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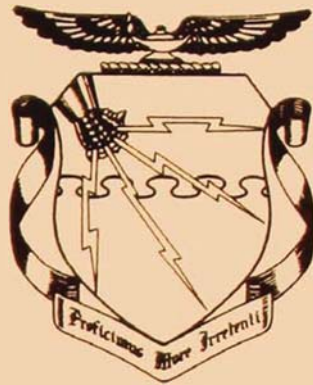
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Ideas are Weapons

COLONEL DAVID A. BURCHINAL

THE most powerful weapons of war, both in its preparatory phase and in its phase of execution, are found in the minds of men. We call these weapons ideas. The outstanding contribution that a military institution such as the Air War College can make is to engender in its students the ability to think soundly, logically, and analytically and to generate ideas.

Sound ideas stem from the process of thinking and provide the means for the solution of problems which are novel, solutions which are not found in the field of experience. Ideas resulting from logical, analytical reasoning are the only acceptable avenues for approaching and treating with the novel problem. Today our military forces are faced with an overriding requirement—the requirement to find solutions to problems hidden in the future and not yet found within the field of experience. Stated another way, sound ideas leading to effective problem solution are the number-one requirement of the military forces today.

In this article I would like to treat with some past military failures and the thinking processes which inspired them, with lessons which have been derived from these failures by present-day thinking, and with some of the more provocative ideas which have been advanced as a result of these lessons. The factors involved in an analytical treatment of World War II are multiple, complex, and in some instances controversial. Military considerations are so intermingled with political factors that a clear relationship of cause and effect cannot be established without extensive examination and analysis. Since such treatment would be well beyond the scope of this article,

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I will endeavor to treat primarily with the military factors involved and with military thinking that resulted in certain important courses of action.

A prime factor in the military defeat of both Germany and Japan can be traced to faulty thinking—thinking which permitted us decisive advantage. Germany in particular furnished many examples.

In her preparation for World War II Germany had no impediment in the form of obsolete structure of doctrine to serve as a deterrent to sound, modern strategy. She enjoyed all the benefits of the initiative, a very vital advantage in the conduct of war. She could conceive her strategy and proceed at once to its implementation without the need for shedding obsolescent equipment. This in substance she did, but the shadow of the German General Staff was evident in her strategy of surface conquest—invasion and capture by land; blockade, isolation, and strangulation by sea. In support of this traditional strategy she produced a short-range, tactical air army, erroneously thought of as an air force, to support blitzkrieg techniques. The blitzkrieg was not new; it merely exploited speed and mobility, which are time honored fundamentals of war. Germany believed that the success of her surface strategy would result in a successful war.

But Germany did not visualize England as a geographical component of Europe proper. She therefore felt that if she moved the British forces back to the British Isles and kept them there, she had removed the second front. She did not foresee the very active primary front—that in the air—which soon developed from the British Isles.

In support of that part of her basic strategy which called for isolation, blockade, and strangulation of the British Isles, Germany enjoyed the same advantages of initiative and modern equipment. Once again faulty thinking reduced the effectiveness of her military course of action. Even though she was the prime proponent of the submarine, Germany built and committed only fifty-three submarines at the outbreak of war. This inadequate number—actually only two months of her production in 1943—ensured that the objectives of isolation, blockade, and strangulation would not be achieved, because the force committed lacked the physical capacity to achieve those results. It further ensured that her belated efforts at increased production would fail, because she had provided the Allies with

the time necessary to develop successful counter-measures. In 1943, by the time she had realized significant production, Germany built two hundred and eighty-eight submarines. In the same year the Allies sank two hundred and five and lost less merchant shipping tonnage than in 1942.

In the commission of these fundamental errors in thinking Germany proceeded to add error to error. She moved to Dunkirk, where the British were committing the remnants of their Fighter Command to the establishment of a cap over the beaches. Because of the limited range of their aircraft the British fighters were forced to spend most of their time enroute to and from the Dunkirk beaches. Actually less than fifteen per cent of the British Fighter Command was concentrated at any one time in the air over the beaches. The German had only to apply the principles of war to air action, and the less than five hundred British fighters could have been knocked out of the air in two days. Germany could have put overwhelming numbers against this stationary cap and destroyed it as it was committed. Immediate exploitation of her air supremacy could have ensured that there would never be an aerial battle for Britain.

Throughout the war the German Air Force never had a thinking commander. Germany had great commanders on the ground and at sea; in Rommel they possessed one of the foremost military leaders of all times. But to our good fortune Goering commanded the Luftwaffe. We exploited his bungling and in so doing gained our decisive air victory much more easily than might otherwise have been possible. Let me cite one from many such errors in thinking, because this one had impact on the entire European war. On December 27, 1943, Goering issued a fateful order. By this time we had become quite well acquainted with Goering and his staff. We were intensifying our air offensive in preparation for the invasion of Normandy. Goering's evaluation of our air weapons and capabilities ran something like this: The main threat to Germany was the Allied daylight bomber; German fighter pilots should therefore avoid our fighters and concentrate on the bombers. This decision gave us a free hand in employing our fighter forces against his. We estimated that if he would insist on carrying out this order for six weeks, our losses would not be heavy in terms of total war, but at the end of this time he would have no fighter force.

Our target in the German Air Force was the pilot, because he represented the quality factor in that fighter force. After six weeks the quality factor disappeared from the fighter cockpit, and the air war was over. Numerical replacements were readily available, but the quality was gone. Numbers alone are no substitute for pilot skill. In his failure to sense the way of air war, to apply the principles of war, to think through his military problem, Goering permitted his force to be destroyed.

The results of this air victory were far-reaching. Instead of sending in fighter groups thirty-six and forty-eight strong we broke them down into units of eight and four. Instead of massing our bombers against three or four targets we could now attack multiple targets with smaller units. The collapse of the German Air Force multiplied our capabilities immediately. The European Strategic Bombing Survey concluded that as a result of air attack Germany was mortally wounded by the beginning of 1945 and that she would have had to cease any effective fighting within a matter of months. They might have added that the task was made incalculably easier by faulty military thinking on the part of the German commanders.

THE conduct of the Pacific war by Japan likewise offers many cases in proof of the statement that sound thinking and logical, reasonable ideas are a military necessity, though the evidence in this instance is of a negative character.

With the attack at Pearl Harbor the initiative in the Pacific war and its advantages passed to the Japanese. Apparently they had no strategist on their staffs who could sense the importance of geography and its vital relationship to their war objectives. They failed to realize the strategic location of the Hawaiian Islands, for Japan could have taken them readily and quickly. We could not defend them. The loss of this key stepping-stone would have had a far-reaching effect on our ability to maintain the long lines of communications across the Pacific and would have proved most difficult and expensive to surmount.

Having been provided the Hawaiian Islands as a staging and supply base, we were able to develop smaller islands along the vital route to Australia and in fact establish the sea lanes of supply and reinforcement necessary to our forces in the Southwest Pacific-Australia area and in the South Pacific-Solomons

area. Failure to think the problem through had compounded the military difficulties which immediately beset Japan. By providing us with ready access to our forces, Japan thus ensured that the war in the Pacific would be prolonged until we could outproduce her and overwhelm her with the weight of our attack.

To be sure, other errors in thinking and evaluation along the way hastened our victory in the Pacific. The carrier air duels at Coral Sea and Midway bruised us, but Japan lost the initiative in the Pacific war. Two months later we invaded Guadalcanal. Being unable to replace her carrier losses as readily as we could, Japan committed her total Naval air arm to land-based outpost operation in the Solomons-New Guinea area. Piecemeal, outpost commitment gave us numerical advantage and permitted destruction of those air forces as they were committed. As the expansion of our mobilization base became effective at the fighting front, our significant superiority over the Japanese emerged. By November of 1943 the Japanese Naval Air Force approximated one-third of its status at the time of Pearl Harbor.

