general rainy trend of his annual vacation.

The benefit derived by the general public from the necessity of accurate weather forecasting is but one facet of aviation's contributions to modern life. Many other aspects yield a corollary benefit to the industries and the people of a country that maintains its preeminence in aeronautical matters. Many of the new techniques and materials—particularly in the fields of metallurgy and plastics—pioneered by the aircraft industry through the necessities of its science, lend themselves to development in other fields. An outstanding example of this is aluminum, wherein increased capacity and new techniques and alloys developed in wartime proved a boon in peacetime. The same is true of new steel alloys and processes, plastics, and synthetic gasolines and rubbers.

The aircraft industry itself has emerged from World War II with a potential more than thirty times its prewar size, and in actual operation will level off at about ten times its prewar status. In 1939 the aircraft industry ranked 46th in size in the United States. During the war it became the largest industry the world has ever known. Today, despite sharp contractions, despite virtual disintegration in demobilization, it ranks somewhere between 12th and 15th among American industries.

But it has been in its impact on the technologies of other industries that aviation has brought some of its more tangible benefits. From the airplane has stemmed virtually the whole "light-weight era." The compelling necessity of lessened weight, with greater strengths, has led to the development of lighter-weight metals and alloys of benefit to the whole range

of metals fabrication. From aviation has evolved much of the science of streamlining. From the competition and the examples of the manufacturing industry and of the airlines has come the lightening, redesign and streamlining of trains, busses and automobiles, as well as an era of industrial design reflected in such unlikely products as dishes, toasters, dishwashers, and the thousand and one other items of modern life in the United States. Steel and aluminum techniques devised for aircraft manufacture are used in the production of automobiles, homes, electric fans, and myriad other items. Automobile engine development often reflects the lessons learned by the aircraft engine manufacturer—to such an extent that automobile engines can safely be adapted to use in light aircraft. Mass production techniques for the close tolerances required in aircraft reflect themselves in improved products for general use.

The science of electronics has its roots in aviation, and the impetus of electronic development in World War II is reflected in the rapid development in the postwar period of the entire electronics industry. Similarly, in the field of plastics, aircraft research has provided the basis for many developments widely used in other fields of industry.

From an entirely different standpoint there is developing a rudimentary evolution in international life through the medium of the International Civil Aviation Organization, a little-recognized advance in international cooperation. Recalling that in Great Britain and much of Europe automobile traffic flows to the left side of the street, and in the United States to the right, we find developing, in international aviation, standard rules of safety and operation, airway aids, navigation, technology, and an international language (even though restricted to matters aeronautical), so that a pilot, whether from Patagonia or Macao, will follow a universal routine.

**E**VEN with the obviously extensive changes already wrought by the development of the airplane over the past forty-five years it is possible to project, through educated imagination, an ever-widening progression of social advance stemming directly from the science of aeronautics. It is possible to foretell that the world conceivably could be dominated

by a cabal of airmen. Such a world would be no more desirable than a world controlled by the Legionnaires of the Roman emperors. But, on the other hand, we can with equal facility foretell a globe policed under the direction of world government by a controlled force of international airmen. The ultimate answer, to be found today only in the crystal ball, can hardly lie in the gray area between these two possibilities, so great is the destructive potential of the airplane, the atomic bomb and other weapons in the hands of able air combat leaders.

Since we today live somewhere within the gray area of indecision, perhaps the first of the social changes to be examined is the dispersion of urban populations. This will be no overnight metamorphosis, impelled primarily by government fiat, but rather a trend that over a period of years will follow the pattern of growth of today's suburban areas.

The trend of urban life has been outward, following the successive developments of vehicular transportation. Cities first grew up as strong points for defense and as bases for offense. Gradually they became centers of trade and commerce, still restricted in size by the limitations of man's capacity to walk from boundary to boundary. As civilizations became more stabilized, and as the wagon became more and more a mode of transportation, the "walk" limit of cities disappeared. The development of the streetcar spread urbanization still farther. The automobile again removed barriers to the physical size of metropolitan areas. Today, our ability to provide all of the niceties of city life in suburban and country areas has led to the beginning of metropolitan area dispersion. This fortunate beginning of dispersion, under current world conditions, becomes more of a potentially urgent factor than it is a desired factor. If the constant threat of bombing from abroad remains, dispersion becomes urgent, yet it remains with some desirable attributes because of the concomitant social factors of increasing leisure time, the urge to "return to the soil" and "five acres and independence," as well as the fact that life in semi-urban communities can be as, or more, attractive than life within the confines of a city. The use of the airplane and, more pertinently, the foreseeable development of the helicopter, will spread and ease this dispersion, so that it will follow in time whether or not the world continues to live in a state of fear.



PARALLEL to the spreading out of the city is the contraction of time and space implicit in the use of the airplane in ever-increasing numbers in rural areas. One of the most radical developments of postwar aviation is the mushrooming growth of flying by the farmers of the United States. This was largely unanticipated even by those closest to the aviation picture. Yet, radical as it has been, it is a development still in its infancy and certain to have far-reaching effects upon our social patterns; and, these effects are certainly not to remain peculiar to the United States. Of primary significance is the fact that ease of transportation, when coupled with the widespread practicality of the use of urban comforts in rural areas, reverses the undesirable trend of loss of farm population. On the other hand, the farmer's trading range becomes wider, with as yet unforeseeable effects on the small town merchant and on the location of more urban shopping areas. As an example, the spotting of Sears, Roebuck stores on the periphery of cities may well be revised by merchandising demands to require that they be spotted at or near airports.

The trading habits of the farmer are but one of the many developments directly and indirectly stemming from the widespread farm use of airplanes. Air reseeded can make "forest farming" more profitable and economical. It demonstratively will lead to greater farm production through pest and disease control. There are other subsidiary benefits to be derived from an air-minded and more cosmopolitan farm population, particularly in the more youthful elements, and in the multiplication of available landing areas, even though these landing areas are for the most part only a sod field or strip.

In the field of industry, and particularly in merchandising, the airplane cannot help but have widespread and deep-rooted effects. Some of these are even now developing. American industry has flying salesrooms; last year one American city sent a group of its business men on an air tour of South America in which every modern sales device was used to attract new customers and open new markets; entire fashion shows are brought from abroad, and New York and California fashions are sent from one section of this country to another, so that our people feel the impact of a hipline change weeks and months before they normally would; mail order houses are shipping in bulk by air, shortening by days the delivery time

even in the remotest areas.

Even though air freight rates remain high in relation to rates of ground transportation, it already can be seen that the great benefits of air transportation often outweigh the element of cost, and that lowered costs will mean an ever-widening market for air transport. One extreme example is that in 1946 it was worthwhile, under emergency conditions, to pay \$1200 to fly \$87.50 worth of coke from New York to a Cuban sugar mill. A more normal example, which demonstrates the flexibility that the airplane provides, is that of the shipment of raw materials—an estimated million dollars worth of textiles and leather work goods each month—from New York to Puerto Rico. The raw material is processed in Puerto Rico and returned to New York for sale. Ten days are saved on each shipment, making the greater cost of air transportation an overall saving in relation to surface transportation. Naturally the more far-reaching social effects of aviation in its application to industry and merchandising will come with still lower costs and, over a period of years, will result in a diminution of regional warehousing, in lessened retail inventories, faster turnover, and access to new markets, both domestic and overseas.

Paralleling this trend will be the effect on the industrial development pattern of major cities. Industrial plants tend to locate near their major mode of transportation, so that these plants will more and more be located near airport areas, contributing in geometric ratio to the dispersal of city populations. Hotels, office buildings, and other components of a city's economic core must inevitably follow this major trend.

**I**N the field of education we again find an ever-widening pattern of sociological impact. Not only does aviation provide and require new aids in education, but it dictates changes, which even today are marked, in the study and understanding of geography, history, sociology, mechanics, physics, chemistry, civics and literature. Never before in all history has a new industry provided a more trenchant group of literate exponents. The centuries-old Mercator projection map, practical and eminently useful before the advent of the long-range airplane, becomes as distorted in an air age as the airman's azimuthal equidistant chart appeared distorted only a decade ago. While the major international air routes inevitably

will follow the paths of an earlier geography through the major centers of world population, their courses (and the courses of military planes taking the more dangerous but direct routes) dictate that the world be shown in its proper perspective.

In other phases of education ease of communication by air opens up new vistas for both teacher and student. The children of the Eastern seaboard and the Middle West, who for a score of years have flocked by bus and train to Washington, much even as lemmings pursue their paths to the sea, can with equal facility be taken to many other of the great centers of interest, of government and of culture. The interchange of students and teachers between nations can be accelerated and the understanding of other cultures made more real.

These are the major changes we may expect through the integration of the airplane into its place in our social world. But these changes do not take into account the effects which can be foreseen only dimly as the airplane begins to provide access to the remote areas of the world, as it speeds up communication and the exchange of ideas, knowledge and culture. Neither do they take into account changes that will eventuate as Air Power fully replaces Sea Power as the major instrument of national policy, or as the effects of maintaining permanent air base personnel in other countries and on the islands of the Pacific are compounded by time and progress. We have seen only the faint stirring of an intellectual development, now in its formative stages in aviation; for it has been only in the past few years that men in aviation, of high intellectual attainment, have been afforded leisure to consider the eventual human equations in the air world they have helped create.

It is perhaps difficult to conceive that the history of the airplane extends only across a span of forty-five years, an atom of time in the centuries of the world's evolution. Yet so profound and far-reaching have been its effects that we are able, in this brief time, to look back upon major social changes, and to look ahead with a fair degree of assurance to a revolution far transcending that wrought by any other man-made instrument in history.

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*Our military security must be based on air power.*

—*The President's Air Policy Commission*  
Survival in the Air Age (1948)

# LIGHT, DARKNESS, AND POLAR WAR

Lt. Col. Oliver K. Jones

**T**H**ERE** are eight great industrial areas in the world today of sufficient productivity to be significant factors in a full-scale war. These eight areas center upon Japan, central Siberia, the Ural Mountains, Moscow, the Don Basin, western Europe, the British Isles, and north-eastern United States. All of these key areas lie above 30° north latitude, and the two great land masses on which they are located—the Eurasian and North American continents—have one region of common tangency: the Arctic Ocean with its impassable ice cap. Although the polar ice cap is impassable to ships or surface forces, it offers no barrier to aircraft flying above it. The shortest air route between the central United States and the Urals, between Alaska and Germany, or between Greenland and Japan lies directly over the polar region. Clearly the whole cap of the world, from the thirtieth parallel to the North Pole, is the world of Air Power.

The Polar Concept of air warfare was thus summarized by the Chief of Staff, USAF, General Carl Spaatz in his *Report to The Secretary of The Air Force*, 30 June 1948. This concept is based on the fact that the key industrial complexes of the world, excluding our own, all lie north of 30° in the Eurasian land mass and can best be reached directly by air over the polar region. If our country is ever attacked by an aggressor from this Eurasian land mass, it will be necessary for us to retaliate with a strategic air strike. Thus, consideration must be given to the factors involved in such an operation. A key factor, but one that seems little appreciated, is the variation of daylight and darkness with the time of year in the northern latitudes.

Current discussions of polar air strikes usually develop into

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an analysis of the pros and cons of the tactics of such a strike. Day attacks versus night attacks are weighed, with the merits of each propounded at considerable length. The merits and demerits of the minimum altitude attack versus the high altitude attack are also vehemently argued. The exponents of the night attack cite the increased cover from enemy interceptor aircraft and visually directed anti-aircraft artillery that is afforded by darkness. Advocates of the day attack cite the advantages of being able to positively identify the target, to navigate to and from the target with more accuracy than is possible at night, and to bomb the target visually, weather permitting, thereby attaining maximum destruction per bomb dropped.

UNFORTUNATELY, these discussions rarely take into consideration the variable factors of daylight, twilight, and darkness prevailing over the hypothetical northern targets. We are being forced in our thinking from our middle latitude habitat into an area about which we know very little—the polar cap. Our middle latitude complex has left us poorly prepared to grapple with the problems emanating from the fact that many of the industrial areas of Eurasia lie much farther north than the northernmost portion of this country. No part of the continental United States lies as far north as 50° north latitude, yet all but the very southernmost tip of England lies north of this line. The 50° N. latitude line almost touches Paris, runs just south of Frankfurt, Germany, just north of Vienna, south of Warsaw, through Kharkov in the Ukraine, just north of Stalingrad, and considerably south of the industrial area in the Urals. The 55° N. latitude line cuts through the southern part of Scotland, through Denmark, Lithuania, almost directly through Moscow, and south of Sverdlovsk in the industrial area of the Urals. In other words, Moscow is at about the same latitude as Goose Bay, Labrador, or as Dutch Harbor in the Aleutians.

The 60° N. latitude line cuts through the extreme southern edge of Norway and Sweden, barely touches the southern edge of Finland, bisects Leningrad, and cuts through the northern part of the Urals industrial area. The southern tip of Greenland also lies along the 60° N. latitude line. All of this means simply that many industrial centers in Eurasia are extremely

far north, much farther north than many of us realize, and therefore are subject to wide variations in daylight and darkness as compared to any locality in this country.

Our middle latitude thinking has imbued most of us with the idea that days and nights around the world are each approximately twelve hours long, although we learned in elementary geography that "the land of the midnight sun" exists in northern Norway and Finland as well as in Alaska. We also learned that the earth was tilted on its axis  $23^{\circ}27'$  from the plane of its orbit about the sun. We were taught that this inclination of its axis of rotation to the plane of its orbit was responsible for the seasons of the year. If there were no tilt to the earth's axis, we would have no seasons; climate would simply change only with latitude from the unchanging heat of the tropics around the equator to the unchanging twilight and cold at the poles; nights and days each would be about twelve hours long at all latitudes except at the poles.