But the Japanese Imperial Staff had traveled so far down the path of trying to hold her outpost bases that Japan sacrificed an even greater capability. Specifically she committed and deployed her Army air units to New Guinea in the same piecemeal fashion and saw them quickly and easily destroyed. By April 1944, after heavy losses at Wewak and Hollandia, her Army Air Force was reduced to less than ten per cent of its 7 December 1941 capability. The Strategic Bombing Survey in the Pacific was moved to state: "By the end of 1943 we had achieved through combat and the augmentation of our forces, such clear-cut superiority over the Japanese in all elements of Air Power that eventual victory was assured."

Perhaps I have belabored this point; perhaps we do not need such reminders that wars can be won—and lost—in the minds of men. But if we can thus isolate some of the flaws in past military thinking, then it follows that there are lessons that may be derived from the resulting military action. We can profitably use these lessons as an experience base from which sound ideas may be generated, ideas which should assist in solving the novel military problem. Let us look at some of these lessons.

THE military strategy of the last war, both Axis and Allied, was founded on a basic recognition that decisive results in war would occur as a result of land or sea action. From two land forces locked in combat stemmed the basic strategy involving "capture." That land force which achieved decisive supremacy over the other could, through surface maneuvering, exploit its supremacy by physical occupation of its opponent's vitals. On the seas this decisive action involved the defeat of one sea force by the other. Exploitation of sea victory permitted a basic strategy of blockade, isolation, and strangulation when the enemy nation depended for its life on seaborne commerce.

The actual course of the war did not follow the strategic plans as originally conceived but emerged as a compromise course because of the impact of a new military truth—that the decisive categories of war had been increased from a historic two to a revolutionary three. Specifically air power became a decisive category in that war.

In terms of basic strategy and tactical application air power, like land and sea power, has its own peculiar characteristics. It is, unlike the land force, poorly suited to capture. It is ideally suited to disarming and immobilizing the opposition. Like the sea force it can blockade, isolate, and strangle, but its objectives may include both enemy surface forces and the economic life of the enemy nation. No surface barriers exist which can keep it from its target.

To complement the concept that air power can be decisive through operations in its own medium, another startling fact became clear. In achieving its decisive stature, air power had changed the nature of land and sea warfare. No longer could land or sea forces choose their time and place for engaging enemy forces in independent action. The vulnerability of surface structures and the relatively slow rate of movement of surface forces made them profitable targets for air attack. It soon became apparent that control of the air was essential to the success of any surface engagement. Referring to the cross-channel invasion, General Eisenhower stated that the air achievement was so complete that all other surface operations could be conducted in complete security.

Further examination into and analysis of the sequence of

military events reveals another lesson of singular importance, closely related to control of the air. Decisive air action precedes decisive action between surface forces. In the Pacific war decisive air action simultaneously comprised decisive naval action, for with the loss of her carriers and carrier air groups Japan lost any vestige of sea supremacy she might have once claimed. This lesson is dramatically recognized by our own Navy in its pronouncement that "Sea Power is Air Power."

Another lesson convincingly demonstrated involves aerial defense. Our Air Force, once launched against a target, went to the target. It was never stopped. In terms of prepared attack the same held true for the Germans. They elected to stop, following heavy losses over London, but no operation launched against that city failed to reach it and bomb it. The significant feature is that air power does not have the capability, in terms of reasonable commitments, to provide air barriers or caps in defense of surface structures. The air weapon, by virtue of its flexibility, range, and speed, possesses capacity to penetrate any known type of defense.

There are many other areas in which we may profit from the mistakes of our enemies. When Germany and Japan began to lose aircraft in combat at a more rapid rate than they had anticipated, they stepped up production to such an extent that during the course of the war, even after the decisive air battles were lost, they had an ever increasing number of combat aircraft. They attempted to replace their air losses with numerical quantities. What they had failed to see and provide for was that replacement demanded quality in the cockpit, not mere numbers. In November 1944 Germany had her largest numerical order of battle, but she was incapable of effective air operation. Coincidentally Japan likewise reached a peak in numbers of combat aircraft, but the early-war pilot-experience of nearly seven hundred hours had been whittled down to about two hundred hours. When her planes came into the air, they came as clay pigeons, and were shot down at an average ratio of between thirty and forty to one. German quality was reduced to forty-five hours of flying experience. Without firing a shot, these pilots could be forced to bank, spin, and crash. We were numerically minded too, but our enemies outdid us to such an extent that we enjoyed at least a three-to-one training advantage over them during the later years of the war. It was

convincingly clear that the key to combat capability was found not in numbers but in quality.

THESE are but a few of the many lessons emerging from World War II, lessons which our present-day thinking has screened out. They and many others are being analytically examined and evaluated with the view to developing from them sound ideas which may assist in solving future military problems. Let me illustrate this point with some current ideas which appear to be soundly conceived and which derive from the lessons just discussed.

Lesson One.—Air power emerged during World War II as the decisive force in modern war. Air action passes through its decisive phase chronologically before either land or sea action. If air action fails, there is no chance for successful surface action. If air action is successful, surface action is likely to be successful.

Some of the ideas which these conclusions generate may be posed as questions: Can we afford to build three separate forces for future war, each designed to be decisive in its own sphere, or can we now by sound evaluation and projection discern a single decisive force which should be developed to the point where it possesses an overwhelming potential for decisive action? Which course offers the greatest security per dollar spent? Can we afford an all-purpose military machine, or in this day of rapid technological advance is it possible to channel our energies and resources into those fields which appear most promising in terms of security?

Lesson Two.—No prepared air attack launched in effective force was ever stopped short of its target. No air defense or cap was ever successful in protecting surface structures from such an attack.

This lesson seems to support the idea that to build an adequate aerial barrier around the United States or any one of its important areas would be prohibitively costly and carry no assurance of success. Another idea likewise emerges from this lesson. In the past, commanders of air force elected to discontinue attacks in the face of heavy losses, because the losses were not commensurate with the damage inflicted by conventional munitions. In the future the damage which may be in-

flicted by atomic or other weapons of mass destruction should far outweigh the losses to the attacking force even if those losses approach one hundred per cent. Future defense and future security would seem to stem from the basic premise that successful air defense must be capable of destroying an attacking force or an aggression potential before the attack can be launched or the potential realized. This premise injects a new element into the old doctrine of defense in depth. That doctrine involved defense in terms of space. The new doctrine should include defense in terms of both space and time. Geography alone no longer provides the necessary depth to a defense. Natural barriers are still effective against surface invasion; they are screens to air attack. Atomic weapons coupled with range, speed, and power to penetrate defenses enjoyed by modern aircraft present a problem that is terrifying to contemplate. It has created a feeling of insecurity unique in America. I do not intend to infer that our only security lies in precipitating war. I do intend to state as emphatically as possible that time has become a prime factor in any preparations for our security.

We are the greatest insurance-minded nation in the world. Insurance is simply preparing for a future contingency in time. Yet we seem neglectful of our national insurance. In two previous wars we have not had insurance and we have built the forces for war after war has begun. In the future, time may not permit us this luxury. A billion dollars properly expended as late as 1936 might well have prevented the last war. That would have been cheap insurance indeed. If our insurance for the next war encourages the start of that war through its inadequacy, the cost may far exceed our ability to pay.

Lesson Three.—Quality is the paramount consideration in developing combat capabilities. Numerical superiority is meaningless without quality. This factor applies equally to both personnel and equipment. The quality of our modern weapons must include superiority of the complete weapon—both man and machine—over any that an enemy can pit against us.

If this lesson is fully explored, we are confronted with the idea that there are certain fundamental relationships to be reckoned with. First is the necessity for human research—that is research into the human part of our weapons, research that relates the man to his mechanical equipment. This research

will encompass training methods, techniques, and procedures, standards for selection and classification, new ways and means for the efficient utilization of inherent and acquired capabilities, and queries into physiological and psychological factors. Human research may be invaluable in assuring that we do not compromise the quality factor of our manpower. But such superiority will not be achieved through short-range planning and mobilization. It is another form of insurance, and time plays an important role. The probable rapidity of a future attack means that our human quality factor is a pre-D-day requirement.