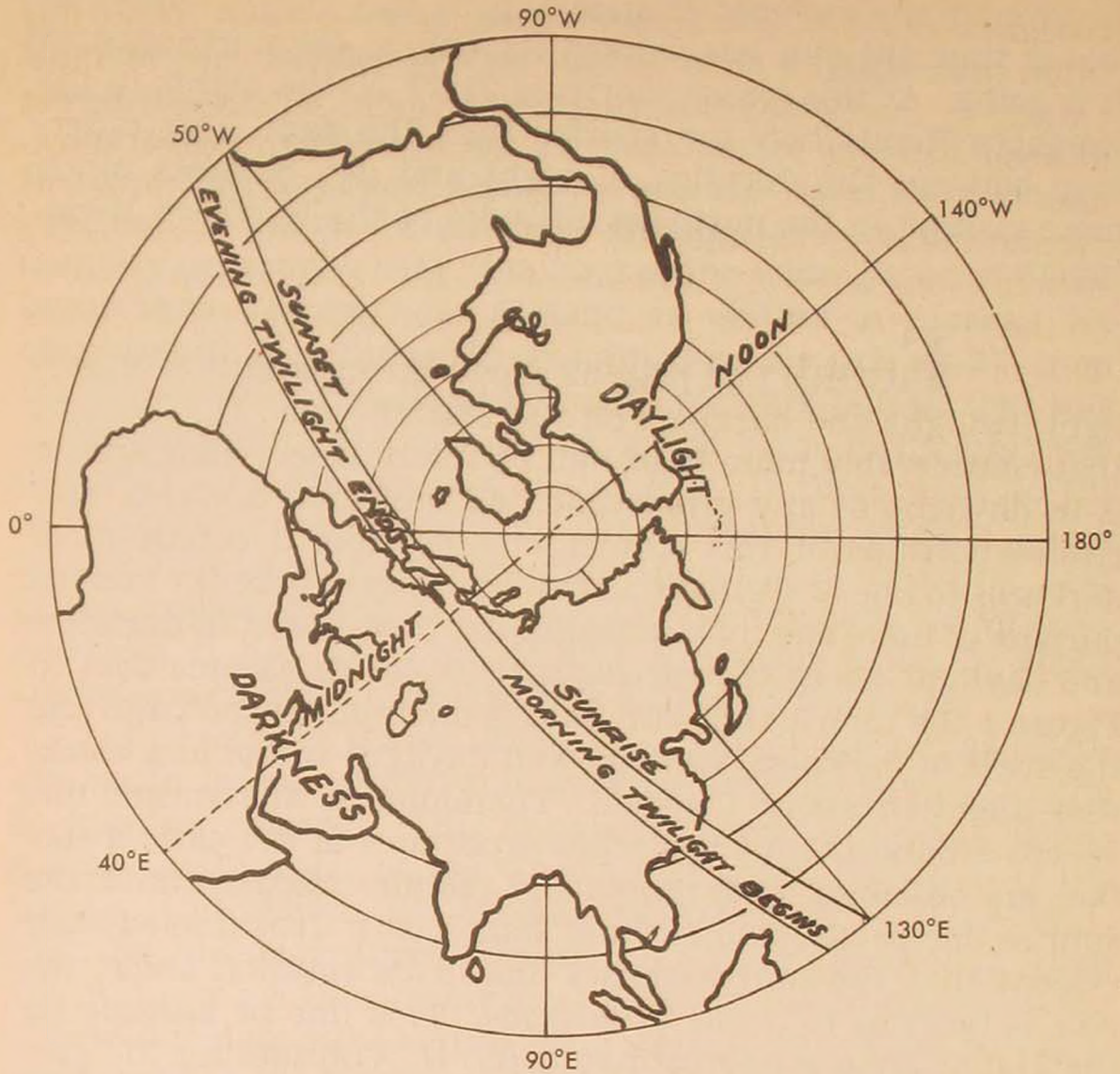
In our everyday life we learned to think of the sun as receding south in the winter and working back northward in the spring and summer. This apparent travel of the sun determined the location of the Tropic of Cancer ( $23^{\circ}27'$  N.), the Tropic of Capricorn ( $23^{\circ}27'$  S.), the Arctic Circle ( $66^{\circ}33'$  N.), and the Antarctic Circle ( $66^{\circ}33'$  S.). We learned that when the sun was at its northernmost point in the Northern Hemisphere, the days were longest; and when it was at its southernmost point in the Southern Hemisphere, the days were shortest in the Northern Hemisphere. But since there was little difference in the length of nights and days here in the middle latitude United States, the only thing that interested us was the pleasantness or unpleasantness of the weather itself. It got uncomfortably hot in the summer and cold in the winter.

For this reason, many of us in our casual conversations and official writings on retaliatory strategic air strikes against targets in Eurasia seem to have forgotten the elementary concepts of the physical relation between the earth and the sun, particularly regarding illumination in the Northern Hemisphere. In considering night strategic bombardment attacks of a retaliatory nature against targets in Eurasia, let us take a look at the fantastic variation in solar illumination, as well as in darkness, in the northern latitudes of Eurasia—those north of  $50^{\circ}$ . Let us further narrow the subject to the variation in illumination with latitude during the middle of summer, that

is, around the summer solstice (about the 21st of June) at which time the sun has worked its way as far northward as it is going. At this season, north of  $23^{\circ}27'$  N. the nights in the Northern Hemisphere are shorter than the days. This difference between the duration of night and day becomes much more marked in the northern latitudes of the Northern Hemisphere.

**FIGURE 1** on page 52 shows the distribution of daylight, twilight and darkness on the 21st of June. It is evident that considerably more than half of the Northern Hemisphere is in daylight at any given time. As the earth revolves, successive portions of this surface change from a condition of darkness to one of daylight as the sun's rays strike it. For the purpose of more clearly visualizing the progression of darkness and daylight about the earth's surface, let us assume that in Figure 1 the map stands still as it is oriented on the page and the areas of darkness, twilight, and daylight rotate in a clockwise direction about the pole. Therefore, as the sunset line sweeps around the map, successive portions of the earth's surface are obscured by darkness and remain obscured until the sunrise line passes through that same point. It is immediately evident that the sunrise-sunset line in its rotation about the pole is tangent to a line of latitude. This line of latitude on the 21st of June is approximately  $65^{\circ}$  N. Considering the geometric relationship between the earth and the sun, this circle of latitude should be  $66^{\circ}33'$  N. (the Arctic Circle); however, the light rays of the sun are bent by the atmospheric envelope surrounding the earth so that sunlight strikes more of the globe at all times than it would if no atmosphere existed. *The result is that targets north of about  $65^{\circ}$  N. latitude on the 21st of June would be exposed to daylight at all times and night attacks would be impossible.*

One might say that this is of no significance inasmuch as there are relatively few targets of importance in Eurasia north of  $65^{\circ}$  N. However, there are other factors to be considered. Prior to the sun's rising, and for some time after its setting, there is still adequate diffused light so that day fighter attacks may be directed against attacking bombardment aircraft. This period is known as "civil twilight" and is defined as being that time when the sun is below the horizon ( $6^{\circ}$  or less, either



**Figure 1. Distribution of Daylight, Civil Twilight, and Darkness in the Northern Hemisphere on the 21st of June.<sup>1</sup>**

before sunrise or after sunset) when normal daytime activities can be carried on out-of-doors without the use of artificial light. This period of twilight before sunrise and after sunset on the 21st of June varies from 23 minutes at the equator to 1 hour and 46 minutes at  $60^{\circ}$  N. North of about  $60^{\circ}30'$  N. on the 21st of June civil twilight conditions exist all night.

Figure 2 on page 54 is an enlarged portion of the northern latitudes of the Northern Hemisphere. Let us examine some theoretical target areas in Eurasia and see to what degree

<sup>1</sup>

On a globe, the sunrise-sunset curves as well as the twilight curves would be concentric circles of diameters less than a great circle. The projections used in Figs. 1 and 2 distort the projection of these circles so that undulations are evident in the curves.



darkness will afford a striking bomber force cover from day interceptor aircraft. Let us assume, for convenience of illustrating by map projection, that we are going to strike a target at about latitude  $55^{\circ}$  N.,  $40^{\circ}$  E. In an attempt to exploit darkness to the utmost, we will strike this hypothetical target at around midnight on the 21st of June. A primary relationship between longitude and time exists. This relationship is based on the fact that the earth makes one revolution every 24 hours. This means that  $1^{\circ}$  of longitude is equal to 4 minutes of time; thus,  $15^{\circ}$  of longitude is equal to one hour of time.

In Figure 2, therefore, we can pick any given point and, by calculating the degrees of longitude along the circle of latitude through the particular point embraced by the sunrise-sunset curve or the twilight curve, can determine the number of hours of twilight or darkness or sunlight at that point for, in this particular case, the 21st of June. At latitude  $55^{\circ}$  N. and  $40^{\circ}$  E., then, we can see that the arc A-A<sup>1</sup> subtends about  $32^{\circ}$  of longitude between midnight and the end of civil twilight at sunset, and about the same amount from midnight to the beginning of civil twilight in the morning. In other words, approximately  $65^{\circ}$  of longitude or 4 hours and 20 minutes of darkness darker than civil twilight occur at  $55^{\circ}$  N.,  $40^{\circ}$  E. on the 21st of June. This same period of darkness, of course, will hold for any point on the  $55^{\circ}$  N. latitude line as the band of darkness and daylight sweeps around the Pole once each 24 hours.

**T**HE story is not yet complete, however. In these northern latitudes the sun, even though it dips below the horizon, is not really far out of sight; hence, another factor enters into the problem of midsummer night attacks in the northern latitudes of Eurasia, that of the increase of illumination with bombing altitude. The only periods of the year when this matter of increase of illumination with altitude is of any great significance are around the summer solstice, the 21st of June, and around the winter solstice, the 22nd of December. At each of these times of the year, at  $55^{\circ}$  N. for example, the sun in the summer barely goes below the horizon at midnight and in the winter barely comes above the horizon at noon. In other words, the angle of approach to the horizon is an extremely acute angle. At other times of the year the sun rises at a considerably less acute angle to the horizon and, at

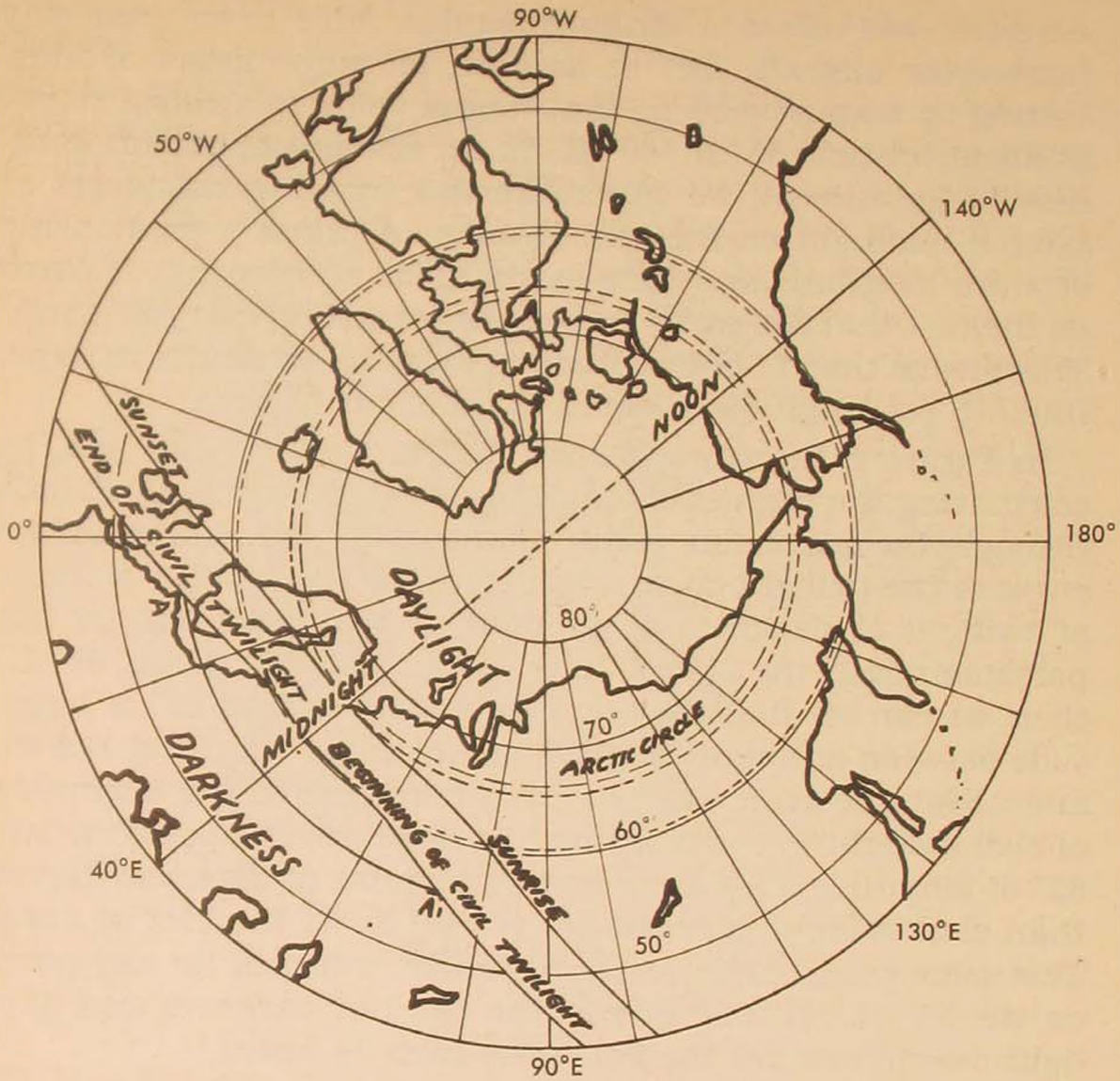


Figure 2. Enlarged portion of Figure 1 showing extent of occurrence of solar illumination on the 21st of June.

the equinoxes in March and September, rises and sets perpendicular to the horizon providing a condition wherein altitude has no really significant influence on illumination.

However, at 55° N. in the period from the 16th of June to the 30th of June a bomber flying at 10,000 feet will be in sunlight for 20 minutes longer than if it were making a ground level attack. It will be visible an additional 4 minutes in conditions of civil twilight. In other words, civil twilight conditions at 10,000 feet at 55° N. in the period 16th to 30th June commence 24 minutes earlier in the morning than they do at the surface and persist for 24 minutes later in the evening. At 20,000 feet at 55° N. an aircraft would be in bright sunlight

for 29 minutes longer than it would be at the surface. It would be in conditions of illumination equal to civil twilight (or better) for a total of 38 minutes longer than if making a minimum altitude attack. This means that if attacking approximately at sunset, it would be exposed to day interceptor attack for a total of 38 minutes longer in the evening than it would be if attacking on the surface; and, if attacking at first light, it would be exposed to day interceptor attack 38 minutes earlier than if attacking at the surface. At 30,000 feet the aircraft would be in sunlight 36 minutes longer in the evening and 36 minutes sooner in the morning. It would be in conditions of illumination equal to twilight (or better) for a total of 49 minutes longer in the evening and 49 minutes earlier in the morning. At 40,000 feet it would be in conditions of illumination of civil twilight (or better) 59 minutes longer in the evening and 59 minutes earlier in the morning than it would be if at ground level.

This means, then, that at 55° N. in the latter part of June there is very little night at all for an aircraft attacking at high altitude, for if we remove 59 minutes from each side of the night, the result is a reduction of almost two hours from a night that was originally less than 5 hours long. Specifically, 2 hours and 22 minutes remain available to a high altitude (40,000 feet) bombardment aircraft for making a night attack on targets lying at 55° N. in the middle of summer. At 60° N. the attacking aircraft is in conditions of civil twilight all night if it bombs from 20,000 feet or above. At 40,000 feet it would be in sunlight at midnight at 60° N. This means that a day fighter with only about two hours endurance could take off in twilight after sunset, stay aloft at high altitude in sunlight while the two hours or so of darkness obscured the ground below, and then land in the twilight preceding dawn. During its stay aloft it could, of course, make effective visual attacks against any "night" bomber.

**T**HE aforementioned conditions of illumination and duration of darkness apply only when the aircraft is attacking from a latitude approximately the same as that of the target—55° N. in the case just discussed. However, if the aircraft is approaching from a latitude more northerly than 55° N., the availability of darkness for cover is considerably shortened.

This is obvious when one looks at Figure 2 and considers an approach to  $55^{\circ}$  N.,  $40^{\circ}$  E. from a northerly direction. At a little better than  $60^{\circ}$  N. conditions of civil twilight exist even at midnight. If, for example, there are  $6^{\circ}$  of latitude between the border of twilight and the target at  $55^{\circ}$  N.,  $40^{\circ}$  E., the distance is approximately 360 nautical miles. A bomber traveling at about 360 knots would actually have less than two hours of darkness available for cover if making a minimum altitude attack. Assuming the conditions of illumination depicted in Figure 2 to be static, it can be seen that a bomber flying directly down the  $40^{\circ}$  E. line at midnight would have approximately one hour of darkness available for penetration and about one hour for withdrawal.

Actually, however, the situation is dynamic, not static. If the aircraft planned to be at  $55^{\circ}$  N.,  $40^{\circ}$  E. at midnight, it is obvious from Figure 2 that as the sector of darkness rotates around the pole it would have to penetrate the end of the civil twilight line somewhere south of  $61^{\circ}$  N. On withdrawal, the aircraft would have an equal amount of decreased darkness for cover, for the beginning of civil twilight prior to sunrise would overtake it along the  $40^{\circ}$  E. line prior to its arrival at  $61^{\circ}$  N. (This dynamic situation could be depicted very simply if that portion of Figure 2 representing the occurrence of illumination were mounted as an overlay and simply revolved about the North Pole.) Therefore, any aircraft approaching targets in Eurasia in midsummer north of the latitude of the target would have less darkness available for cover than exists at the target itself.