Concurrently with human research quality of the complete weapon demands an effective, interacting relationship between the designer of war plans and the designer of weapons. There have been times in history as recent as World War II when technological progress in weapons has outstripped the plans for utilization of these weapons. The technologist must receive strategic guidance in his efforts to shape and form our weapons, and the strategist must reflect technological capability in his plans. This is the way that complete weapons are produced; here are the leads to the development of combat capability.

When, if ever, has the necessity for clear thinking, sound analysis, and logical prediction been so urgent? If the mistakes of the past can be seen and understood, if lessons from the past can be delineated clearly, then perhaps sound ideas from the minds of thinking men can strip some shadow from our future problems.

Air War College

No longer can the airman be distinguished by his speech. The kids who fly model planes today can often listen intelligently to the remarks of an aeronautical engineer, and if there are any expressions of traditional airmen's slang that have not already been incorporated into American speech, I cannot recall them. All this is in strange contrast to the still-persisting quaintness of seamen's talk, or horsemen's talk, or of the talk of other special occupations which has never been adopted beyond the occupations themselves. I know of no better evidence that the increasing use of that great navigable ocean that touches every man's door has already penetrated into every man's thought and every man's daily talk.

—General Muir S. Fairchild
Vice Chief of Staff, U. S. Air Force
Speech, 3 June 1949

Industrial Vulnerability in the Atomic Age

LIEUTENANT COLONEL GEORGE R. CHARLTON

INDUSTRIAL vulnerability to atomic attack is a major problem confronting the United States today. In the course of our history there have been several occasions when our industrial capacity has turned the tide of war. Our potential enemies are well aware of our capabilities. Other nations surpass us in manpower and certain strategic raw materials but none in industrial capacity. And World War II made it obvious to the world that the basis of military operations in modern war is industry.

The advent of atomic warfare considerably changes previous concepts of defense. It may be true today that possible enemies do not possess the atomic bomb or other types of atomic weapons, but the scientists who perfected our weapon are almost unanimous in believing that other nations will be capable of producing a bomb within the next few years. The Secretary of the Air Force, Mr. Stuart W. Symington, has stated in his latest annual report (1948) to the Secretary of Defense: "The considered conclusion is that as of the end of 1952 we can no longer count upon a monopoly of atomic weapons." We may conclude, then, that we have in the neighborhood of ten years before any sizeable atomic attack can be mounted against us.

The problem of industrial vulnerability to atomic attack is a weighty and complex one. Upon its early solution may well rest our survival in any future war. The means of reducing vulnerability will require individual, collective, tactical, and strategic considerations. Our Government, in conjunction with

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private industry, must soon formulate a definite plan of action.

The World War II concept that exactment of a fifteen per cent loss to raiding aircraft was an effective defense no longer applies. Today if only ten per cent of a sizeable atomic attacking force penetrates our boundaries we may be defeated. The best defenses this nation can provide could not prevent a determined and capable enemy from penetrating our defenses in a surprise attack with atomic-laden aircraft. No defense can be considered impregnable. Our best hope lies in making targets in this country less attractive to an adversary. Our targets must be made less vulnerable.

There are various methods of reducing the vulnerability of our industries, the most practicable and feasible of which are dispersing industry, building underground plants, and increasing the structural strength of present factories. However, suddenly to attempt execution of a program embodying these factors would cause a serious economic and social upheaval. Such a program must of necessity be accomplished gradually as the public becomes convinced of its necessity. In addition to the passive measures listed above, our Government must therefore embark upon an active and realistic public information program designed to publicize the danger of complacency to our national security. Only when the public is fully aware of the necessity of far-reaching measures will our Government gain the essential support in accomplishing the desired results.

THE preponderance of United States industry and population is concentrated in our large cities and associated urban areas. One sixth of our population and one half of our industries are presently situated in the sixteen American cities claiming a half million or more inhabitants each.

Greater New York, with a population in excess of 11,500,000, is a major industrial center for machine tools, electrical equipment, optical instruments, and a multitude of other industrial products vital to a war effort. Major oil industries are located in Texas, Oklahoma, and Missouri, grouped in such cities as Houston, Tulsa, and St. Louis. The hub of the motor transport industry is in Detroit. With a population of over 3,390,000, Chicago is a major center for oil refining and steel processing, a key food-processing and industrial city, and a bottleneck in our rail and inland water system. Major steel and coal industries

are grouped mainly in Ohio, Pennsylvania, Indiana, Kentucky, and West Virginia and are generally located in or adjacent to large cities containing numerous complementary industries. These steel, coal, and coke complexes are highly vulnerable to atomic bombing.

Originally the country's major aircraft industries were located principally in the northeastern section of the United States. This was a logical site, as the area provided capital, management, complementary industries, and the skilled labor essential to the production of aircraft. Gradually, under the impact of wage scales and climate, many aircraft companies moved to the West Coast, where more favorable weather offered savings in construction and heating costs, as the accomplishment of much work out-doors reduced required shop space, and year-around flying weather facilitated test flying and research and immediate movement of completed aircraft from the plants.

By 1939 the major aircraft plants were located on the West Coast in the Los Angeles area, and in the following year, when President Roosevelt called for 50,000 airplanes, 80 per cent of the nation's airframe and assembly plants were located on the East and West Coasts within 200 miles of the coastline. The industry could not conceivably produce such a quantity of planes and engines from existing plants. Consequently the government began building airframe and engine plants, most of them in the Southwest at Dallas, Ft. Worth, Oklahoma City, Tulsa, and New Orleans. This program tended to decentralize the over-all concentration of aircraft industries, so that the 80 per cent figure was shortly reduced to about 40 per cent.

Since the war and the subsequent near shutdown of all aircraft plants, the manufacturers in general have gravitated back to their pre-war locations—the major airframe industries to the West Coast and engine manufacturers to the East Coast. By 1946 the concentration in the Los Angeles area was greater than in 1940.

These moves to pre-war locations are understandable from the economic viewpoint of the manufacturers but dangerous from the standpoint of military security. The United States aircraft industry is now probably less favorably located from the military point of view than it was before the war; it is considerably more vulnerable to destruction than it was during

the war.* President J. Carlton Ward, Jr., of the Fairchild Engine and Airplane Corporation, has stated that six atomic bombs could wipe out the entire Los Angeles aircraft industry. If this is true, it is readily conceivable that a comparative number could destroy the major airframe and engine industries in the New York area. A few atomic bombs could destroy this country's entire aircraft industry.

THE lack of a clear-cut official program regarding relocation or dispersal of aircraft industries is considered a primary reason for existing vulnerability. This fact has been ably summarized by Mr. Henry E. Glass of the Industrial Planning Section, Air Materiel Command:

"Other factors, such as airport facilities, community facilities, power, light and sewage, are about the same at both inland and coastal plants. By and large therefore, it was felt that any company relocating in the interior of the country would not at all suffer a disadvantage. We have come to the conclusion that the major obstacle in the way to relocation and dispersal is the personal likes, dislikes and the desire of the people involved. As individuals, the majority of the personnel involved would prefer to remain in southern California or out on the East Coast near the big cities. This condition can only be overcome by convincing the persons affected that relocation and dispersal of the aircraft industry is essential to the nation's defense. If Congress should approve such a program, we believe the aircraft companies would cooperate with the services carrying it out."**

It is possible then, that a firm, government-sponsored and approved national policy would be effective in improving national security by planning and assisting in the execution of such a policy.