It may not be necessary or desirable, however, for the attacking aircraft to withdraw along the same path that it followed to the target. If it proceeds south after attacking a target at  $55^{\circ}$  N., more darkness becomes available for cover. If the aircraft withdraws as far south as  $40^{\circ}$  N. after attacking a target at  $55^{\circ}$  N. at midnight, there will be approximately 3 hours and 50 minutes of darkness darker than civil twilight available for withdrawal. An aircraft capable of maintaining a ground speed of only about 225 knots could easily remain in darkness for the entire withdrawal.

There is another factor likely to affect the withdrawal of an attacking aircraft. Although the peripheral velocity of the sector of darkness at the equator is about 1000 knots, at  $45^{\circ}$  N. this peripheral velocity (which varies as the cosine of the lati-

tude) would be approximately 700 knots; at 60° N. the peripheral velocity of the earth would have decreased to half that at the equator to about 500 knots.

This means that an aircraft withdrawing from east to west could, at midnight for example, remain at the same sun time at 60° N. simply by being able to maintain a ground speed of about 500 knots. When the day of the 500 knot aircraft with 24 hours endurance arrives, it will be possible to fly around the world along the 60° latitude line and remain at the same sun time for the entire period. This aircraft could take off in darkness at 60°—even if that darkness were only one minute in duration—and fly around the world with 30 seconds of darkness ahead of it and 30 seconds of darkness behind it. Hence, it could attack from east to west and withdraw to the west in complete darkness simply by keeping up with the sector of darkness as it rotated about the North Pole. The time is not far distant when aircraft will exist in which these factors of peripheral velocity of the earth will become tactical considerations for penetration and withdrawal.

**I**N summary it can be said that certain fundamental physical relations which exist between the sun and the earth will play a large role in the tactical execution of strategic air strikes against targets in the higher latitudes of the Northern Hemisphere. We were taught these basic relationships in the early stages of our formalized education, but our interest was mainly academic—and usually forced by scholastic requirements. It is no longer scholastic requirements which impel us to refresh and expand our knowledge of some of the physical processes at work in the Northern Hemisphere, but rather the urgency resulting from the requirement that the United States Air Force have planning and combat personnel mentally equipped to cope with the tremendous task of providing for the national security of this country. The Polar Concept embodies much more than Great Circle routes; for its tactical execution it includes as well a thorough knowledge of the unusual variations of daylight, twilight, and darkness in the Arctic region and their applicability to polar war.

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# ETHICS AND THE AIR FORCE

Chaplain (Lt. Col.) Wallace I. Wolverton

THE thesis herein propounded is that it is feasible for science to investigate moral law.<sup>1</sup> That is to say, the techniques developed in the scientific method—observation, classification, analysis, and generalization—are applicable to the study of ethics. These techniques are on their way to a mature development in the social sciences, and the progress already made seems to warrant their application to the field of ethics in the United States Air Force.

The domain of ethics has heretofore been the special concern of philosophy and theology. These two venerable disciplines will always be the parties chiefly interested in any objective inquiry into the general field of moral law. It is doubtful, however, that they will be able to speak with their one-time respected authority to men of today because the scientific temper of Western civilization demands something in the nature of scientific validation, even in the ethical field. Modern scientific man feels a great need for moral certainty, and he will continue to lend a respectful ear to the philosopher and to the theologian. However, he feels uncomfortable when he is called upon to change gears in his thinking processes in order to understand what the philosopher and the theologian have to say. His feeling for unity (he believes that the universe is a unity) makes him wonder why he should be compelled to change his mental approach so markedly if he is to understand the moral law. He would much prefer to become scientific about ethics and morals and naturally eschews the thought that he must perforce in such inquiries become unscientific.

<sup>1</sup>  
The writer is indebted in the theoretical portions of this paper to A. R. Radcliffe-Brown for the use of his notes on a seminar discussion which he led at the University of Chicago in 1937 on "The Nature of a Theoretical Natural Science in Society."

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*The views expressed in this article are not the official views of the Department of the Air Force or of The Air University. The purpose of the article is to stimulate healthy discussion of Air Force problems which may ultimately result in improvement of our national security.*

In the past, when confronted with intangible areas of knowledge, he has learned to place a great deal of reliance upon the use of analogy. This has served him well in the scientific disciplines when he has tried to find the connection between two side-by-side fields of inquiry. His feeling for analogy has been useful in his construction of hypotheses, and in his solution of problems which lay in the marginal areas between well developed science fields. Moreover, the philosophy of science assures him that there is a spectrum of the sciences; and he sees a continuous process of areas between bordering disciplines being closed by the development of intermediate sciences. When, for example, he hears the social scientist say that "interest" in the systems of human relations operates in a manner analogous to "force" in the realm of physics he opens his ears. He would like to hear more.

Modern scientific man believes he has reason to hope that the open spaces between the physical, biological, and psychical sciences will someday be closed. Why not expect that empty area next to the mental sciences—the area of human relationships—to be colored in by the development of a science of moral law? He looks somewhat hopefully to the social sciences to supply the color in this blank edge of the spectrum, and for some intermediate science to develop later for the necessary blending. The social scientists, as we shall see later, are confident that they have some important scientific data which can be applied to this part of the science spectrum.

**T**HE philosopher and the theologian may look upon such an effort askance or with encouragement. In the former instance they may regard the entry of science into the domain of moral law to be highly improper. The theologian may even hold that this is holy ground and that no one may enter upon it without removing his shoes. This is tantamount to saying that the approach is fundamentally other than that customarily employed by the scientist. The philosopher and the theologian may, however, say, "All right, go ahead. You are welcome to have a look. You will, if you remain scientific, concern yourself with *how* the moral law works. It will remain our burden, of course, to try to give our ideas on *why* it works as it does. We have had little help through the centuries from the scientist in learning *how* it works, although we our-

selves have indeed been concerned with the question. We still believe that we have some valid suggestions, and we shall be happy if you care to use them in your researches." And the scientist will remember his past dependence upon the philosopher for essential concepts.

It is felt that this latter viewpoint of the philosopher and the theologian is the only sound and defensible one, although it may be rather difficult for them to assume it. They will be hindered by dependence upon some such philosophic viewpoint as Newton's, which stated that law is implanted upon the universe by the Deity. They have long been influenced by the Aristotelian doctrine of ultimate substances, in which the material substance represents the universe and the non-material substance represents Divine Intelligence or Law. This latter substance may still be regarded by philosophers and theologians as sufficient to fill up the special area for Divine Intelligence and revelation in the spectrum of which we have spoken. But if they can bring themselves to accept the concept of Heraclitus of Ionia, that *law is inherent in the universe*, they will conclude that moral law is a part of that law, immanent in the whole of reality. It is something which may be inquired into, as physical, biological, and mental law may be investigated, not by a different, but by the same scientific method. (Another way of saying this is that there are two ways of considering moral law. One is the authoritarian concept which is, presumably, based upon divine revelation. In this viewpoint God reveals to men the laws which should govern their relationships. This is the Hebrew (*Old Testament*) approach. But even in this the prophets who enunciated the law of God had astute powers of social observation. The other thesis is directed toward the facts of life as observable in human nature. It leaves to someone else to account for the ultimate or divine origin of moral law operative in human society. This viewpoint, moreover, is behavioristic rather than metaphysical. It employs no theological or philosophical postulates other than those enunciated about all law as given by Heraclitus.) If law is, indeed, inherent in the universe, and unity characteristic of the universe, then researches into that law and that unity must, therefore, possess essential elements of similarity as to method. The moral law should not require a complete change in approach.



**B**EFORE the philosopher and theologian can have such an understanding with the scientist there are two factors which must be resolved. They are the places to be given, respectively, to revelation and common sense. We will consider "revelation" at this point, leaving the other factor to the section dealing with the special problem of the military leader.

What is to be done with the special insights into the moral law which certain sensitive and talented individuals have possessed? These insights have frequently been classed under "revelation," the reference being, of course, to the prophets, seers, and wise men of history who apparently were far in advance of their times in moral insight. We possess a great body of truth which comes from the minds of these men. How is this wisdom of the ages in respect to the moral law to be regarded? Certainly we are in no position to disregard it.

At this stage of our discussion let us advance a theory which, it is believed, does justice both to the philosophic position of Heracletus and to the high quality of moral teachings which the prophets have given us. It is simply that these men, because of a greater intellectual capacity and stronger motivation, were able to perceive more clearly than their contemporaries that part or aspect of law inherent in the universe—the moral law. What they were able to perceive was in advance of their time, and thus serves the centuries. It remains the problem of the theologian or philosopher to explain their special genius, why they were able to discern when others failed. It becomes the burden of science to validate their findings and establish the resultant knowledge alongside the rest of scientific truth.

All the various scientific disciplines are concerned with distinguishable *systems of relation*. The blue band of the science spectrum may be said to be occupied by those systems of relation which are characterized by similarity and difference. These are the abstract sciences of mathematics, logic, and the philosophy of science. In these sciences the systems of relation are so far "abstracted" that they need have no correspondence to phenomenal reality. However, the blue band is not sharply cut off from the nearby area of the physical sciences, because the systems in each have led to knowledge of the others. Newton, for example, observed the phenomena as-

sociated with mass and motion. He had to resort to mathematical formula to "explain" the phenomena. Just the reverse was the case in much of the advance in atomic physics. Mathematical formulae often preceded the development of phenomenal representation.

The physical sciences, physics and chemistry, and all the remaining sciences in the spectrum are concerned with phenomenal reality, and with *systems of interconnectedness*. For example, the physicist is concerned with the system prevailing in the atom, the connections between electron, proton, neutron, etc. The chemist takes the atom more or less for granted, and is concerned with the systems of interconnectedness in the molecule. The biological sciences have their own proper subject matters, but the same may be said of them; that they are concerned with phenomenal systems of interconnectedness as found in organisms. The psychologist becomes primarily concerned with the systems of psychic events in the individual, phenomenal in representation, according to the behaviorist. On both sides of psychological science there have developed "intermediate" sciences, one dealing with the systems of interconnectedness in the mind-body relation, and the other dealing with the individual mind or psyche in relation to its environment (the social personality).

Social science's subject matter is the system of relations between human beings. It examines the recurrent events of real, i. e., phenomenal, interconnectedness. Its natural laws are merely statements of invariant relations in a class of systems. (This could be said of any science.) It approaches its subject matter with the four-fold method of observation, classification, analysis, and generalization. Its total field of inquiry is social structure, which is the sum total of social relationships. The observable data in social science are social usages. This class of systems, i. e., social usages, are found to control behavior and establish the social structure.

A social usage is real, say the social scientists, when it is embraced by the people and recognized to be proper. *This process of adopting modes of interpersonal relations and recognizing that they are proper in furthering common interest is the observable basis of an ethical system. In fact, it may be said to produce the various interconnected codes which make up the ethical system, and establish the institutional structure.*

SUCH a theoretical approach to the matter of professional ethics in the Air Force is deemed necessary. A concept of the social scientist's subject matter must be first understood before it is feasible to request his services. It would be preferable to let him speak for himself. He is much more capable of explaining his science and his method than a military clergyman who has but recently become acquainted with his methodology. He has been able to speak with sufficient clarity and to prove his usefulness to hardheaded industrialists and administrators. The following exposition of the function and service of the social scientist to the Air Force has, therefore, the limitation of an apprentice explaining a craftman's work.

We must first answer the following questions: What would be the value of an investigation of the professional ethics of Air Force officers by social scientists? How would that investigation be conducted? From what we have learned from the social scientist, we can state certain general propositions regarding the Air Force:

(1) The Air Force is a functional institution; it exists for the purpose of national defense.

(2) It is a social institution in the sense that it is comprised of a system of social (interpersonal) relationships in a social structure.

(3) This social-institutional structure should be of such a character as to further the Air Force mission.

(4) The Air Force is a new institution but has inherited many traditional forms or usages from the Army. There exist certain conflicts or anomalies by reason of old inherited usages and emerging new ones.

(5) The impact of technology is heavy upon the Air Force and has a disturbing influence upon living conditions, usages, and morale.

As a result of previous scientific researches, the social scientist would very likely make the following generalizations, or similar ones, regarding the Air Force:

(1) "Social usages" in the Air Force are observable and analyzable, and can be evaluated in terms of ultimate end function, i. e., the Mission.

(2) Structural analysis has revealed laws of interconnection which if "cooperated" with make for strength in social struc-

ture; and if violated tend to weaken structure. (This can also be stated thus: Ethical laws as supported or expressed by customs, usages, sentiments, and codes in the Air Force may act either as binders or as disturbers of the military institution.)

(3) Knowing the function of the Air Force, it is possible to spot irregularities which set up a commotion in the structure and defeat the end for which the Air Force exists. (For example, the work of social anthropologists in functional studies of British colonial government in West Africa resulted in the adoption of an improved colonial policy for that area.)

(4) It is possible to make certain adjustments in the Air Force to increase harmony and efficiency in the discharge of the Air Force mission. (The adjustments made in social relations in such industrial institutions as International Harvester and Western Electric to develop harmony and increase production serve as practical examples.)

(5) Existing operative codes of behavior in the Air Force can be altered by structural adjustments and made to support the mission. On the other hand, structural adjustments can be made to come to terms with firm codes and thus gain their support.

(6) Structural irregularities and malfunctions set up a disturbance in the operating codes or individuals and groups. Injustice in a system of relations causes individuals and groups to retreat into codes which may or may not support the end function of the Air Force.

**H**OW would the social scientists tackle the Air Force problem? Following is the writer's answer to this question based upon conversations with them and study of their methods.

First they would read themselves into the function and nature of the Air Force. They would then make preliminary observations of the institutional structure of the Air Force to find areas of friction in human relations. These would be analyzed in terms of the function of the Air Force as a whole. From their knowledge gained in other structural studies they would look into such matters as rank and status, social rewards, effects of technology, group dynamics, tradition, explicit and implicit codes, methods of indoctrination, the

operation of discipline, social communication, the effect of personnel policies, morale, popular opinion, etc.

With experience gained in the technique of sampling they would select typical situations for study. The Air Force is, of course, entirely too complex a human organization for an overall study. A study of the social life of an American town (The Yankee City Series) took five years, and the town had only 17,000 inhabitants. They would not attempt anything of such thoroughness. But the experience gained in numerous "laboratory" studies has developed short cuts and skills for locating vital factors and areas.

These social scientists are, moreover, aware of research going on in the general field of social relations. Without having to repeat much of this research in the military institution, they would be able to utilize the findings for data applicable to the Air Force. It is also their practice to call upon specialists to assist in specific problems. Thus they are able to exploit the progress made in such related fields as social statistics, opinion research, etc. Their cooperative approach is analogous to a clinical association of doctors. The analogy is also patent in terms of their interest—the restoration of the social health, vitality, and efficiency of the institution. In this connection they do not ask the institutional leaders to wait until they finish their research, but present their findings in the course of the inquiry.

They are on the lookout for what appear to be the more readily manageable and correctible irregularities or anomalies in the structure. The phenomena of interconnectedness in social systems causes the rectifying of one "social mistake" to have effect upon others. So the research is dynamic and productive of early results.

It should be emphasized, however, that they do not undertake correctional measures. That would remain a matter for decision by the Air Force itself. All that the social scientist does is supply data and offer professional counsel.

Much of the activity of these social scientists is empirical. Mathematical certainty will probably never be achieved in large areas of this science. But one of their chief merits is the scientific objectivity which they bring to their researches. Military men living in and engrossed with the urgent everyday problems of the Air Force cannot be expected to achieve such

objectivity.

**T**HIS raises the whole question of "common sense" in respect to the moral law. (Common sense is used to denote wisdom as contrasted to scientific knowledge.) Why cannot we apply our military common sense to the problem of professional ethics? The answer is that we *can* and we *do*. Without it our military system would run amuck. But when we run into the complexities which arise from the impact of technology, the problem of sorting out usable tradition, the emergence of new social usages and new social forms, the rapid evolution of new types of military organization, and the shifts and changes in community life resulting from the changing character of war, the modern military leader, planner, and policy-maker is hard pressed to know what is the proper course to follow.