To the majority of American people attack means physical assault, but there are varied and insidious ways of attack other than by military means. Wars seldom begin without preceding periods of tension. The overt act merely caps the climax, and we suddenly find ourselves in a "shooting war". Defense of our nation, therefore, entails far more than safeguards against physical attack; today it means, in the words of the President's Advisory Commission on Universal Training, a "strong, united, healthy and informed nation." A fully informed public is essential in any proposed government program. Our history is

*See Robert E. Marshak and others, *Our Atomic World*. (U. of New Mexico, 1946), p. 34.

**Henry E. Glass, *Dispersion and Relocation of Aircraft Industry* (Washington, D. C., The Industrial College of the Armed Forces, 1946), p. 2.

replete with examples of public opinion defeating government-sponsored programs not "sold" to the public beforehand.

The citizens of our country must be continuously and fully informed as to what to expect in event of war. A nation susceptible to atomic bombing is surely entitled to know the full extent of its peril. We must not fail to be realistic in facing the danger of atomic attack and all of its implications. American diplomacy and the American public must see "eye to eye" on this problem. Popular approval of any government program will ensure willing support in the common defense. It is hoped that present and future leaders of the United States will adopt the wise policy of keeping the American public fully informed of international developments.

There are hundreds of publications available that effectively portray the vulnerability of our industries to atomic attack. The average man does not have the incentive, time, or money to dig them out; hence he is poorly informed on the problem. Congress, by the judicious use of franking privileges in wide distribution of plans, studies, reports, and surveys relating to industrial vulnerability, could do much to enlighten the public. A storehouse of valuable information is available at the Government Printing Office for the asking. This information, placed in the hands of appropriate leaders of business and industry, would be effective in molding public opinion and support towards the important national goal of reducing vulnerability by minimizing the effect of any attack. Every media at the disposal of Government public information officers—press, radio, magazines—should be used to keep Americans fully informed.

Today many large industries, seeking to avoid the congestion and expense of large cities, are exploiting lower-cost areas and new labor sources in small towns and semi-rural sites for their postwar building enterprises. This movement tends to draw a percentage of the population from our large cities and thereby reduces the vulnerability of our industry and population. Gradual decentralization of industry, therefore, is not only practical but seemingly economically feasible. A gradual program to disperse and decentralize industry over a span of ten years or more would not prove an insurmountable problem. While it is true that all industries could not be adequately decentralized in this period, truly effective results could be obtained. Government-sponsored economic programs in this

direction are a requirement, and public information can play a decisive part in any such undertaking.

"The primary step toward protection from a threat to our national security is a realistic facing of the danger. An enlightened public, aware of all facts incident to the problems of this atomic age, and of the potential dangers that can develop, is essential. This does not imply a propaganda campaign or an attempt to frighten people into taking precipitate action, but rather a rational presentation of the issues by military and scientific leaders. The objective is to secure popular approval and willing support of such governmental action as may be necessary to assure the common defense against both danger from without and subversion from within."*

WHILE it has been estimated that by 1953 other nations will be able to attack us with atomic weapons, numerous authorities are of the opinion that such a blow is unlikely for about ten years. Therefore, with an entire decade available in which to reduce the vulnerability of our industries, much can be accomplished if prompt, aggressive, and continuing action is initiated *now*. Although such a program would undoubtedly require a certain amount of government control, industry should be willing to accept such controls once it is convinced that national survival hangs in the balance.

Let us, then, examine the four primary methods of reducing industrial vulnerability: (1) military operations, (2) underground facilities, (3) structural design, and (4) dispersion.

First, military operations. Congress has recently approved legislation authorizing extensive aircraft radar detection networks. Both ground and air components of our continental commands have recently reorganized to effect a better integrated defense of our homeland. We can expect continued emphasis on air defense of our nation consistent with the means provided for this defense, but complete reliance cannot be placed in military operations alone to protect us from bombing. Other ways of reducing vulnerability must be undertaken.

The second method involves going underground. Underground facilities in connection with existing factories are not visualized, being deemed impractical from the standpoint of cost alone. But future installations of particular strategic

*Colonel Matthew K. Deichelmann, "American Security," AIR UNIVERSITY QUARTERLY REVIEW, Vol II, No. 2 (1948), p 68.

value may well be placed underground, depending upon findings of study groups currently working on the problem.

German experience in World War II is an available guide to the practicability of placing industrial facilities underground. From it we should have learned that the time to construct underground facilities is *before*, not *during* a war. Germany made the mistake of overestimating the effectiveness of her air defense and underestimating the power of the Allied air attack. Our national planners should profit from this mistake—and remember that the Germans did not have to cope with the atomic bomb.

The Germans did not fully realize the necessity for placing industry underground until the war was nearly over. Plants were then placed in all types of existing facilities—mines, railroad and highway tunnels, caves, beer cellars, and subways. The principal German underground effort was directed toward production of aircraft, V-bombs, synthetic oil, and ammunition, with many other types of plants also going underground for production of motor vehicles, machinery, armament, tanks, and aircraft accessories.

The Germans had detailed plans for a protective type of construction called *bunkerwerke*. These were multiple-story buildings of steel-reinforced concrete constructed partially underground, with heavy concrete protection above ground. These buildings were to contain not less than 600,000 square meters of floor space, to be self-sufficient, and to be capable of producing 1000 aircraft or the components thereof per month.

This type of building should be particularly adaptable for use by industry in this country. We do not need facilities which are placed wholly underground, as we do not expect continued and sustained air attacks. With this type of construction the cost would be substantially reduced in comparison with that of a complete underground construction, and ingress and egress of personnel and supplies would be considerably simplified.

German experience has revealed many facts to be taken into consideration in our planning: (1) underground construction costs were three times that of surface construction; (2) the physiological effect on underground workers was not of sufficient detriment to preclude productivity equal to that of surface workers; (3) moderately soft sandstone or limestone is particularly adaptable to subterranean construction; (4) the

maintenance of an underground plant is less than maintenance of a comparable surface facility; (5) cost of production in a properly designed and equipped plant should be less than an above-ground plant of the same floor space; (6) it was practical to place almost any type of industry underground; (7) large centralized self-contained underground industries are more feasible than a large number of small plants; (8) underground plants were not effectively damaged by bombing even when a direct hit was scored. It is readily apparent that problems of placing factories underground are not insurmountable.

Under the direction of the Munitions Board, the Army Corps of Engineers has completed a survey of existing underground sites in the United States. Although the results of this survey have not been made public, it is conceivable that existing sites of this type would contain many thousands of feet in storage or floor space. But the adaptability of existing underground sites for use by industry seems to be extremely limited, and they are even more costly to convert than construction of original sites in selected locations. The use of existing sites for storage or stockpiling of strategic raw materials or for munitions storage would be more logical.

Other studies are currently being made by the Corps of Engineers to ascertain the cost and feasibility of underground construction. They include studies concerning the resistance of rock and soil to guide location of military and factory bomb-proofs. The series of tests consists of underground explosions in several different types of soil and rock. The tests will start with 320 pounds of TNT and will progress to the detonation of a total of 320,000 pounds of TNT. It is hoped the data obtained will assist industrial engineers in determining the most suitable earth areas and the best type of construction for underground factories.

The United States is apparently moving at a snail's pace and with extreme caution with regard to moving any part of industry or other facilities underground. Other nations are exploiting this procedure to a large extent. Mr. Ira W. McBride, writing in a recent issue of *Ordnance* advises: "Rumor and fact give evidence that other nations are faster and less cautious than the United States in converting the underground for defense. Great Britain is reported to be enlarging upon facilities constructed during the war. Another country, it is rumored, pressed prisoner-of-war labor into construction of the largest

underground airfield in the world. Located in a commanding area, this field has great air striking potential." Sweden is *now* producing aircraft in underground factories. United States newsmen were shown part, but not all, of these plants. Swedish officials were somewhat vague about other underground facilities but admitted they had at least ten more.