In simpler times and in less complex social organizations it was possible for certain wise men to study and ponder the actualities of social interaction and come up with a sound body of principles to be observed in human relations. Much of this type of knowledge has come down through the military tradition. A large part of it is, no doubt, sound, enduring, and applicable. It will continue to be the "common sense" of every experienced military leader in dealing with a large range of problems where moral decision is involved. But this body of common sense ethics is not adequate to establish the high degree of justice and equity necessary in the Air Force. There exist confused problem areas for the commander, planner, and policy-maker where new knowledge is necessary if justice to the greatest number and the Air Force mission are to be served. When the Air Force could no longer rely upon common sense in air crew selection it called in the psychologist who had scientific knowledge of the individual as a system of mental relations. Similarly, the time has now come when the social scientist needs to be called in to give us the benefit of his knowledge of interpersonal relations.

There have been several recent attempts by groups of high-minded officers to formulate a code of professional ethics for the Air Force. As far as is known these efforts have been abortive ones due to the complexity of the problem. There are several reasons for this. One is the seemingly inevitable

resort to a listing of desirable officer character-traits and personal qualities. The result is a description of the ideal Air Force officer. This is all well and good; for we need many more moral stalwarts among commissioned officers. And perhaps, in the course of time, the number will increase. By trial and error, by self-teaching from experience, and by personal application to wisdom a substantial number of such individuals will develop from the young generation of Air Force officers and airmen.

But we must do more than place our reliance upon the chance development of individuals of "high moral caliber." Emanuel Kant once said, "There are two things before which I stand in awe: the starry heavens above me, and the moral law within me." This is a most admirable attitude and posture. But what we should better understand are the moral laws *between* me and thee. What are the facts of social action, of interpersonal relations? The psychologist tells us about the system of events in our minds, inferred from our behavior. We need to more completely comprehend the systems of interconnectedness in group life, stated in the form of generalizations or laws and based upon observation, classification, and analysis of social-military behavior.

**I**F the Air Force as a whole is to apply itself unto wisdom it must undertake two major tasks. First, it must seek out and find the laws of social interaction and state them in the form of guiding principles. These, like the laws of the physical sciences, can be taught. Moral law, in the sense of ethical requirements for interpersonal relations in respect to the Air Force mission, must be formulated. It is difficult to state a law, but it should be undertaken. These laws then can be taught, and men can learn to apply them. What form should the laws take? Certainly something more than, "The Air Force officer must be honest, he must have a sense of responsibility, he must possess professional competence, etc." These are almost pious utterances. Rather, if we are to be realistic, the laws should be statements of invariant relations. In other words, "when we find *this*, we also find *that*." Perhaps, for example, when a leader shows irritation or hostility toward subordinates there will always be found the element *x* to some degree in his subordinates; or perhaps, when a group receives

a certain kind of solicitude there is always *y* present in some degree. We say perhaps for we do not know for sure. But if we could get some statements of invariant relations, or some laws of concurrent events, we would have something which could be taught, or at least observed in the sense that planning, organization, and command could take into account.

The second task is to rectify the Air Force as a social institution. It is not altogether just to lay the chief burden upon the individual and expect him to be a moral stalwart in a system which through want of knowledge, to say the least, stumbles into practices of injustice. Of course we may and must encourage the individual to be just, in the hope that on the basis of developing enough ethical individuals the system itself will in time be righted. But that is not enough.

The problem of the Air Force, therefore, remains an ethical one, both as to the behavior of individuals in the system, and of the justice and reasonableness of the system itself. Social science interests itself in both sides of this picture. The Air Force cannot afford to overlook any promising resource which will assist in the solution of the ethical problem. Social science appears to be the outstanding potential aid.



*The idea of world rule had made a slow start amid the conditions of a small Central European state. It had grown out of the sweat of oppressed subjects, out of the atmosphere of the barracks, had faced its first decision on a world scale, and had failed. Monstrously puffed up and supported by a totally unscrupulous contempt for human beings and human lives, it had started on its course a second time. And after a tremendous initial leap it was falling again, on a theater of war that covered a whole continent. It had laid on a battlefield the bones of two hundred thousand men.*

—Theodor Plievier  
Stalingrad (1948)



# EDITORIAL

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BY GENERAL GEORGE C. KENNEY

THE Air Force, the country and the whole world face problems that call for decision. These decisions must be clear cut, logical and correct or we may find ourselves plunging into the bottomless abyss of another conflict which may surpass all previous ones in loss of life and destruction of property. The final result of it might be complete world bankruptcy.

The present tension which underlies activities, political, social, economic and military, throughout the world, can lead to one of only two lines of action. It cannot remain static indefinitely. That tension will begin to die out if better understanding can be brought about between the opposing groups. If the peoples of the world can be persuaded by demonstrated and unmistakable evidence that there is no military threat to their security and their freedom and that the universal desire for peace is reflected in the actions of all governments, the feeling of inevitable war will disappear. On the other hand, unless some progress in resolving the differences between the two world groupings becomes evident, the tension will tend to gradually increase until the explosion occurs.

The Balance of Power thesis no longer furnishes a solution. Formerly, before either of two antagonists of approximately equal potential strength could gain the decision over the other, enough time elapsed to permit sufficient mobilization on the part of the nation attacked to prevent a quick victory on the part of the aggressor. Today, with the power of modern weapons multiplied many times over anything previously known, the advantage clearly lies with the aggressor who launches an all-out surprise attack. We cannot dismiss the possibility that a nation might be forced to capitulate within a short time after the beginning of the assault, before it had time to even start an operation of retaliation.

Our leaders must visualize the problems confronting them, must analyze all the factors connected with these problems, must bring forth workable plans of action and must implement those plans to a successful conclusion. The alternate appears to be armed conflict. Whether it is five years, ten years or twenty years is beside the point. The fact remains that if the existing tensions are allowed to increase, the end result may be inevitable. The result can only be imagined but the probability is that in the chaos resulting from another world

conflict civilization as we now know it might not survive.

While our leaders must work out the solutions to the problems confronting our country, they will need help. Every one of us can and must contribute. We can use our brains and our training in the analysis of the factors involved, in the planning of proper lines of action and in the implementation of those plans. We must approach these problems calmly and objectively with no thought other than the best interests of our country and the preservation of its way of life. If we allow service prejudice or personal ambition to play any part in our thinking we are just as dangerous to national security as though we were subversive agents of an enemy introduced into our country for the express purpose of destroying it.

The Air University can have no greater goal than the inculcation of the doctrine of true, unselfish and constant service to the United States. We must train the student to think clearly and objectively. We must stimulate his vision. We must encourage him to look forward not backward. We must teach him that the solutions to our problems have to be created, for they are not to be found in histories or textbooks of the past. We must teach him that there is no substitute for work and then we must teach him how to work intelligently and efficiently.

If we think and act along these lines we will progress and The Air University will be an asset to the Air Force and to the country. If we allow our thinking to become stereotyped and lazily allow ourselves to be satisfied to drift with the tide, The Air University will not justify its existence. Both the faculty member and the student has a duty and a responsibility to his country and to himself. If he accepts that duty and that responsibility and devotes his career to work for the ideals and principles that make us the nation we are, our problems will be better solved, our country will be more secure and our civilization will progress.

The only limitation to progress is man's inertia.

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*Strategic air warfare imposes on the Air Force the requirement of striking the enemy at home—to destroy his industrial areas, his lines of communications and his will to fight. The 8th Air Force over Germany and the 20th Air Force over Japan demonstrated the effectiveness of strategic bombing operations.*

—Gen. Joseph T. McNarney  
Speech (3 December 1948)

# AIR ANTHOLOGY

## FALLING THROUGH SPACE<sup>\*</sup>

SEPTEMBER 3rd dawned dark and overcast, with a slight breeze ruffling the waters of the Estuary. Hornchurch airdrome, twelve miles east of London, wore its usual morning pallor of yellow fog, lending an air of added grimness to the dim shapes of the Spitfires around the boundary. From time to time a balloon would poke its head grotesquely through the mist, as though looking for possible victims, before falling back like some tired monster.

We came out onto the tarmac at about eight o'clock. During the night our machines had been moved from the Dispersal Point over to the hangars. All the machine tools, oil, and general equipment had been left on the far side of the airdrome. I was worried. We had been bombed a short time before, and my plane had been fitted out with a brand-new cockpit hood. This hood unfortunately would not slide open along its groove; and with a depleted ground staff and no tools, I began to fear it never would. Unless it did open, I shouldn't be able to bail out in a hurry if I had to. Miraculously, "Uncle George" Denholm, our Squadron Leader, produced three men with a heavy file and lubricating oil, and the corporal-fitter and I set upon the hood in a fury of haste. We took it turn by turn, filing and oiling, oiling and filing, until at last the hood began to move. But agonizingly slowly: by ten o'clock, when the mist had cleared and the sun was blazing out of a clear sky, the hood was still sticking firmly halfway along the groove; at ten-fifteen, what I had feared for the last hour happened. Down the loud-speaker came the emotionless voice of the controller: "603 Squadron take off and patrol base; you will receive further orders in the air: 603 Squadron take off as quickly as you can, please." As I pressed the starter and the engine

<sup>\*</sup> From *Falling Through Space* by Richard Hillary, copyright, 1942, by Reynal and Hitchcock, Inc. Reprinted by permission of the publishers.

roared into life, the corporal stepped back and crossed his fingers significantly. I felt the usual sick feeling in the pit of the stomach, as though I were about to row a race, and then I was too busy getting into position to feel anything.

Uncle George and the leading section took off in a cloud of dust; Brian Carberry looked across and put up his thumbs. I nodded and opened up, to take off for the last time from Hornchurch. I was flying No. 3 in Brian's section, with Stapme Stapleton on the right: the third section consisted of only two machines, so that our Squadron strength was eight. We headed southeast, climbing all out on a steady course. At about 12,000 feet we came up through the clouds: I looked down and saw them spread out below me like layers of whipped cream. The sun was brilliant and made it difficult to see even the next plane when turning. I was peering anxiously ahead, for the controller had given us warning of at least fifty enemy fighters approaching very high. When we did first sight them, nobody shouted, as if we had all seen them at the same moment. They must have been 500 to 1,000 feet above us and coming straight on like a swarm of locusts. I remember cursing and going automatically into line astern: the next moment we were in among them and it was each man for himself. As soon as they saw us they spread out and dived, and the next ten minutes was a blur of twisting machines and tracer bullets. One Messerschmitt went down in a sheet of flame on my right, and a Spitfire hurtled past in a half-roll; I was weaving and turning in a desperate attempt to gain height, with the machine practically hanging on the airscrew. Then, just below me and to my left, I saw what I had been praying for—a Messerschmitt climbing and away from the sun. I closed in to 200 yards, and from slightly to one side gave him a two-second burst: fabric ripped off the wing and black smoke poured from the engine, but he did not go down. Like a fool, I did not break away, but put in another three-second burst. Red flames shot upwards and he spiralled out of sight. At that moment, I felt a terrific explosion which knocked the control stick from my hand, and the whole machine quivered like a stricken animal. In a second, the cockpit was a mass of flames: instinctively, I reached up to open the hood. It would not move. I tore off my straps and managed to force it back; but this took time, and when I dropped back into the seat and reached for the stick in an effort to turn the plane on its back, the heat was so intense

that I could feel myself going. I remember a second of sharp agony, remember thinking, "So this is it!" and putting both my hands up to my eyes. Then I passed out.

When I regained consciousness I was free of the machine and falling rapidly. I pulled the rip-cord of my parachute and checked my descent with a jerk. Looking down, I saw that my left trouser leg was burnt off, that I was going to fall into the sea, and that the English coast was far away. About twenty feet above the water, I attempted to undo my parachute, failed, and flopped into the sea with it billowing around me. I was told later that the machine went into a spin at about 25,000 feet and that at 10,000 feet I fell out—unconscious. This may well have been so, for I discovered later a large cut on the top of my head, presumably collected while bumping round inside.

The water was not unwarm and I was pleasantly surprised to find that my life-jacket, my "Mae West" kept me afloat. I looked at my watch: it was not there. Then, for the first time, I noticed how burnt my hands were: down to the wrist, the skin was dead white and hung in shreds: I felt faintly sick from the smell of burnt flesh. By closing one eye, I could see my lips, jutting out like motor tires. The side of my parachute harness was cutting into me particularly painfully, so that I guessed my right hip was burnt. I made a further attempt to undo the harness, but owing to the pain of my hands, soon desisted. Instead, I lay back and reviewed my position. I was a long way from land; my hands were burnt, and so, judging from the pain of the sun, was my face; it was unlikely that anyone on shore had seen me come down and even more unlikely that a ship would come by; I could float for possibly four hours in my Mae West. I began to feel that I had perhaps been premature in considering myself lucky to have escaped from the machine. After about half an hour my teeth started chattering, and to quiet them I kept up a regular tuneless chant, varying it from time to time with calls for help. There can be few more futile pastimes than yelling for help alone in the North Sea, with a solitary seagull for company, yet it gave me a certain melancholy satisfaction, for I had once written a short story in which the hero, falling from a liner, had done just this. (It was rejected.)

The water now seemed much colder and I noticed with surprise that the sun had gone in though my face was still burning. I looked down at my hands, and not seeing them, realized

that I had gone blind. So I was going to die. It came to me like that—that I was going to die, and I was not afraid. This realization came as a surprise. The manner of my approaching death appalled and horrified me, but the actual vision of death left me unafraid: I felt only a profound curiosity and a sense of satisfaction that within a few minutes or a few hours I was to learn the great answer. I decided that it should be in a few minutes. I had no qualms about hastening my end and reaching up, I managed to unscrew the valve of my Mae West. The air escaped in a rush and my head went under water. It is said by people who have all but died in the sea that drowning is a pleasant death. I did not find it so. I swallowed a large quantity of water before my head came up again, but derived little satisfaction from it. I tried again, to find that I could not get my face under. I was so enmeshed in my parachute that I could not move. For the next ten minutes, I tore my hands to ribbons on the spring-release catch. It was stuck fast. I lay back exhausted, and then I started to laugh. By this time I was probably not entirely normal and I doubt if my laughter was wholly sane, but there was something irresistibly comical in my grand gesture of suicide being so simply thwarted.

Goethe once wrote that no one, unless he had led the full life and realized himself completely, had the right to take his own life. Providence seemed determined that I should not incur the great man's displeasure.

Another thing often said is that a dying man relives his whole life in one rapid kaleidoscope. I merely thought gloomily of the Squadron returning, of my mother at home, and of the few people who would miss me. Outside my family, I could count them on the fingers of one hand. What did gratify me enormously was to find that I indulged in no frantic abasements or prayers to the Almighty. It is an old jibe of God-fearing people that the irreligious always change their tune when about to die: I was pleased to think that I was proving them wrong. Because I seemed to be in for an indeterminate period of waiting, I began to feel a terrible loneliness and sought for some means to take my mind off my plight. I took it for granted that I must soon become delirious, and I attempted to hasten the process: I encouraged my mind to wander vaguely and aimlessly, with the result that I did experience a certain peace. But when I forced myself to think of something con-

crete, I found that I was still only too lucid. I went on shuttling between the two with varying success until I was picked up. I remember as in a dream hearing somebody shout: it seemed so far away and quite unconnected with me. . . .

Then willing arms were dragging me over the side; my parachute was taken off (and with such ease!); a brandy flask was pushed between my lips; a voice said, "O. K., Joe, it's one of ours and still kicking"; and I was safe. I was neither relieved nor angry: I was past caring.

It was to the Margate lifeboat that I owed my rescue. Watchers on the coast had seen me come down, and for three hours they had been searching for me. Owing to wrong directions, they were just giving up and turning back for land when ironically enough one of them saw my parachute. They were then fifteen miles east of Margate.