There are many problems to be solved in placing any portion of our industry underground, and there are perhaps more practicable and economic means of reducing vulnerability. However, at least a portion of our most vital industries should be placed underground in connection with other means of protective construction or decentralization. A tour of bombed German industrial areas or of the wastes that were once Hiroshima and Nagasaki would do much to awaken American industrial leaders from apparent lethargy concerning vulnerability to air attack. Our Government can and must establish a project in this field. If subsidies are needed, our leaders must take the initiative in procuring the necessary legislation. Now is the time for action; not when the bombs begin to fall.

Structural protection is a third method of reducing vulnerability. It is apparent from damage estimates of the bombing of Hiroshima and Nagasaki that sturdily constructed concrete-reinforced buildings withstood atomic blast and resultant fires much better than brick or wood-frame buildings. Concrete structures situated 2000 or more feet from the center of the explosion were relatively unharmed, while multi-story brick buildings were totally destroyed at distances of 6000 feet.

These and other facts gathered from studies of the two Japanese cities dictate engineering experimentation and design of protective-type construction. Plants and industries considered critical to our war effort must be designed to afford maximum structural protection. It is apparent that no feasible surface-type design will provide much protection at or near the center of the explosion. However it does appear that proper structural design will greatly reduce destructive effect at reasonable distances. The adoption of engineering-developed minimum standards of design should constitute one phase of our over-all program to reduce vulnerability.

Precipitate dispersal of existing industries, which is a fourth possible method of reducing vulnerability, is not endorsed. Such a procedure would create a prohibitive disturbance of our

society. Protection must be achieved gradually, probably by dispersing critical facilities as they are constructed. When existing facilities deteriorate and renewal is indicated, replacement should be made with full consideration given to dispersion and other protective measures. Gradual decentralization, with long-range planning and dispersion during construction stages, would eliminate many hardships quick action would create.

THE cost and complexity of manufacturing atomic weapons dictates commensurate strategic objectives. The geographic location of industries within the United States, while an important factor in determining enemy objectives, would be outweighed by a high concentration of essential war industries in relatively small areas. Dispersion of our industries, then, would appear to be the most practical solution to the problem of reducing industrial vulnerability. All other measures, with the possible exception of military operations, can be considered as ancillary.

Gradual decentralization of industry and its associated population in peacetime can be encouraged by government-sponsored economic and social measures. Many large industries, attempting to avoid the congestion and expense of great cities and find lower-cost areas and new labor markets, have chosen small towns or even semi-rural sites for their new building projects. The current voluntary movement of industries from concentrated areas should be encouraged in every respect.

The recent migration of much industry southward, although not made with any thought of reducing vulnerability, tends nevertheless to decrease our industrial vulnerability. Such movements of existing and proposed industries would be much more effective from a strategic standpoint if supervised and encouraged by the government. Farmers have been granted large subsidies for a number of years to bolster wheat, corn, and other crop production. Why should industry not be granted similar subsidies to encourage and facilitate so vital a problem as industrial dispersion? Government assistance in this matter would ensure planned dispersion and maximum protective measures. Voluntary movement of industry is gratifying, but would not national planning for dispersal be a more logical approach to reducing industrial vulnerability?

The National Commissioner of Public Buildings has estimated that for 1949 the total national construction expendi-

ture, both public and private, will come to eighteen and one-quarter billion dollars. This figure does not include the recently enacted multi-million dollar long-range Federal housing bill which provides for the construction of 810,000 units over a six-year period at a rate of 135,000 units per year. One provision of the bill authorizes the Housing and Home Finance Administration to undertake broad technical and economic research programs designed to increase home building and cut down costs.

In implementing this housing program, serious consideration to vulnerability should be given. Surely these housing units should embody the cardinal principles of adequate dispersion and protective type construction. The Japanese experience indicated that even primitive underground shelter was effective against the shock wave and radiation from the atomic burst. Should not serious thought be given in government-sponsored housing to the old-fashioned idea of providing basements?

Our industries, which are the heart, arteries, and Achilles' heel of our military effort, must be made less vulnerable to atomic attack and destruction. The most practical means of reducing industrial vulnerability lies in dispersing at least the key industries vital to an immediate war effort. Dispersion appears more attainable than other protective measures, although any and all means within the capability of our nation must be employed.

Air Command and Staff School

Now comes the picture of mass defeat, the most awesome spectacle of the war. It is in the bent bodies of old women who poke among ruins seeking some miserable object that will link their lives with the old days. It is in the shamed, darting eyes of the defeated. It is in the faces of the little boys who regard our triumphant columns with fear and fascination. And above all it is in the thousands of beaten, dusty soldiers who stream along the roads toward the stockades. Their feet clump wearily, mechanically, hopelessly on the still endless road of war. They move as haggard, gray masses, in which the individual has neither life nor meaning. It is impossible to see in these men the quality that made them stand up and fight like demons out of hell a few short months ago.

—Audie Murphy
To Hell and Back
Henry Holt, 1949

A Matter of Nomenclature

J. M. SPAIGHT

IN the course of the customary discussion after a lecture by Air Vice-Marshal E. J. McCloughry, Royal Air Force, at the Royal United Service Institution, Whitehall, London, on 14 January 1948, he said in reply to a question: "I always hesitate to use the words 'strategy' and 'tactics', particularly now that, in the [Royal] Air Force, we talk about 'Strategic Forces' which are sometimes used 'tactically', and all the rest of it; but I think that here we understand what we mean when we talk about strategy." The Air Vice-Marshal's hesitation was not unnatural, for there is no doubt that "strategic" has become a kind of term of art in both the British and U. S. Air Forces, and that its meaning is not always understood.

It is apparently not understood, if one may say so with all respect, by Lord Cherwell, who used to be Mr. Winston Churchill's scientific adviser during the war. In a review in the *London Daily Telegraph* of Professor P. M. S. Blackett's book, *Military and Political Consequences of Atomic energy**, he wrote: "No one who remembers the attacks on Warsaw or Rotterdam will consider the allegation that it was Britain who started bombing open cities worthy of notice." Now, no one in his senses would dream of making such an allegation. What a well-informed person would say—and this was the point at issue—is that, as between Britain and Germany, Britain started the strategic offensive. That is a historical, verifiable fact. The attacks on Warsaw and Rotterdam, neither of which was, in any case, an open city, are not relevant to it. At neither place was the bombing strategical. Each city was under artillery fire already. At each the bombing was tactical.

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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.

The fact is that the word "strategic" has come to be used, in relation to air forces, in a sense at variance with the accepted meaning of strategy. The *Oxford English Dictionary* defines strategy as "the art of projecting and directing the larger military movements and operations of a campaign." The contrasting term is tactics, which is "the art or science of deploying military or naval forces in order of battle, and of performing warlike evolutions or manoeuvres." The strategist thinks in terms of campaigns, of the planning and directing of them, the tactician in terms of battles, of the fighting or declining of them. The one might be described as the wholesaler, the other as the retailer in the business of waging war. Each is necessary to the other. Their functions are interconnected and complementary. They constitute a wheel within a wheel, with a common hub: the "wheel in the midst of a wheel" of Ezekiel's vision.

Given these meanings, one would expect that in an air force the strategic command would be concerned with the planning and over-all direction of the operations which the tactical command would execute. Actually, the position is quite different. The strategic air command operates one kind of force, the tactical another, and the two commands are not concentric; they have their separate spheres. Their wheels become intermeshed at times, but normally each revolves in its own orbit.

To understand how this situation came to pass, one must go back thirty years or more, for it was then that the kind of force which is now called, or miscalled, strategic first appeared. It was then called a special striking force or an independent force. The latter name was that given to the famous formation of the Royal Air Force which was established under General Hugh M. T. Trenchard in the summer of 1918 and which made damaging incursions into Germany from that time until the Armistice. This "Independent Force" was really an expansion of a smaller one, the 41st Wing of the Royal Flying Corps, which was formed at Ochev, France, near Nancy, in October, 1917, and whose commander was Brigadier General C. L. N. Newall (now Lord Newall). If the Armistice had not intervened, an Inter-Allied Independent Force, also under General Trenchard, would have come into being in 1919. The forces of 1917 and 1918 were strategic in the current sense of the term.