While in the water I had been numb and had felt very little pain. Now that I began to thaw out, the agony was such that I could have cried out. The good fellows made me as comfortable as possible, put up some sort of awning to keep the sun from my face, and phoned through for a doctor. It seemed to me to take an eternity to reach shore. I was put into an ambulance and driven rapidly to hospital. Through all this I was quite conscious, though unable to see. At the hospital they cut off my uniform, I gave the requisite information to a nurse about my next of kin, and then, to my infinite relief, felt a hypodermic syringe pushed into my arm.

I can't help feeling that a good epitaph for me at that moment would have been four lines of Verlaine:

Quoique sans patrie et sans roi,  
Et très brave ne l'étant guère,  
J'ai voulu mourir à la guerre.  
La mort n'a pas voulu de moi.

A man who has been rejected by death is easily tempted to take up the pen.

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*The nation that is first in preparing for inter-continental aerial warfare will win the next war.*

—Major Alexander P. de Seversky  
The Reader's Digest (February 1949)

# FOREIGN HORIZONS

## SEA AND AIR POWER

By

J. M. Spaight, C. B., C. B. E.

From the *Journal of the Royal United Service Institution* (London)  
November 1948.

**A** RECONSIDERATION of the meanings to be attached to and the inter-relation of the terms sea and air power is overdue. It is needed to clear away the fog of uncertainty which surrounds the subject at present. The absence of an agreed understanding on the significance of each term is in great part the reason why the discussion of the relative importance of naval and air action in war is often conducted in a rather acrimonious way. The whole question could be debated in a more objective and less partisan spirit if the disputants knew exactly, not only where their opponents stood, but where they stood themselves. They are not sure of their ground at present; hence an occasional tendency to lose patience, to dismiss sea power as a back number and air power as nothing but baby killing. Neither is anything of the kind.

Air power, as the later-born, has inherited, naturally, some of the doctrinal wardrobe of sea power and—again naturally—the fit is not in all respects perfect. Lord Tedder pointed out in his second Lees Knowles lecture in 1947 that both air power and sea power meant different things to different people. To some, sea power meant naval forces, to others, the majority, it meant the ability to use sea communications and to deny them to the enemy. "My use of the phrase 'air power,'" he said, "is in a similar sense to the traditional definition of 'sea power'; that is to say, air power is the ability to use the air spaces for offensive, defensive and supply services, and to deny their use to an enemy." "It includes," he went on, "air forces, civil transport, air bases, communications for control and direction, radar and radio facilities, aircraft and engine industries."

With that definition one may compare another which has been suggested by the Commanding General of the American



Army Air Forces in the recent war. General H. H. Arnold stated in his report dated 12th November, 1945, to the Secretary of War, Washington:—

“Air power includes a nation’s ability to deliver cargo, people, destructive missiles and war-making potential through the air to a desired destination to accomplish a desired purpose. Air power is not composed alone of the war-making components of aviation. It is the total aviation activity—civilian and military, commercial and private, potential as well as existing.”

The inspiration of both definitions is not far to seek. It is the doctrine of sea power which Admiral A. T. Mahan, the American naval historian, first enunciated nearly sixty years ago. Mahan made it clear for the first time that sea power meant something far more than the winning of naval battles, than the hoisting of brooms or whips at the masthead. For him it meant essentially the “noiseless, steady, exhausting” pressure to which control of the sea has the power to subject an enemy. It was a great unseen force which worked in the background, “quiet and unperceived” but remorseless and decisive in the end. And it meant more than blockade and naval action. It embraced all the elements which went to make a country strong on the sea—its merchant fleet, its shipbuilding industry, its seafaring population, geographical position, its maritime characteristics and its institutions. The high seas being free to all, Mahan was spared the necessity, as Mr. J. C. Cooper has pointed out in *The Right to Fly* (1947, page 42), of dealing with one problem which complicates matters in the air, the “political right to fly.”

Mahan’s teaching has influenced naval thought profoundly from his day to ours. Among his distinguished disciples was the late Admiral Sir Herbert Richmond, who expounded and developed it for our own times. Sea power, the latter held, is composed of three elements—fighting instruments for controlling the sea, bases for them, and vehicles of transport in which troops and trade can be carried. “These fighting instruments and these vehicles operate to-day on the surface of the sea, under the sea and above the surface; they extend from the largest battleship to the submarine, the motor-boat and the aeroplane. All are instruments of sea power.”<sup>1</sup> Others have

<sup>1</sup> *Statesmen and Sea Power*, 1946, Introduction, p. x.

gone further and have questioned the existence of an air power corresponding to and co-equal with sea and land power. What is the truth? Is there no such thing as air power in the world which we know? Is there nothing more than an additional weapon in the armoury of sea and land power?

There can be little doubt about the reality of air power in the mind of anyone who witnessed certain happenings in eastern England in the years 1944-45. Was not that reality manifest in the great armadas which we used to see moving majestically across the morning or evening sky in those days, setting out for or returning from their raids into Germany? Surely it is an abuse of words to say that we were here in face of anything but air power? And if these bombers were instruments of air power, were not equally so those whose targets happened to be not on land but on sea?

The German FW 200's which harried our merchant shipping on the high seas and our V.L.R. bombers which hunted U-boats in mid-Atlantic were instruments of sea power if the criterion is exercise of control of the sea. They were instruments of air power if Lord Tedder's definition applies, for they were using the air spaces for their warlike purposes and trying to deny them to the enemy. Which in fact were they? And was the use of bombers (also land-based) for mining enemy waters the exercise of sea power or of air power?

The truth is that the definitions do not correspond with the reality. They separate the sea and the air too precisely and therefore give a wrong impression. One would not gather from them that sea power goes up and uses the air space on occasion, or that air power goes down and meddles with shipping. Mahan wrote before the days of flight and he formulated his doctrine of sea power without reference to that disturbing complication. He formulated it for a world in which the great sea lanes were thronged with traffic and the skies were empty. It was around the safeguarding of that maritime traffic, so far as it was beneficial to the possessor of naval strength, the capture or stoppage of it so far as it was not, that he built his concept of sea power. The conditions in the air are different. In the air there is no corresponding traffic to be protected or intercepted; but there is more traffic on the sea than ever, and aircraft can and do take a hand in interfering with that. A definition of air power which takes that of sea power as its model and simply substitutes the word "air" for the word "sea"

wherever the latter word occurs, and adds nothing by way of qualification to the new formula, is not a satisfactory definition. It breaks down when the definition is brought into relation with the facts.

On the other hand, to start afresh and, discarding the old formula, to define sea power as the power exercised by water-borne vessels and air power as that exercised by air-borne is not really to simplify matters. It only leads to difficulties in the application of the definition. Strictly applied, it would mean that aircraft on a carrier's deck would be regarded as instruments of sea power until they took off, for they, in common with all else in the ship, would until then be water-borne, and instruments of air power while in the air. If, to avoid such sudden changes of classification, the rule were adopted that the *type* of the aircraft, marine or land, and not its actual use at the moment, should be the criterion, difficulty would still arise. An aircraft of land type may be carrier-borne. Conversely, flying boats, though ordinarily water-borne, fly across continents with the utmost nonchalance and might well be used in circumstances in which it would be anomalous to regard them as instruments of sea power.

The commonsense course is to classify ship-borne aircraft as instruments of sea power in all circumstances. It is sea power that brings them into a theatre of operations. Their function is to extend the effective range of the ships' guns and torpedo tubes. So far as they are concerned, Admiral Richmond's conclusion seems to be unescapable. The battles of the Coral Sea and of Midway Island, fought in May and June, 1942, respectively, cannot be called anything other than naval engagements; yet the surface vessels of the belligerents never came within sight or range of one another. Coral Sea was a battle fought entirely between the warships of each side and the aircraft of the other, and all the aircraft were carrier-borne. So were some of the aircraft that were in action at Midway, but there land-based (American) aircraft were also engaged. The latter could be held to be instruments of air power, but the former could not reasonably be regarded as anything else than instruments of sea power; they were a means of extending the range of the warships' armament. That was true also of the aircraft of the Fleet Air Arm which were engaged in the actions at Taranto on 11th November, 1940, at Cape Matapan on 28th March, 1941, and in the pursuit of the "Bismarck" on

4-6th May, 1941. So, too, the Japanese naval aircraft which sank the American warships at Pearl Harbour and the "Prince of Wales" and "Repulse" off Malaya in December, 1941, could hardly be regarded as other than instruments of sea power.

It is advisable in any definition of air power which hinges on the use of the air space to make an exception, by reservation or otherwise, for naval aircraft, whether at rest or in the air and whether serving afloat or in shore establishments. The latter aircraft, manned by naval officers and ratings and serviced by naval *personnel*, can best be classified with ship-borne aircraft; they are *materiel* of the Navy and in that sense a component part of sea power. Another reservation which seems also to be necessary relates to the use of V-weapons and similar new missiles. They, too, can be said to use the air spaces for offensive purposes, yet they could not properly be regarded as instruments of air power; they are more akin to the long-range projectiles used by land or sea power.

How, then, are we to define sea and air power? The writer suggests in the first place that any definition which speaks of the *denial* of the use of the sea or the air, as the case may be, to an enemy is a misleading definition. Neither the one element nor the other can in fact be denied to an enemy. "The normal condition in war is for the command (of the sea) to be in dispute."<sup>2</sup> That is still truer in the air. What is in question is not the monopolizing of either element but the utilizing of it more freely than an enemy can and to better advantage. It is the enlistment, so to speak, of the element as an ally on one's own side.

Sea power is, in fact, a nation's capacity for exploiting all the possibilities which action at sea affords of injuring an enemy militarily and economically and of benefiting itself. Air power is a corresponding ability to make use of the air. Neither the one term nor the other should imply exclusive possession of the element. It is advisable, too, in order to prevent misunderstanding, to add to a definition of air power which speaks of the use of the air a rider that this expression is to be read without prejudice to the view that the use of a naval air arm is the exercise of sea power, and the use of long-range missiles or projectiles the exercise of sea or land power as the case may be.

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Sir Julian Corbett, *Some Principles of Maritime Strategy*, 1918, p. 188.

The kind of definition suggested in this paper, a reader may object, would still leave it open to argument whether sea or air power is in action in various circumstances which are readily conceivable, and that it may lead, therefore, to controversy. Why should that be so? It is all a question of team work and naval and air power are partners through force of circumstances. The limits of their respective domains need not be rigidly demarcated; indeed, they could be so demarcated only if for the purpose of a definition one assumed conditions to exist which do not in fact exist. A certain amount of fluidity in the formulae reflects a similar fluidity in the subject-matter of them. For that reason it may be that anything in the nature of a formal definition is best avoided. *Omnis definitio periculosa est*; there would be a danger of a definition of sea or air power being cited in support of a claim that a given operation should be under naval or aerial command—a question the answer to which should not necessarily be dictated by the defining formula. Some, indeed, might say that it would be better, on the whole, to drop the terms sea power and air power altogether. They have probably come to stay, however, and would continue to be used even if officially discarded.

It may be that what is needed is not so much a doctrine as a working rule, not so much a definition of sea power and air power as an agreed understanding that the spheres of the two Services cannot be sharply demarcated in the way which a definition, or even the use of the terms, would imply. They are co-operators, not rivals. Neither can do without the other. The control of sea communications may involve a call upon Bomber, Fighter and Coastal Commands of the Royal Air Force no less than the surface, sub-surface and super-surface units of the Royal Navy. Conversely, the winning of the command of the air may demand the employment of naval as well as air forces; it was so in Malta, for instance, in the recent war, when fighters had to be flown in from carriers for the defense of the island. Anything in the nature of autarky for a fighting Service is an impossibility. Interdependence is inescapable. Strategically and tactically the arms of war have a common aim and share a common destiny, and the emphasis in any discussion of their functions would be laid more profitably upon that which unites them rather than that which divides.

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# Airman's Reading

**Crusade in Europe, by Dwight D. Eisenhower (Doubleday, \$5).**

*Reviewed by*

Lt. Col. Joseph L. Dickman

**T**HIS is an unemotional, factual, but absorbing narrative of General Eisenhower's experiences during World War II. It provides a valuable account of the great invasions of North Africa and Europe and a revealing appraisal of the major individuals involved. Written in the direct, unpretentious style of a military report, it also affords a penetrating insight into the character and personality of the author.

Reviews in this country have been laudatory. Drew Middleton in *The New York Times Book Review* stated that Eisenhower's book, unlike the memoirs of previous authors which were based on "either narrow nationalism or damaged pride," has finally put the picture of the war in perspective. Middleton describes it as "a sane, reasonable book. . . touched with the humility which is one of Eisenhower's virtues." In "Books of the Times," *The New York Times*, Orvill Prescott calls it a "book of enduring historical importance . . . diplomatic, discreet, and courteous." *Time* magazine describes it as an "indispensable record of the war in Europe and Africa" and "the apparently final answer to many of the bitterest controversies of World War II."

The book opens with the commencement of the war in 1939, when Eisenhower was a lieutenant colonel serving under General MacArthur in the Philippines. The story is told of Eisenhower's return to the United States for troop duty; his assignment shortly after Pearl Harbor to the War Plans Division (later Operations Division) of the War Department; his appointment in June 1942 as Commanding General of the European Theater of Operations; the planning for a cross-Channel operation in 1942 and 1943; the shift in strategy to an invasion of North Africa; the TORCH operation; the invasions of Sicily and Italy; Eisenhower's return to England in early 1944 to

command OVERLORD, the invasion of Normandy; and the subsequent operations that culminated in the German surrender at Reims, May 7, 1945. The concluding chapter discusses Eisenhower's acquaintance with Stalin, Zhukov, and other Russian leaders during the occupation period in the latter part of 1945.

The book is more than a personal history; it is an immensely valuable commentary, from one of the most qualified to speak, on the events, military motives, and personalities of the period. Military readers will primarily be interested in the author's explanations of the plans and decisions that were made and his statements concerning the points of controversy or publicity that occurred. Among the most interesting passages are those describing the Darlan agreements, the Patton "slapping incident," the German Ardennes offensive, and Eisenhower's relationships with Churchill and Montgomery.

It is regarding Eisenhower's comments on his disagreements with Churchill and Montgomery that British reviewers have been so critical. He frequently mentions the British leaders' lack of enthusiasm for the cross-Channel invasion. Concerning Churchill's predilection for attacking the Axis' "soft underbelly," Eisenhower views this attitude as deriving from "concern as a political leader for the future of the Balkans" and from "compulsion to vindicate . . . the Gallipoli campaign" of World War I. Eisenhower reveals that he disagreed with Churchill on the Anzio operation, which Eisenhower considered as unduly hazardous, and the invasion of Southern France, which Churchill objected to, preferring an invasion of the Balkans via the head of the Adriatic. Again, there was controversy over the British desire to install Montgomery as deputy for all ground operations; with Field Marshal Brooke in early 1945 over the plan for destroying the German armies west of the Rhine; and with Churchill over the plan for a coordinated advance across Germany rather than a race for Berlin. Throughout these passages Eisenhower's statements are honest, sincere, and tactful, and his reasoning is unfailingly sharp and clear.

For airmen, there is appropriate recognition of the part played by tactical Air Power in the defeat of the German armies in Europe. Of interest is Eisenhower's discontent with the type of organization that placed the strategic bomber force outside of his authority as theater commander.

**Political Power in the U.S.S.R., 1917-1947, by Julian Towster  
(Oxford Univ., \$6).**

*Reviewed by*  
Hilton P. Goss

**F**OR years, students and teachers of political science, as well as others concerned with the structure and operation of the Soviet government, have sought a reliable and objective analysis of this aspect of the U.S.S.R. Some more or less satisfactory approaches to the subject have appeared in textbook form. Now Professor Towster, a native of Poland but a resident of the United States for the past twenty years, gives us a scholarly appraisal of the Soviet government, based largely upon Russian language materials. These sources, not commonly used by those who have written for the English-speaking peoples, make this book doubly valuable. They increase its scope and provide a documented reference work as well.