The term was applied to them, however, only some years later. It had begun to creep into use by the time the later vol-

umes of the British official history of the air war, *The War in the Air*, were written. Volume VI of the history, which includes a chapter on the Independent Force and was published in 1937, refers to "what might be termed strategic bombing" and speaks of "a strategic bombing force such as that to which Major General Trenchard was appointed." One will search in vain, however, in the record of the contemporary discussions for any use of the term strategic as a description of General Newall's or General Trenchard's force or of the kind of bombing in which each was engaged. Why was the label abandoned?

The reasons, one may surmise, were two. First, the term "independent" had been found in 1917-18 to be open to objection in some respects. It caused grave misgivings in France. "The word 'independent' was, perhaps, ill-chosen," according to Volume VI of *The War in the Air*: "The realistic French mind at once conjured up a vision of an alien force conducting, from the French battle area, a private war of its own according to the strange doctrine of black-coated gentlemen across the Channel." It was for that reason that the formation of the special force was long resisted by Marshal Foch.

Secondly, the emphasis shifted, probably under the influence of Douhetism, from the quality of independence as a characteristic of the new kind of force to that of its function or purpose. Indeed, Major General J. F. C. Fuller in his history, *The Second World War*, speaks of "the Douhet theory of strategic bombing." The essence of Douhet's teaching was that an air force, if properly constituted and used, could wage and win a war without the intervention of any other arm. Having this power, it could no longer be regarded as a merely tactical arm; it passed over into the higher realm in which strategy reigns. It became what the Smuts report of 1917 had foretold that it might some day develop into—a force whose operations "with their devastation of enemy lands and destruction of industrial and populous centres on a vast scale may become the principal operations of war."

It was in Britain that the doctrine of the strategic air offensive took the firmest root. It inspired the creation of Bomber Command of the Royal Air Force in 1936. The war-time head of that Command, Sir Arthur Harris, after explaining how we began "the strategic bombing of German industries" in 1940, has stated in his book, *Bomber Offensive*, that "No other country in the world had at that time conceived the possibility of

using an air force in this way, to fight a war by itself, and, within certain limits, win a war outright." As we knew, complaints were to be heard before the second front was opened in 1944 that the Royal Air Force was, in fact, fighting a war of its own. The short answer was that that was the only way in which it was possible to hit the enemy then, and that not to resort to that way would have been to admit that the creation of the strategic force—Bomber Command—had been a mistake. It was not a mistake.

The current contrast to "strategic" in air force phraseology is "tactical." That, too, is an innovation—and a misappropriation. It stands, more or less, for the "army cooperation" of earlier days. "The tactical mission," writes Colonel William H. Wise,* "is closely tied to the action of surface forces." He quotes a U. S. Army Field Manual as stating that a tactical air force is "specially organized, equipped, and trained for operations against the enemy armed forces within, moving into, or withdrawing from a combat zone." It is, in fact, the old army cooperation air force under a new name. The difference between it and the strategic air force is that the latter is free to roam far afield and the former is not. One military writer, Mr. Hoffman Nickerson, in his book *Arms and Policy*, has compared the strategic air force with the "independent cavalry" which used to operate at considerable distances from the army in the campaigns of last century, and the tactical air force with the "accompanying cavalry" which was kept near at hand for close reconnaissance. Another difference, not unconnected with that just mentioned, is that the targets of a tactical force's bombers are, apart from personnel, the assembled products of the enemy's war industry, while those of a strategic force are the manufacturing points. "Tactical bombing," said Lieutenant General James Doolittle, in May, 1945, "is knocking over the milk pail each day, while strategic bombing is an effort to kill the cow." A similar distinction was implied in a statement by General H. H. Arnold in his *Second Report to the Secretary of War*, 27 February, 1945, in regard to the German shortage of oil during the operations in France in the preceding year. "How much of this shortage was occasioned by *strategic curtailment*," he said, "and how much was

*"Future of the Tactical Air Force." AIR UNIVERSITY QUARTERLY REVIEW, Vol. II, No. 4 (1949), p. 33.

caused by *tactical destruction of oil dumps* and transport and bridges is impossible to estimate."

General Arnold, in his *Third Report to the Secretary of War*, on 12 November, 1945, referred to the tendency of strategic and tactical operations to merge and pointed out that a strategic force must often undertake tactical bombing. When in 1944-45 bases were gained close to Germany, and even in Germany itself, the difference between the kinds of operations faded out altogether. "It was at this point," he states, "with distance no longer a factor in differentiating strategic from tactical operations, that the air war reached its ultimate objective." There was no longer any need for labels which had been useful enough in their time but had become inappropriate to the new situation. But is there not something wrong with labels if they can be discarded and it does not matter?

Were they ever quite the *right* labels? Is "tactical" an improvement on "army cooperation"? Every air force is a tactical one in so far as it employs tactics. And is "strategic" *le mot juste* for the other category? The original word "independent" would be misleading, too. It might be read as referring to an air force that did not form part of the army, as the British Air Force did before 1918 and the American before 1946. Would it not be better to speak of the counter-offensive air force than of the strategic, or independent, air force? It is the term used in the report entitled *Survival in the Air Age*, submitted by Mr. Thomas K. Finletter and his colleagues to President Truman on 1 January, 1948.

The term strategic air force is, of course, in common use in the United States. There were two such forces, the 8th and the 15th, in the European theatre of war in 1943-45. These two now form the Strategic Air Command, one of the three combat Commands established on 21 March, 1946; the other two are the Air Defense Command and the Tactical Air Command, which only this year joined to form the Continental Air Command. Nevertheless, the Finletter Committee preferred to speak of a counter-offensive rather than a strategic air force as an element of the air organization of 70 groups which it considered to be necessary. "We must have in being," it said, "a counter-offensive force built around a fleet of bombers, accompanying planes and long-range missiles which will serve notice to any nation which may think of attacking us that if it does, it will see its factories and cities destroyed and its war

machine crushed. The strength of the counter-offensive force must be such that it will be able to make an aggressor pay a devastating price for attacking us."

The term proposed would be particularly appropriate to a force intended for action under the terms of the Atlantic Pact. The Pact is an insurance against aggression. It will come into operation only if one or more of the parties to it are first attacked. The term "counter-offensive" implies an initial offensive, and the fact that the offensive is launched by land forces does not make the reply to it by air the less a true counter-offensive. The term would at any rate not be so liable to be misunderstood as "strategic" undoubtedly is in relation to air forces or air operations.

There is another reason, too, for a change of name. Wrongly or rightly—wrongly, on balance—strategic bombing has been given a bad name. It has come to mean city-wrecking on a great scale. People do not stop to consider that a city which has been turned virtually into a *place d'armes* or centre of war-production is a military objective. To spare it would be to sacrifice our own men's lives. The ruin and rubble which the bombers leave behind them is a less evil for humanity than the cost in lives incurred in a bloodbath such as the Somme or Passchendaele over and above that incurred in the ordinary bombing operation. Perspective is lost in this matter. In the United States Strategic Bombing Survey, *Over-all Report*, we are told of 100 German towns destroyed and 3,600,000 German people made homeless by the Anglo-American bombing. We forget that in Russia, according to the Nuremberg Trial Report, Pt. VII, 1710 towns and 70,000 villages and hamlets were totally or partly destroyed and 25 million people made homeless by the German invaders. Strategic bombing has been denounced by military writers, i.e., General Fuller, as "the clumsiest, most brutal and most wasteful of all forms of warfare." Mr. Nickerson calls it nothing but "baby killing" and "indiscriminate terrorism." Indeed, General Fuller goes so far as to term it "devastation and terrorization", "barbarism", and "mongoloid destructiveness." A change of name will not by itself prevent the repetition of such calumnies, but it will at least break an unhappy association of ideas and may lead to the essentially defensive nature of long-range bombing not being entirely ignored.

INGLEMERE: *Purley, Surrey*

Human Relations In Unification

COLONEL JOSEPH C. REDDOCH

WHEN the National Security Act was put into effect in September 1947, members of the several armed services viewed it with varying degrees of skepticism, optimism, fear, or enthusiasm. Few thought it perfect, for many of its provisions were arrived at only after much discussion and considerable compromise. Nevertheless it is the best legislation that could be obtained, and it has created an organization objectively designed for modern security.

However, the Act can do little toward influencing the convictions and attitudes of service individuals. The over-all success of our defense effort depends just as much on individuals as it does on the organizational structure in which they work. Substantial human differences do remain; they must be recognized and studied, and means of solution must be sought.

Perhaps, in this case, the individual is *more* important than the pattern. The ability of people to work together may be influenced by the organizational framework in which they operate, but basically it depends upon individual traits and attitudes. The problem of working harmoniously together has been present since cavemen first teamed together to move big stones. Man has become progressively more dependent on his fellows, until in this modern and complex age there is virtually nothing we do which fails to affect others. This interdependence of men emphasizes the necessity for their working together in understanding and harmony. In the military services, as well as in other fields, the need for better human relations is most pressing. The Department of Defense is a tremendous organization and consequently somewhat ponderous and slow in

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adapting itself; hence the need for prompt action to effect improvement in human relations if benefits are to be realized in the foreseeable future.

It is no secret that differences of opinion exist between individuals of the various services. The Air Force, for example, favors flying pay in its present form, while many Army people do not. These two services continue to differ as to the solution of Air Force medical service problems. Between the Navy and Air Force there has been constant conflict in regard to the missions each shall play. The super-carrier and the B-36 are the major characters in an especially tense feud. Differences of opinion between the Army and Navy are also evident. Whether the Marine Corps should remain a part of the Navy, and in what strength, has been a source of continuous squabbling between the Navy and Marines on one hand, and the Army on the other.

These are broad and obvious examples, and it is a tribute to the progress of unification that the controversies appear not so marked and bitter as they once were. But disputes remain.

Many of these differences spring from honest and basic convictions, either fundamental or influenced by original training. By fundamental, it is meant that individuals will naturally come to different solutions to a problem, even when given the same set of facts. There are too many variables and too much opportunity for diverse opinion to develop for a military problem to lend itself to a precise scientific or mathematical solution. Two honest, capable, and wholly patriotic officers can arrive at different solutions to a military problem through use of the same information. Individuals with varying service backgrounds will emerge with divergent solutions, theories, and concepts. This may be explained by the intimate knowledge one has of a particular part of the defense system and his vague and cloudy knowledge of the rest. It is natural that he thinks in terms of what he knows and understands best. We may charge this sort of person with lacking the breadth we would wish him to have, but we should not attack his integrity.

Service differences may also stem from the survival instinct which motivates everyone. Applied to the military, it may take the form of plugging a concept or supporting an expansion in order to increase the size or prestige of the group with which one is affiliated, resulting in benefit to the individual in pay, promotion, prestige, or security. Such activity, contemptible

though it is, exists. It often exists in a subconscious state, the individual having completely rationalized his personal position.

The press of the nation is responsible for many of the differences of opinion existing in the services. In numerous instances newspapers have seen fit to capitalize on service differences and to exaggerate them. The threat to the military of exposure of correctible faults is an uncomfortable but altogether healthy one, but a very unhealthy situation is created when the press encourages service controversies solely for their sensation value. Nor is it advisable for service personnel to seek press assistance in airing private and personnel grievances and slanting them to represent a particular service viewpoint.

The over-all solution, obviously, lies in educating service personnel to render primary allegiance to the nation as a whole rather than to an individual service. This is simple in theory but difficult to accomplish. Sociologists tell us that a certain amount of individual identification with a group is necessary. It appears also that the larger the group the less intimate the feeling of identification becomes. Certainly the tail gunner of the B-17 "Special Delivery" was more inclined to consider himself a part of that airplane crew than a part of the 8th Air Force, or the Army Air Forces, or the nation's armed forces. Morale and *esprit de corps* depend on fairly intimate identification with groups, and it would be dangerous to offer any solution which would seriously impair these elusive but all-important considerations. Nevertheless the hard fact remains that the mission or objective is essentially national and not service. That fact must be recognized. It should be impressed down through all echelons, and educational campaigns should be designed to extend it further. The Army Troop Information Program would provide a good basis on which to expand this project. The program should include issuance of printed material to be read at leisure, supplemented by compulsory discussion conferences supervised by qualified lecturers.

Authorization of inter-service transfers would help solve the unification problem. The law presently provides for Army-Air Force transfers but does not include the Navy. If the control of such transfers depended on the desires of the individuals and the separate approval of the two services concerned, it is felt there would be an equitable number of transfers and that no one service would be crippled in the performance of its own

mission. Such a provision would enable enthusiasts to find their niche and work productively rather than spend their time attempting to bring some particular mission to their service.

In principle, inter-service transfers should also be open to enlisted men, but in view of their degree of specialization and short enlistment periods, it is not considered practical, except in isolated cases. An officer thus transferring would receive full credit for his experience and past performance of duty, and his transfer would be subject to the approval of his original service and his requested future service.

Another step we might take involves the establishment of one national military service and one uniform. (The arms would be specialized and identified by some minor distinctive insignia.) Certainly this would be a move toward a physical manifestation and a reminder of the common objective, although it might also be damaging to morale and *esprit de corps*. Nevertheless, such a proposal merits serious consideration. Organization markings and branch insignia would serve to identify the individual more specifically and afford him the opportunity to be distinguished as a member of a special outfit. The over-all aspect would be one of a man dedicated to national security. He would sense this, as would those seeing him. He would have more in common with servicemen of another branch.

Joint schooling is another means of bringing about improved human relations in the Department of Defense. One proposal often discussed specifies establishment of a common school or academy to provide basic military and educational training to supplant the first two years at West Point and Annapolis. This would be followed by specialized training at West Point, Annapolis, and an Air Force Academy. In addition to approximately doubling the capacity of the service schools, which appears necessary at this time, all future regular officers would have two years of common training. This would be of tremendous value, particularly so when in later years these officers are brought together at joint conferences.

After commissioning from one of the three senior academies, the officer should be given credit for attending advanced schools in other services equal to that for attending those of his own. Advanced service schools should maintain student quotas in a ratio sufficient to permit a generous sprinkling of other services throughout any particular class. A definite, fixed ratio is not recommended, since the service needs are continuously

changing in quantity and proportion. But a fairly large and realistic figure should be stressed instead of a "token" or "courtesy" percentage. Joint instruction in specialized and technical schools should also be emphasized.

Joint service is an additional step that could be taken. It is generally conceded that it is easier to carry on a feud at a distance than while talking things over. Consistent with the needs for specialized training and service in their own branch, maximum advantage should be taken of the opportunity to assign officers to a sister service for a tour of duty. When this is done an improved understanding is invariably achieved. Also, an increased knowledge of over-all capabilities and limitations is gained. This ultimately results in the officer developing a clearer picture of the complete defense problem; his ideas and influence will apply more directly toward the common goal.

Improved public relations within the services would also improve unification. Not only must individuals work together to increase the effectiveness of the Department of Defense, but national security stands in jeopardy if the public, disgusted and confused by service squabbles, votes unwisely for its future security needs. Public confidence must be maintained by increased awareness of the public relations function by all personnel. Honest reporting to the public should be the objective; promotional activities should be curtailed.