In his preface, Professor Towster outlines the extent of his book in the following words:

**It traces the evolution of the basic principles of government, describes the structural arrangements of power, analyzes the relative role of the diverse social, political, and ideological forces in Soviet politics, and evaluates past and prospective trends in terms of liberty and authority, political control, administrative efficiency, and capacity for change.**

All this it does with a thoroughness and a fair-mindedness deserving of commendation. No reader will find all he seeks to know about Soviet politics in this volume, but every reader will appreciate the author's industry in explaining the historical and theoretical backgrounds, as well as the present-day structure, of every principal segment of the Soviet state and the Communist Party.

Perhaps most readers will be attracted primarily to the sections of the book describing what Professor Towster calls the "monolithic" nature of the Communist Party. Yet it is just this section which proves most difficult for the author to project in definitive fashion. Towster avoids the temptation to take the hierarchical structure of the Party at its face value and he does not fail to point out that what the Party professes and what the Party does may not always be the same things. But he does not succeed in telling us to what degree the Party



members are fanatical, though sincere, Marxists intent upon marching toward the classless society, or to what extent they are only 20th century despots eager to add power unto power. Therein, it seems to this reviewer, lies the dynamite as well as the dynamics of Soviet political power. For, so long as control of the Communist Party, of the machinery of government, and of the Soviet economy is in the hands of the same, or like-minded, persons, it is vital to know what steps the Politburo is likely to dictate, in what direction the Party membership believes it is being led, and to what lengths the structure and organization of government are being perverted or converted to particular ends.

Another section of the book likely to receive attention is the final chapter in which the author presents his conclusions. He finds practically the only popular participation in government on the level of the local soviets. However, since these soviets represent and include hundreds of thousands of individuals, predominately non-party, Professor Towster sees in them a hope for some future democratization. Likewise, the author views certain practices of the "*aktivs* or active groups of citizens, who participate in commissions of the soviets, assist in the work of the procurators, and perform other public duties in their spare time, on a voluntary basis," as an encouraging sign. Purposely leaving aside a detailed consideration of Soviet foreign policy, the author concludes that, "Though deviations from fundamental patterns are likely to be slow, the polity appears to have the capacity for internal change."

This volume is hard reading, but it is rewarding. And not the least of its features are an excellent bibliography and exhaustive footnote references to works in English and Russian.



**Guard of Honor**, by James Gould Cozzens (Harcourt, Brace, \$3.50).

*Reviewed by*

Major Harry T. Moore

**J**AMES Gould Cozzens, who at the end of the war was a major in the Air Force, is a competent novelist whose work in the past has been frequently honored, though he has never attained great fame or critical eminence.

In *Guard of Honor* he has written another competent novel that represents neither an advance nor a retrogression of his ability: it is a very full (631-page) study of life at a domestic air base during World War II.

Those familiar with Air Force installations will immediately see a resemblance between Mr. Cozzens' "Ocanara" and the actual Orlando. As for characters, some of them will be recognized at once by readers with a wide acquaintance among Air Force officers—and most of the people in the story are in any event familiar types, both as human beings in general and as Air Force personnel in particular. From these ingredients Mr. Cozzens has put together a story that is also familiar enough: if it is not exactly what happened, in all its details, at any specific air base, it is the sort of thing that has occurred at many such installations, and at infantry and artillery posts, and at naval stations—and quite similar incidents might have taken place among the troops of Tamerlane on the frozen plains of Asia or in the encampments of the Romans in the shadowy forests of Gaul.

*Guard of Honor* is a story of the responsibilities of command, of incompetence in staff-work, and of the strong points and weaknesses of men associated in the strained activity of war. "Bus" Beal, the youngest two-star general in the Air Force, is a brilliant leader in battle but a man who has to learn much about administration, about policy, and about that large part of humanity that is not professionally military. General Beal is out of his depth when sent back from the battle fronts to take command of an important installation in Florida. He is fortunate in having enlisted the admiration and wisdom of his IG, Colonel Ross, who in civilian life was a Southern judge—a character not endowed with the prejudices novelists usually portray Southerners as having. Colonel Ross looks at life with experienced, judicial eyes, and his partiality toward "Bus" Beal helps win the reader over to the general's side and helps make the general's occasional gaucheries excusable.

There are many other characters, including an ancient flier whose incompetence in high rank is less forgivable; a WAC officer in need of erotic tenderness; a flip, radical lieutenant; a rather over-solemn and assuredly competent writer who holds a captaincy; a brilliant and hot-headed combat pilot who continually gets himself and his friend the general into

trouble—these and various other personalities (such as the general's wife, an army brat) collaborate to hold the mirror up to the wartime Air Force. As previously indicated, anyone familiar with that institution and its successor will get little shocks of recognition from the story. Whether the story itself is worth all the space it takes up is another matter: it is true that daily life at an air base is often cluttered with insignificant details, but a novelist might well present the effect of them by suggestion rather than by wearying the reader with such repetitive elaboration of detail.

Technically, Mr. Cozzens' characters are "flat" rather than "round," which is merely a critical shop-talk way of saying they are static types that do not develop; consequently the book lacks depth. It could have been profitably cut by about one third. If this had been done, it would have sharpened Mr. Cozzens' passages of caricature and satire. As it is, Mr. Cozzens has written a novel that, while frequently burdensome in its solemn piling of detail upon detail and for its massiveness in the handling of a story essentially superficial, is nevertheless of interest to Air Force readers. Even if it is at times too thickly splashed on, the air-base atmosphere is good, and believable. You are there, in the wood-and-beaverboard buildings, with always in your ears the far-off burr or the closer throaty roar of aircraft in flight.



**Hate, Hope and High Explosives, by George Fielding Eliot (Bobbs-Merrill, \$2.75).**

*Reviewed by*  
Aubrey H. Starke

**M**AJOR Eliot's latest book consists actually of two parts. The first part, of some 250 pages, is "the tale of a reporter's journey through those ancient lands which lie at the crossroads of the modern world." It is the author's diary of a trip made between March 26 and May 26, 1948, to the Near and Middle East, Athens and Trieste. This part of the book offers a review of events that have already been covered in the daily newspapers of the period—in an account that has in general lost the appeal of timeliness. For example, this paragraph (p. 107) which concludes a little digression on the

difficulties of travel in the Middle East: "So please, Mr. Taber, when you're scrutinizing the budget, don't get too upset because we maintain planes and air officers to fly them at all these little capitals. They're not luxuries, they are necessities. They may indeed be the necessities of life for a lot of faithful servants of Uncle Sam." Of deeper interest to airmen will be the author's remarks (p. 258) on the lack of unification in "our various military enterprises in the Mediterranean and Middle Eastern area."

The second part of the book consists of ten pages of "strictly think-stuff," illustrated by a map. This is Major Eliot's geopolitical summary of "The Big Picture." He paraphrases an older geopolitician: "Who controls the Middle East controls the World Island, and who controls the World Island controls the world." He summarizes the current situation (p. 267) by pointing out that "nearness, in the military sense, is . . . a matter of time, interpreted in terms of men and tonnage delivered from a source to an operating area, as contrasted with the ability of an opponent to do the like." The New York and British ports are, in that sense, nearer to the Greek National Army than the Bulgarian, Yugoslavian and Albanian sources of supply are to the Greek guerrillas. "As a matter of fact, most parts of the Middle East are nearer, in this vital military sense, to America and Britain than they are to the Soviet Union." Major Eliot sees the solution of the Palestine problem as essential to "the creation and implementation of a sound workable program of Anglo-American cooperation for the security of the Middle East, on which the safety of Iran [with its oil] depends."

Major Eliot accepts the state of Israel as "an established fact." His early inclination to discount the capabilities of the Arab armies he now feels to be justified. The idea of a durable Arab "buffer state against Soviet incursion has been proved an illusion, which originated with Lawrence and Clayton. "The Arab is . . . not a soldier in the sense that the Turk or the Greek is a soldier. He has a fighting tradition, but he has no military tradition . . . We shall see the pipe line built and the black gold flowing, bringing royalties into royal coffers just as before. Only Abdullah's share will be larger than it used to be."

In this second part too, Major Eliot's report seems outdated. He wrote on July 20, 1948: "The guerrilla war, as a serious threat to Greek security, seems nearing its end." But the year

has ended, and not the war. *Hate, Hope and High Explosives* is like most old diaries—of greater interest and usefulness to the diarist than to other readers.

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**MacArthur's Japan, by Russell Brines (J. B. Lippincott, \$3.50). Soviet Russia and the Far East, by David J. Dallin (Yale Univ., \$5).**

*Reviewed by*

John D. Montgomery

**T**HESE books have appeared at a peculiarly critical moment in the ideological conflict which has engulfed most of the Far East. The American position vis-a-vis the advancing front of communism has made it necessary to re-evaluate the MacArthur Occupation in terms not even contemplated at Yalta or Potsdam. Its achievements in improving Japanese governmental efficiency together with its shortcomings in the democratization program are being subordinated in the public mind to a consideration which, with prophetic insistence, General MacArthur has always placed foremost: the creation of a bulwark against communism in the Far East.

Neither author deals frontally with the Communist movement in its sociological framework of reform and incipient nationalism, or with the basic conditions in the Orient which have made its acceptance so widespread. Both in China and in Japan the need for land reform (still unsolved after centuries of temporizing property redistribution) and the general dissatisfaction of peasant-tenants have given the Communist movement one broad fundamental issue upon which to base its campaign. American-sponsored democratic forces, in failing to deal with this and other fundamentals, have placed us in the position of backing semi-reactionary groups whose only asset is that they oppose communism. Communal disintegration following upon the collapse of the traditional social stratification has brought further dissatisfactions: and again, only the Communists were ready to take advantage of these. The forces of democracy felt impelled to adopt attitudes at the other extreme, favoring a restoration of unrealizable antebellum conditions. A third factor in the Orient which has brought about a general need for reform has been the effect of pro-

longed war upon an economic oligarchy (itself a product of too-sudden industrialization), which has recently contracted still further within itself in the face of a rising popular sentiment favoring industrial decentralization. There are, of course, other factors in the reform movements in the Orient which are too numerous and too complex for recitation here. All of them are important elements in the dismaying magnitude of the Communist appeal in the Far East.

Mr. Dallin's excellent and well-documented analysis suffers somewhat from its preoccupation with diplomatic intrigue and its consequent failure to consider the sociological background of Communist growth in China and Japan. Surely no critic would challenge the validity of his method in his study of Soviet foreign policy: admirers of the USSR will be especially embarrassed by his conscientious reference to official sources which are also faithfully invoked by Communist sympathizers. It is not enough, however, to consider communism in Asia as simply a product of diplomacy and power politics. There is a need for genuine reform in Asia, from India to Indonesia; and its relation to the success of Soviet tactics must also be a focal point in planning future American strategy.

The paradox of installing democracy by force has confronted our military government operations in Germany and Japan alike. Critics of occupation methods have hastened to point out that General MacArthur has introduced the forms of democracy without its spirit, that the governmental institutions we have transplanted to Japan have lacked the necessary base of popular responsibility. They scoff at the naivete of our press in assuming that a new Japanese Constitution has succeeded in transforming an imperial totalitarianism into a democracy. General MacArthur himself may be under no such delusion, although it is not clear from Mr. Brines' narrative just what steps he has taken in this direction, especially on a local level.

The problem of instilling democratic morality in the Japanese people is still unsolved. They are said to be largely devoid of political ideology (just as Laski and others think Americans are); they are ready to hop on the nearest band-wagon of opportunism. They accept democracy to the necessary degree, just as they will accept communism if circumstances make it desirable for them to do so. We must face the fact that the Soviets need not attack Japan to capture it: they can equally well rely upon a Communist victory on the continent to pro-

vide economic pressures which will place Japan in an untenable position if she does not capitulate.

Such conditions of expedience have forced us to substitute for the democratic ideal an opportunism calculated to make it *ill-advised* for Japan to adopt communism. Here the quality of the statesmanship in the MacArthur occupation is most evident: recognizing the place Japan occupies as a critical strategic bulwark against communism, SCAP (office of the Supreme Commander of Allied Powers) has planned a costly underwriting of Japanese economic rehabilitation designed to free these penurious islands from Communist pressure. Communism has consistently lost ground in Japan as conditions of economic crisis have, under the American occupation, subsided.

Such considerations as these make Mr. Dallin's estimate of Russia's designs in the Far East and Mr. Brines' account of Japan's ability to survive as a democracy very helpful to understanding this vital area in America's fast-moving foreign policy. We must at the same time, however, devote an equal amount of attention to the long-range problem of reform and eventual democratization in Asia, if our foreign policy is really to fulfill the objectives described at Yalta and Potsdam.



**Roosevelt and Hopkins, by Robert E. Sherwood (Harper, \$6).**

*Reviewed by*  
Oron P. South

**T**HE detractors of President Roosevelt and Harry Hopkins will in general find few darts for their blow guns in Sherwood's superb characterizations of Roosevelt and Hopkins. A friend of both, Sherwood does not hesitate to mention when he thinks either acted wrong or unwisely. Such instances, however, are not common.

Beginning with a brief history of Hopkins' family, his youth, schooling, interest in social work, and entrance into the Roosevelt entourage through the Civil Works Administration, Sherwood moves rather rapidly through Harry's life until reaching the period before the 1940 campaign. From the Hopkins' papers a creditable story evolves of the efforts to make Harry the successor to Roosevelt. To make him more acceptable to busi-

ness he was moved to the Commerce Department. He was selected to accompany the President on fishing jaunts and other important trips when policies or plans were being discussed. As ill health forced Hopkins to relinquish his ideas for the Presidency, Sherwood throws additional light on Roosevelt's unwillingness to announce himself for a third term until the last minute.

After the election of 1940 the story of Hopkins' life is that of the major political and military developments which concerned the United States and the rest of the world. He is the central figure about which Sherwood's story revolves. Outside of Roosevelt's secretaries, Missy LeHand and Grace Tully, no one knew as much about what Roosevelt thought and did as Hopkins. But so unknown was Hopkins outside of the United States, that on his first trip to London and Moscow, the officials of both governments had to be briefed as to who he was.

Almost overnight Hopkins became the eyes and ears for the President, this in spite of a weakened body which threatened to collapse at any minute. The man he served, however, remained an enigma to Hopkins as well as many others who were in almost daily contact with Roosevelt. It is quite evident that even after helping to write many Roosevelt speeches and going through the mass of Hopkins' material, Sherwood does not presume to explain the why or wherefore of many of Roosevelt's actions.

Besides the two central figures of the book, many other characters are depicted with expressive vividness. Churchill, the interesting, entertaining host; Stalin, the only man in Russia free to speak on any subject; Eden, whom Hopkins at first disliked but later came to respect and admire; Marshall, the master strategist who could convince Congress of his needs; these and many others are included in the fascinating revelations of behind-the-scenes activity at the major allied capitols.

For the military Sherwood's book contains many lessons. In the field of high level planning it is amply demonstrated that the separation of military strategy and world politics is extremely difficult. The possible effect of any major military thrust or withdrawal must be calculated to ascertain, if possible, the political repercussions and ramifications of such a move. The British were much more aware of these effects than the Americans.



No less interesting is the challenge to our Armed Forces to produce better military intelligence. Sherwood holds that in many instances the information contained in Roosevelt's most secret reports was no better than that obtained from any leading newspaper. The ease with which our military attaches in many cases were misled argues for better selection and education in the future.

Mr. Sherwood's method of handling citations is unique. In most quotations he indicates the source in the text. Footnotes are placed in the back showing the pages to which they apply. Material uncovered after the book was written is included in the footnotes and often adds to or contradicts textual material.

From Sherwood's work there emerges a clear, definitive picture of Hopkins during the war years. As additional material is added to the historical fund for this period, isolated points may be cleared, but it is extremely doubtful if anyone will write a more definitive biography of Hopkins than Mr. Sherwood has produced.

With Roosevelt the story is different. Much that is contained in Hopkins' papers and Sherwood's head will not be found elsewhere. But the final definitive story of Roosevelt remains to be written sometime in the future. If there can be written a conclusive story of the man who directed a war on three fronts—the home, European, and Far Eastern—to that ultimate effort Sherwood has contributed immeasurably.



**Rocket Development, by Robert H. Goddard (Prentice-Hall, \$4.90).**

*Reviewed by*  
Major John J. Driscoll

**T**OO few Americans are familiar with Dr. Robert H. Goddard's monumental contributions to the field of rocket development. Dr. Goddard, who died in August 1945, began his rocket experiments forty years ago. Up until World War II he was seriously hampered, not only by lack of sufficient funds, but also by the constant skepticism of the technical world and the periodic ridicule of the American press. In 1929 Charles A. Lindbergh, despite the general skepticism, recognized the significance of the early experiments and

brought the work to the attention of Harry F. Guggenheim and his father, Daniel Guggenheim. There followed an arrangement for financing the work which made possible the accomplishments recorded in this book.

Like the general public, the average airman is still generally unaware that the famous German V-2 rockets are almost identical enlarged versions of some of Goddard's early test missiles. Goddard is credited not only with designing the first successful liquid-fuel rocket, but he also held about seventy U. S. patents on rockets and rocket apparatus. German rocket engineers acknowledged their having followed Dr. Goddard's work very closely. In this respect, it is noteworthy that Dr. Goddard also patented, in 1931, a pulse-jet engine (U. S. Patent No. 1980266) prior to the 1931 patent for the German forerunner of the V-1 flying bomb (U. S. Patent No. 1983405). (Both patents went unnoticed by the military in this country.)

*Rocket Development* presents, for the first time in print, the data on experiments performed during Goddard's most fruitful period, 1929 until 1941. The data given are condensations from his experimental notebooks. The notes were edited jointly by Mrs. Robert H. Goddard who, while serving as photographer, attended virtually every one of her husband's experiments; and G. Edward Pendray, former executive-secretary of the American Rocket Society and author of *The Coming Age of Rocket Power*. The recorded experiments include tests to improve efficiency of liquid-fuel rocket-motors, remote-control flights, gyro flight stabilization, ram-jet development, and the development of propellant pumps. Selected drawings and photographs from the notebooks are included. Due to the technical nature of the notes, which include many details and specifications, the book is primarily of interest to the rocket enthusiast, the technician, and the engineer.

In the annals of scientific development this work, along with Dr. Goddard's two Smithsonian reports ("A Method of Reaching Extreme Altitude," and "Liquid Propellant Rocket Development"), will always remain a record of the formal launching of a new branch of engineering which may well change the course of human history.

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**The United States in World Affairs, 1947-1948, by John C. Campbell (Harper, \$5).**

*Reviewed by*  
R. Earl McClendon

**T**HIS is the second post-World War II volume of the survey of American foreign policy as sponsored by the Council on Foreign Relations. The first covered the years 1945-1947, and was prepared by the same author. In effect, they continue a series begun in 1931 by Walter Lippman and William O. Scruggs. The prewar volumes appeared for each year from 1931 through 1940. As now planned, the gap which constitutes war years will be handled in a detailed historical study prepared under the direction of Professor William Langer.

As relates to strict chronology, the title of the present work is slightly misleading, for actually it covers the period roughly from the spring of 1947 to the spring of 1948. Thus the critical stage of the Berlin crisis, best known in connection with the Airlift, had not developed when the book went to press. Nor had the Palestine affair reached the near climax which made some major headlines before the year came to a close. Again, as explained in the preface, certain subjects which in point of time relate to the volume immediately preceding are treated somewhat extensively in this one. Apparently the author plans to continue this practice in the succeeding annual surveys.

Dealing with the world position and policies of the United States as of the spring of 1947, the first few chapters take up such indicated subjects as the Challenge to Americans; the Truman Doctrine and the Marshall Plan; and Germany: the Moscow Conference and After. Next there follow full discussions on various matters, including inter-American affairs, developments in the Far East, trade policies, civil aviation in the international sphere, and United Nations crises. The remainder of the book is devoted for the period concerned to the developments of the Marshall Plan, American-Russian relations, and the continuing crises in Europe. In what may be regarded as the most feasible technique in this as in any historical account, within broad chronological limits the topical approach was followed.

Too encyclopedic for easy reading, the book presents an excellent factual account of the subjects elected for discussion.

No attempt was made to support a particular thesis. Nor did a central theme emerge, although certain subsidiary ones were bound to develop. The work, therefore, is largely objective in its approach; but, again, some interpretative judgements inevitably crept in. For the purpose at hand a statement regarding only two or three of them will suffice. The Truman Doctrine as conceived, the author feels, was in the nature of an ideological and economic warfare against Russia, for which neither Congress nor the American public in general was wholly prepared. Showing up in somewhat better light, as judged, the Marshall Plan elicited the support of those Americans who wish to defend not only their own security but also the institutions and values of Western civilization. Finally, in the early stages of the Palestine imbroglio the United States on the whole appeared uncertain of its objectives and inconsistent in its policies.

In view of the mass of accumulated data which is presented, *The United States in World Affairs, 1947-1948* has but relatively few footnote citations. Any deficiency which shows up in that respect, however, is offset in large measure, not to say completely, by an excellent, well organized selected bibliography. Included also is a chronology of world events (covering the year 1947) relating specifically not only to the United States, but also to the United Nations, the British Commonwealth, Europe, the Middle East, Africa, the Far East, and Latin America. The bibliography and the chronology of events are excellent for reference purposes. Except possibly within the all too small circle of scholars highly specialized in the general field, that quality, in fact, is likely to prove the greatest single contribution of the whole work, whether despite or because of its general excellence.

The book has an introduction by Dean G. Acheson who since the date of publication has become the Secretary of State of the United States. A careful reading of that thought-provoking statement should have done much toward dispelling the fears of any who, at the time of the nomination of Acheson, felt that because of his direction the Department of State would adopt any policy that might be regarded as pro-Russian in the sense of appeasing or trucking to any communistic ideology or line of action derogatory to the interests of the United States or the world in general.

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**Fear, War, and the Bomb, by P. M. S. Blackett (McGraw-Hill: Whittlesey House, \$3.50).**

*Reviewed by*  
Colonel Ramsay D. Potts

**I**N November 1945 a British nuclear physicist, Professor P. M. S. Blackett, published in England a book entitled, *The Military and Political Consequences of Atomic Energy*. This same work has now been published in the United States under a new title, *Fear, War, and the Bomb*. The book has already created a stir in political and military circles and may be expected, now and in the near future, to generate an important public opinion response wherever it is read.

Professor Blackett is ostensibly qualified by experience and background to write on this subject. Regarded in England and America as being among the top-rank nuclear scientists, he has also had experience in analyzing and planning military operations. During World War II he made valuable contributions as an operations analyst to the science of anti-submarine warfare, and since the close of World War II up until early 1948 served as an advisor to the British Atomic Energy Commission.

Carefully and shrewdly, the book compounds a thesis so astounding and so at variance with the accepted interpretations of events and policies that it merits a most objective and critical appraisal. In essence, the main propositions of Blackett's thesis may be listed under four categories:

(1) There was no military necessity which impelled the United States to drop the two atomic bombs on Japan. Therefore, the bombs were dropped as the first move in the cold war against Soviet Russia. The Soviet so regards the drops.

(2) The efficacy of the bomb as a weapon has been over-rated, and the idea of the bomb as an "absolute weapon" has been deliberately fostered in order to terrorize Russia.

(3) The Baruch Plan was the second move in the cold war against Russia. Since the destruction of the U. S. stockpile was the last stage in the Plan, Russia, if she accepted, would in the interim period be open to inspection by international inspectors, who would provide the United States with the strategic intelligence necessary to an annihilation of the Soviet economy. The feature of the Baruch Plan which provided for international ownership of atomic energy plants and for the

location of these plants on a *strategic* basis rather than on an *economic need* basis was designed to perpetuate the Soviet inferiority in industrial power relative to the United States, a design which Blackett sees as contrived and fostered by U. S. utility magnates. Since the Baruch Plan also provided for the abolition of the veto in the Security Council with regard to atomic energy agreements, and since the United States could count on controlling two-thirds of the votes of the Security Council, Russia would thus lay herself open to a "legalized" atomic war sponsored by the United Nations.

(4) Since the atomic bomb by itself cannot be decisive in a war between the United States and Russia, it follows that a full-scale campaign of all arms and weapons would be necessary. As regards the United Kingdom, however, the bomb and/or V-weapons could make the island untenable. The only proper policy for Britain, therefore, is to arm and stay neutral.

From these premises Blackett deduces that every U. S. action and proposal with regard to atomic energy has been aimed at reducing the Soviet power and position in the world. The Machiavellian nature of this proposition has already provoked official responses from the British Government. The first came on 1 November 1948 in the form of a radio broadcast by Sir John Anderson, head of the British Atomic Energy Commission. Sir John capped his appraisal with this reproof: "I think what I may call an emotional bias toward Communism has warped his judgment and led him to rely on arguments characterized by a number of conspicuous omissions and by many positive statements of an extremely partisan nature." A short time later the British Government again expressed its official disapproval of Blackett's conclusions by refuting his thesis on the floor of the United Nations and by circulating among the United Nations membership an official disclaimer.

Thus the book has assumed major importance as a doctrine of political and military action. It has provided the Russians with many plausible arguments which they have not hitherto advanced as reasons for their refusal to agree to the Baruch Plan. It provides "scientific" opinion to support the advocates of a "balanced" military force conducting war in the conventional manner by full-scale land campaign. It expounds lucidly several reasons why Western Europe, and especially Great Britain, should remain neutral if war erupts between

the United States and Soviet Russia. And finally, wherever it is believed, it will indict the United States as primarily responsible for the cold war now in progress. That Blackett has not presented all the evidence, and that his principal propositions are mostly erroneous can be readily demonstrated.

The major premise of this syllogism built up so carefully by Professor Blackett is his first proposition, that the United States dropped the two atomic bombs on Japan as the first move in the diplomatic "cold war" against Russia. If this premise is shown to be false the entire theory collapses and assumes a new and different aspect. Blackett's reasoning on the point goes as follows: Japan was militarily defeated by 1 July 1945 and could be expected to surrender anyway by 1 November 1945 without invasion, under the continuing pressure of air attack and the Russian land campaign in Manchuria; American officials knew this but, viewing with dismay the planned Russian entry into the war scheduled for 8 August 1945, decided to drop the atomic bombs so that Russia could be excluded from sharing in the surrender of Japan; thus the bombs were hurriedly dropped on 6 and 9 August 1945, whereas a demonstration in an uninhabited area would have served the same military but not the same diplomatic purpose.

The chief flaw in this reasoning is that it fails to take into account the fact that there was a war going on at the time the decision was made to drop the bombs on Japan. This decision was taken against the backdrop of casualties already suffered and being suffered at the time, and after continuing insistence that Russia come into the war against Japan. It was estimated that Japan planned to launch 10,000 *Kamikaze* planes against our invasion transports off the home islands. Planes and crews were being lost daily, and in other theaters Japanese resistance continued to be fierce and unyielding. Thus there was justifiable reason to support the Armed Services' belief that Japan would fanatically resist to the bitter end, and that an invasion would cost the U. S. 500,000 to 2,000,000 casualties, which were the estimates given to Secretary of War Stimson. The fact that the Supreme War Council of Japan voted three to three on the question of whether to continue the war after the two atomic bombs had been dropped, and after Russia had invaded Manchuria, forcibly evidences that the estimates of Japanese fanaticism were grounded in fact. All of the published evidence indicates clearly that top level military

opinion was unanimous in believing that Japan would not surrender sans atomic bomb prior to an invasion, even though the United States Strategic Bombing Survey proposed the contrary view in July of 1945. The Survey's view was overruled, and even in the light of hindsight we cannot say that Japan would have surrendered prior to invasion without the atomic bombs. That she was crushed beyond reprieve is accepted as true. That we could have obtained the unconditional surrender our policy demanded is questionable.

Proceeding further with his analysis Blackett contends that a demonstration drop in an uninhabited area staged for a Japanese delegation would have had the same dramatic effect as was obtained by dropping the two bombs on Japanese cities. Secretary of War Stimson in his article in *Harper's Magazine* in February 1947 effectively counters this view by pointing out that the U. S. possessed only two atomic bombs at that time, that none had ever been exploded by an air drop, and that such a demonstration if it failed would have had the reverse of the effect desired. Throughout his analysis Blackett glosses over the many evidences of a friendly attitude toward Russia which existed in the U. S. both in and out of the government in August of 1945. These evidences are extremely important since they indicate that the end and aim of the atomic bomb drops must have been those stated by President Truman and Secretary Stimson, i. e., to end the war in the shortest possible time with the smallest possible loss of American life. The Potsdam declarations and agreements, the self-imposed withdrawal of U. S. military forces from Czechoslovakia, and the efforts to conciliate the Chinese Nationalists and the Chinese Communists all support the deduction that our announced policy at the time was in fact our true policy.

A brief comment on the other main propositions seems now in order. With regard to the nature of the atomic bomb as a weapon, Blackett's mathematical and mechanical analysis of the damage done by the bombs is essentially correct. He fails, however, to give the proper weight to the present method of delivering the bomb to its target and to the demoralizing shock effect of such an attack when compressed in time. Blackett falls into this error primarily because he attempts to assess the destructive potential of atomic bombs by using as his index the complete history of strategic bombing in World War II. Accuracy in present-day bombing cannot be



measured by such an "averaging out," nor can the other operational factors be assessed by such a method.

Blackett's case against the Baruch Plan also collapses when it is tested by comparing it with the three reports of the United Nations Atomic Energy Commission. The first two UN reports reveal that the authors of the Baruch Plan were primarily concerned with helping other nations enjoy the fruits of atomic energy development provided there could be effective international control to insure against the diversion of uranium or plutonium to military purposes. The final plan and report of the UN Commission clearly shows that the problems of the veto and sanctions versus violations has been solved. This new plan also withholds from the international control authority any power to interfere with the industry of a country and thus answers Blackett's objection that Russia might be retarded or hindered in her economic progress. It seems evident that Blackett must have published his book before he became familiar with this third report of the UN Atomic Energy Commission.

In spite of the flaws in this book, it is important to read and consider it carefully. It poses the critical questions of our age in a form most favorable to Soviet Russia, and provides for the military student a multitude of propositions which need to be critically analyzed and appraised.



**Iran: Past and Present, by Donald Wilbur (Princeton Univ., \$3).**

*Reviewed by*  
Robert W. Schmidt

**I**RAN, traversed by one of the major crossroads between the East and the West, has had a long and eventful history. There have been periods of glory and periods of degradation, during which Iran either has been the center of government for vast areas to the East and the West, or else has been under the heel of invaders. In a most engaging manner Mr. Wilbur tells how Iran, or Persia, has managed through the ages to absorb its invaders, to borrow from the culture of neighbors and conquerors, and yet to retain a distinct culture of its own.

The author begins with a description of the physical charac-

teristics of the country, including location, geology and topography, drainage, rivers, seas and lakes, deserts, and climate.

This is followed by a survey of the history of Iran from pre-historic times to the present. In broad outlines the author indicates the dynasty of each period, the city or cities that were used as capitals, the territory controlled by the dynasty, and the extent of the control exercised. He also indicates briefly the state of the arts during each of the periods described.

The remainder of the book, slightly more than half, is devoted to modern Iran. Mr. Wilbur appears to consider February 21, 1921, when Reza Khan overthrew the government, as the beginning of modern Iran, and sketches political developments in Iran from that date to the present in somewhat greater detail. He describes the resources of the country; its industry, commerce, and trade; and its transportation, including roads, railways, air service, and navigation. The present structure and machinery of the government of Iran are described in considerable detail.

A final chapter is devoted to a description of the people of Iran. The author discusses the population as a whole, and the various culture strains which have influenced the present population. He indicates some of the difficulties encountered in attempting to integrate the Nomadic Tribes of Iran into a modern economy which depends upon sedentary modes of life. He tells of the villages and village life, of the towns and cities, and of urban life. He describes the social and cultural life of Iran, and concludes with a brief statement regarding the official religion.

A short appendix gives a limited amount of information on the flag, the calendar, the currency, and the weights and measures of Iran. A list of source materials is given, but the book contains no comprehensive bibliography. The index is quite adequate and should be very helpful in checking specific information in the volume.

*Iran: Past and Present* is a sympathetic presentation, based to a great extent upon Iranian sources. It is highly recommended to those who seek an introduction to modern Iran, its culture, and its people, but the volume will be of relatively little use to those who seek detailed information on specific problems. The conflicts of Russian and British imperialism in Iran, for instance, are sketched only in outline form.

## BRIEFER COMMENT



**Documentary Background of World War II**, edited by James W. Gantenbein.

THE international documents in this collection trace world politics from 1931 to 1941. The nearly 450 speeches, treaties, agreements, notes, and diplomatic exchanges background the prewar foreign policies of the United States, Great Britain, France, Japan, Germany, Russia, Poland, and Czechoslovakia, as well as the League of Nations. An appendix contains the U. S. Department of State chronology from 1938 to 1941, as well as other documents. This source book should prove of unusual value as a single comprehensive reference for original materials on the period.

*Columbia Univ.* \$10

**The Proper Study of Mankind**, by Stuart Chase.

IN this book the author considers whether the scientific method can be effectively applied to the social sciences. After defining the scientific method, he presents concrete evidence to illustrate what has been done in the various fields of the social sciences by this method. One of the illustrations is that of the AAF air crew screening program. The author concludes that there is a true science of human relations, but that many gaps in the "storehouse" of social knowledge remain to be filled. By diligent and early application of the social tools and resources now at hand, the world may yet

be saved from the impending disaster inherent in the over-development of natural sciences at the expense of the social.

*Harper* \$3

**Human Knowledge — Its Scope and Limits**, by Bertrand Russell.

IN the words of its distinguished author, "The central purpose of the book is to examine the relation between individual experience and the general body of scientific knowledge." Examined are such fundamental subjects as the meaning of meaning, the tests of credibility, the nature and gradations of probability, the degrees of certainty, and the foundations and range of knowledge itself. The opening sections summarize current knowledge in such fields as astronomy, physics, biology, physiology, psychology, and language. Although written for the general reader, rather than the professional philosopher, the book is difficult; but it deserves the close attention of any serious scholar.

*Simon and Schuster* \$5

**Intelligence is for Commanders**, by Lt. Col. Robert R. Glass & Lt. Col. Phillip B. Davidson.

WRITTEN by two instructors of the Army's Command and General Staff College, this book is an unusually comprehensive study of the principles of military intelligence and their application. Divided into three parts, the first

covers the principles of intelligence with definitions, outlines, and charts to supplement the text. Part two details the duties of the intelligence officer in the field and in garrison, the study of terrain and weather, counterintelligence, training, and operating procedures. Part three deals with the necessary forms for procedure. Although written for Army personnel, the volume will be invaluable to intelligence workers of all branches of the service.

*Military Service* \$3.85

**The Economy of the USSR During World War II, by Nikolai A. Voznesensky.**

RUSSIA'S World War II and postwar economic problems are discussed in this document by the Soviet Deputy Premier. In presenting the official party line he shows how the USSR coped with armament and food production, transportation, prices, and other economic problems during the war. Lengthy comparisons of the economic status at the outbreak of the war with that of pre-revolutionary Russia, and between communism and capitalism, are made. The primary Soviet economic objective is "to reach and overtake economically the main capitalist countries."

*Public Affairs Press* \$3

**The Evolution of American Foreign Policy, by Dexter Perkins.**

PROFESSOR Perkins here outlines the growth of American foreign policy from the beginning of the federal government to the Truman Doctrine. Illustrated are

the changes in national policy made necessary by our rise from a small group of states, through the period of development and acquisition of territory, to the present wherein the U. S. A. stands complete, desiring no further lands. Yet by the country's very size and might it is forced to take its place of destiny in a troubled world. This book is excellent background reading for the student of American history and those concerned with international relations. It is another in Oxford's Home University Library series.

*Oxford Univ.* \$2

**World Political Geography, by G. E. Percy, R. H. Fifield & Associates.**

A GREAT need in the geopolitical field is now filled by this exhaustive, scholarly volume. It surveys the entire world and evaluates each of its segments separately and relatively in an approach suited to this global age. Specific regions are covered under the broad areas of Europe, Asia, Africa and Australia, and Latin America. Discussion of the content falls within four major fields of interest—geography, history, international relations, and political science. Thirty-four authors are contributors, most of whom are specialists on the subject of their writing. The 39 chapters contain 139 maps, charts, and graphs, plus an unusually complete 28 page bibliography. The last two chapters are "Grand Strategy in World War II," and "Geography in Future World Politics," the latter pointed directly at the future. This is likely to

become the basic American text on geopolitics.

*Crowell* \$6.50

**Three Thousand Years of Espionage, edited by Kurt Singer.**

REFERRED to as "an anthology of the world's greatest spy stories," this book contains thirty-eight accounts of espionage combed from earliest times to the present. Such classics as the *Bible*, the histories of Herodotus, and the diaries of Pepys, furnish selections. Among the personalities represented are: Russia's Laurenti Beria, Germany's Admiral Canaris, Japan's Kenji Doihara, Trebitsch-Lincoln, Franz von Rintelen, Benedict Arnold, and, of course, Mata Hari. Revealed are the spy techniques of Alexander the Great, Hitler and Stalin, Genghis Khan, Frederick of Prussia and Napoleon. The final chapter is titled, "Soviet Blueprint for Global Espionage."

*Prentice-Hall* \$3

**European Ideologies, edited by Feliks Gross.**

THOSE social, economic, and political ideas of Europe which have so greatly determined the course of world history are surveyed in this volume. The book is not designed for the elementary student of European social thought, but rather as a synthesis for those who are interested in, and familiar with, the rudimentary principles. Thus, considerable space is devoted to many of the lesser known ideologies; such as, European Pacifism, Agrarianism, Peasant Movements, Russian Libertarian Movements, Falangism His-

panidad, Pan Slavism, Pangermanism, and Paneuropeanism. Among the 24 distinguished contributors are G. A. Borgese, Horace Kallen, T. V. Kalijarvi, and Joseph Roucek. This is a valuable collection of 20th century political ideas.

*Philosophical Library* \$12

**1000 Destroyed, by Grover C. Hall, Jr.**

THIS is a unit history of the Eighth Air Force's 4th Fighter Group, which destroyed a record total of more than 1000 German aircraft during the European war. The numerous detailed accounts of the aerial exploits of highly publicized aces in the skies over Germany are sketched with considerable clarity, and close views of group members' activities at their Debden, England, base are included. Many excellent photographs help the reader feel personally acquainted with the pilots of this superior fighting team, and make this one of the best Air Force unit histories.

*Brown Printing Co.,  
Montgomery, Ala.* \$6

**Profile of Europe, by Sam Welles.**

IN this book a journalist reports on the political, economic, and social conditions of the Europe of today, with particular emphasis on Russia and her satellites. Calling America and Russia "two magnets," the author shows how the rest of Europe is being tugged and shaped by the powerful forces of communism and capitalism. This is primarily a factual account of Europe, containing the basic information needed to better understand what is happening

there today—and what may happen tomorrow.

*Harper* \$3.50

**The United States in the Second World War, by Marc Harris.**

THIS is a short summary of America's part in World War II, its prelude and its aftermath. Beginning with the rise of Fascism and Naziism, the policy of appeasement is traced to its cut-break in war. Then how the war was fought, and what America's diplomatic and military contributions were, is covered. The book ends with a description of the war's affect on America's social institutions and a synopsis of the problems of peace.

*Barnes & Noble* \$1.50

**The European Recovery Program, by Seymour Harris.**

THIS is a candid and intensive study of the European Recovery Program. Realizing that "Self-interest, rather than charity, inspired the ERP," Mr. Harris analyzes the numerous economic and political aspects of the legislation as they affect both this country and the receiving nations. He is concerned regarding the program's influence on our economy and believes strong precautions must be taken if it is not to add to the inflationary pressures already present. He discusses dollar shortages, exchange rates, financial costs, and other vital parts of the plan in an attempt to gauge its chances of success. Despite its inflationary tendencies, its promotion of vested business and agricultural interests, and other weaknesses, he believes ERP

a "prudent risk" and a necessary one.

*Harvard Univ.* \$4.50

**The Medal of Honor, by Dept. of the Army.**

IN 1862 Lincoln approved legislation creating the Medal of Honor, an award to be presented to soldiers who "shall most distinguish themselves by their gallantry in action, and other soldier-like qualities." Subsequent amendments have made it an honor attainable only by those performing deeds of "personal bravery or self-sacrifice, above and beyond the call of duty..." This volume is a history of this medal. It includes a list, by campaigns and wars, of all persons who have received the award, photographs of all World War II winners and accounts of their exploits, and considerable data covering the evolution of this highest honor. Of the more than 2000 Medals of Honor awarded since 1862, 95 went to World War I soldiers and 292 to those of World War II.

*Government Printing Office* \$4.50

**Home From The Cold Wars, by Leslie Roberts.**

MANY writers reviewing today's European scene saddle the Soviet Union with the major portion of the blame for the impasse between the East and West. Not so Mr. Roberts who believes that both great powers are guilty. Conditions behind the iron curtain are described as not being nearly as chaotic as we are often led to believe; Czechoslovakia is not a police state but rather one where people can pursue a happy life

with considerable freedom; England and the Benelux countries, while not likely to embrace communism, are extremely wary of American aims and methods. Americans and Europeans, he insists, are grossly misinformed about each other, and such a situation will continue to breed ill feeling as long as it exists.

*Beacon Press* \$2.50

**Comparative Economic Systems,**  
by Wm. N. Loucks & J. Weldon  
Hoot.

FIRST published in 1938, this volume has now been revised to include the important economic developments of the last decade. The economic systems compared are—capitalism, socialism, communism, fascism, and cooperation. The analysis shows "that the tide of collectivism has been flowing strongly since the war." The United States is the leader in an attempt to stop or reverse world trends toward collectivism, through the European Recovery Plan and other methods. The economy of the Soviet Union, as the leading exponent of the collectivist opposition, is carefully examined. Socialist Britain under the Labour Government provides a laboratory for the middle approach.

*Harper* \$5

**The Political Tradition of The West,** by Frederick Watkins.

THIS is a history of modern liberalism from its origins to the present. Liberalism, based on freedom under law and the subordination of government officials to public opinion, is the embodi-

ment of the political tradition of the West. Today this tradition stands challenged by totalitarianism, and supporters of constitutional government must acquaint themselves with the strengths and weaknesses of their inherited system of thought if it is to survive. Using the main theorists of history as focal points, the author discusses and examines the various experiments, successes, failures, and enemies of liberal thought, and ends with a survey of the problems to be faced.

*Harvard Univ.* \$5

**The Road to Reason,** by Lecomte  
du Noüy.

THE concept that science and religion are incompatible is rejected by Dr. du Noüy. His thesis is that present scientific learning is meaningless unless we are willing to first postulate a Supreme Being. While some of the chapters examine the interrelationship of the physical and biological sciences in an effort to portray both the pitfalls and benefits of modern scientific thought, the author is primarily interested in the proper juxtaposition of science and God. We can, he believes, "find a middle road...on which both science and religion [can] work together for the creation of a spiritually and physically perfect man."

*Longmans* \$3.50

**A Survey of American Government,** by Harold Zink.

BY abridging his previous work, *Government and Politics in the United States*, and adding new material, Professor Zink has cre-

ated this basic government text. In order to include all the topics on national, state, and local levels in one volume, descriptions of some functions of governmental machinery have been abbreviated, but no subject of any importance has been omitted. This is a well-organized and impartial study.

*Macmillan* \$4.75

**The New Book of Flight, edited by C. H. Gibbs-Smith.**

THIS contribution to the literature of flight presents a survey of aviation as it exists today and is likely to develop in the future, with particular emphasis on British achievements. Experts have contributed articles on the rocket, jet propulsion, radar, helicopters, flight refuelling, etc. Within the supplement is an up-to-date survey of the world's aircraft, admirably illustrated, as is the entire volume.

*Oxford Univ.* \$5

**The War We Lost, by Constantin Fotitch.**

THE former Yugoslav Ambassador to the United States presents a lucid and dramatic picture of the chaotic state into which that Balkan country was plunged during and following World War II. After a popular revolution against the government's submission to the Axis powers and the subsequent occupation by the German Army, the country was further ravished by the conflict between the two dominant nationalist groups — the Serbs and Croats — and the tragic fighting between the rival underground forces of Mihailovich and Tito. Mihailo-

vich's execution in 1946, according to the author, symbolized the ultimate in Communist treachery and Allied appeasement.

*Viking* \$3.50

**The Bismarck Episode, by Captain Russell Grenfell, R. N.**

IN May 1941 a large British naval force consisting of battleships, cruisers, destroyers, and an aircraft carrier tracked down the German battleship *Bismarck* and sent her to the bottom of the North Atlantic. But it took the attackers six days and 3000 miles to catch her and cost the Royal Navy a battleship and a destroyer. The story of this spectacular operation is ably presented by Captain Grenfell.

*Faber and Faber, London* 12/6

**The Passing of the European Age, by Eric Fischer.**

WORLD WAR II ended the dominant position of Europe in world affairs. Now "two essentially non-European powers," the USA and the USSR, "have become politically preponderant." But the shift of power is only the spectacular result of long-term processes. Western civilization spread from Europe to other lands, which increased in strength until they at last succeeded to leadership. These new centers of power are discussed as Latin America, the British Commonwealth, Anglo-Saxon America, and Russian Asia. The final chapter draws the challenging parallel, "From Greece to the Hellenistic World: From Europe to . . . ?"

*Harvard Univ.* \$3.50



**No Place to Hide, by David Bradley.**

AS a civilian specialist with the Bikini operation, Dr. Bradley studied the radioactive effects of the tests and his day-to-day reports as presented here are startling. His crackling Geiger counter revealed that the water in the lagoon, the fish that swam in it, the sand at its bottom, and every ship floating were, following the underwater explosion, contaminated with deadly radiation. This persistent power of the bomb long after its detonation is significant in its implications. All persons with a propensity toward under-rating or ignoring atomic weapons should read this book.

*Atlantic—Little, Brown* \$2

**The World Community, edited by Quincy Wright.**

IN late March 1947, a group of scientists and scholars gathered at Highland Park, Illinois, under the auspices of the University of Chicago to consider some of the problems of a world society. Monographs dealing with national cultures, world economic conditions, international communications, institutions, and loyalty patterns had been prepared in advance, and these essays formed, each in turn, the basis for a discussion meeting. This volume is a compilation of these prepared papers and the resulting discussions. Although the prepared papers are instructive, the chief value of the book lies in the thought stimulated by the sparkling brilliance of the discussions. The problem of achieving an integrated world society is not solved, but we do gain an insight into

the techniques and institutions that may some day enable us to achieve a system of interrelated diversities, which may in turn be the basis for a world government based on the consent of all participants.

*Univ. of Chicago* \$5

**Changing China, by Harrison Forman.**

ILLUSTRATED with 250 photographs taken by the author, this is a survey of China's past and present. The 29 chapters cover such varied segments of Chinese life as the history of the country, descriptions of the important geographical regions and cities, social patterns of culture, transportation, communications, the press, food, industrialization, and aviation. The account is elementary, and not documented, but does represent a comprehensive coverage. No discussion of the current civil war is included.

*Crown* \$4

**Last Chance, edited by Clara Urquhart.**

A NUMBER of the world's leading philosophers, writers, and scientists set forth in this book their solutions to eleven of today's most pressing problems. John Dos Passos, Trygve Lie, Lin Yutang, Archibald MacLeish, Max Picard, Bertrand Russell, and others grapple with such enigmas as the following: Can the United States and Russia live peacefully in the same world? How can we eliminate poverty and suffering in the world? How can we solve the problem of overpopulation? The experts vary widely in their answers.

*Beacon Press* \$2.50

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