It is believed that these recommendations, if carried out, would eventually result in a much healthier relationship between members of the armed services. Immediate results are not promised, for it would take time to implement these suggestions. Fortunately some of the proposals are being studied, and in a few instances action is being taken. The late Secretary of Defense, James V. Forrestal, neatly summed up the problem in the following words written only last year: ". . . I should like to reemphasize. . . that true unification of the armed might of the United States cannot spring from legislation alone. The spark generated by the Unification Act must be fanned into flame by the thoughts and actions of generals and admirals, ensigns and lieutenants, soldiers, sailors, and airmen, and civilians. We must all learn that we are working together for a common cause—the security of our country—and that the good of all transcends that of a few."

Sentinels of United States Foreign Policy

MAJOR JOHN D. REID

THE coming of age of Air Power and its resultant importance to our national security dictate that the United States Air Force continually review its basic planning and precepts in the light of changing domestic and international situations. The Air Force must periodically inventory its ideas and ideals, discarding those which have withered and become useless. It must understand its major responsibilities for the national welfare. It must adopt and pursue definite and proclaimed policies which relate to its peacetime role.

On the surface this problem has an easy solution: that is to say, the Air Force must attain and maintain a state of readiness for war. This is a bona fide mission, yet the simplicity of its statement may obscure an equally important responsibility of the nation's air arm. It must also be recognized that U.S. Air Power will exert a marked influence on the attainment of a stable and durable world peace.

Actually the Air Force has already underwritten, perhaps unwittingly, its aspirations to participate in the forging of world peace. "Air Power is Peace Power" is prominently displayed on recruiting posters. It is broadcast on the radio and spread in the press. As a public relations slogan to stimulate enlistments, this claim is undoubtedly intended to serve a purpose. But the thought occurs that we may have coined a phrase which portends events of far deeper significance. "Air Power is Peace Power" can conceivably be a belief, rather than a short-range recruiting slogan. There are definite indications that U. S. Air Power is destined to bulwark our peace aims and to buttress our foreign policy in search of world peace. The

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.

successful application of Air Power to the Berlin crisis shows that U. S. foreign policy even now has a new bodyguard.

In all likelihood this proposed association of Air Power and foreign policy needs little clarification for the student of world power politics. On the other hand there is little evidence of any widespread belief that the Air Force is more than an inert force in the absence of war. Basically this stems from a lack of what constitutes peace. Certainly the complacency of the peace-loving nations in the interval between the two World Wars did not achieve a true peace. Nor can the tremulous aftermath of World War II be appraised as a peace era. This nation is commencing to realize that the absence of a shooting war, in itself, does not presage peace. Postwar events have demonstrated that peace is every bit as dynamic as war.

U. S. foreign policy is our official long-range plan for international relations. It is basically oriented toward the goal of peace. In an address at Washington in 1938, Cordell Hull, then Secretary of State, proclaimed that "The primary objectives of our foreign policy are the maintenance of the peace of our country, and the promotion of the economic, the social, and the moral welfare of our people." Events since then have proved that no proclamation of foreign policy will stand a reasonable chance of fulfillment unless backed by sufficient national power to give authority to the assertions of that policy. We cannot therefore lightly dismiss the U. S. power position in peace calculations, nor by the same token can the Air Force ignore its responsibilities in support of that position. Ex-Justice Roberts is reported to have said that the law of nations "is the law of tooth and claw." This is not a dainty summation of international politics, but in the absence of aggressive peace measures it has always proved tragically exact. We must, therefore, understand the urgency of wedding our foreign policy to a power guardian. General Marshall's final report to the Secretary of War phrased this thought as follows: "We must, if we are to realize the hopes we may now dare have for lasting peace, enforce our will for peace with strength." But if U. S. Air Power is required to support U. S. foreign policy in a crusade for peace, the formalized concept of the Air Force mission as that of maintaining combat-readiness must be closely examined to ensure direct support of the peace campaigns.

In pursuance of this concept an important corollary of the over-all problem presents itself. This problem concerns the

proper deployment of U. S. Air Power. As a force for the attainment of peace the Air Force must consider its dispositions from a standpoint other than that of operational deployment. Thus the important issue of strategic air bases arises. The duality of Air Force responsibility, in other words, requires a study of the political deployment of the nation's Air Power.

The prospect of acquiring and maintaining strategic air bases cannot have widespread appeal, either to the nation's taxpayers or the airmen who must man them. Major Alexander P. de Seversky, in his treatment of victory achieved through the application of Air Power, scoffs at air bases as a future Air Force requirement, maintaining that future increases in aircraft range will make them unnecessary. It takes little imagination to visualize that elimination of these bases would relieve the Air Force of grueling logistics and security measures for their continued use. Indeed one can elaborate and, with the mathematical devices of the aircraft designers, prove that the globe-circling aircraft of the future is nearing reality. If, however, the concept of Air Power as a dynamic peace power is valid, the political value of strategically located bases and their effect on foreign policy cannot be ignored. Enthusiasts of long-range aircraft who foresee that Air Power can be applied from national confines cannot be entirely refuted, nor is that the primary purpose of this article. Rather, laying aside the operational capabilities of bases in war, we shall limit the discussion to assessment of the value of strategic air bases to the successful accomplishment of U. S. foreign policy aims.

Any treatment of strategic air bases evokes immediate speculations on possible locations. The embroilment of power instruments in geopolitical actions is expressed by Nicholas J. Spykman in *America's Strategy in World Politics*: "Power is effective in inverse ratio to the distance from its source." His statement may be modified to the effect that useful power must also be in proximity to the sovereignty or area against which it is applied. At any rate, we must carefully weigh the prospects of enhancing or diminishing the power/source ratio by the acquisition of foreign bases.

Admittedly any plan on the part of the United States to lease, buy, or otherwise acquire strategic air bases is fraught with both domestic and worldwide implications. Yet the political advantages which these bases might present to a firm, well-defined national foreign policy deserves careful scrutiny. To

forecast these advantages, a brief insight into a historical precedent may be of value.

IN the period which followed the Napoleonic wars, Great Britain embarked on a remarkable program of overseas expansion. This program seems to have been impelled by three forces. The first was a desire for national economic betterment; the second, a formula for maritime dominance which could guarantee the success of her economic enterprises; and the third, an astute foreign policy closely attuned to the limitations and capabilities of sea power. To represent this program as foreordained or preplanned in all its details is to indulge in fantasy. To the contrary the formula which ultimately spelled British world prominence was a combination of sagacity and good fortune. Nevertheless Britain's ascendancy in the economic, naval, and diplomatic fields deserves close attention for the value which may be derived in prophesying a course of action for the United States. In particular a valuable lesson can be gleaned from certain matters pertaining to the alliance of British foreign policy and naval bases.

Long before formal treatises appeared on the subject the British had sensed the importance of geopolitics and were obtaining strategic vantage points about the world upon which to pivot or concentrate their superior naval power. Dr. George T. Renner, author of *Geography in the Air Age*, stresses the importance to the world a century and more ago of "ocean-basin geography," this in a time when maritime power connoted a secure power position for a nation possessing strong naval forces. The concept of ocean-basin geography inspired Britain to obtain local control of vital areas which served as stoppers or bottlenecks on the high seas. At the peak of her power Great Britain controlled Singapore, Capetown, Hong Kong, Gibraltar—in fact, all the major bottlenecks except the Panama Canal. These focal points, when converted into naval bases, guaranteed economic development of the adjacent areas and reminded neighboring governments that British policies could be ignored only at the risk of forceful measures.

There are certain aspects of this period of Britain's history which should be noted. In the first place she strove to improve her relative power position through the employment of a firm foreign policy. In addition she utilized a display of naval bases,

not only for their potential value to her fleet but also as visible reminders, in the absence of that fleet, that her proclamations were to be reckoned with. For those who may resent such power moves, another statement by Mr. Spykman is apropos: "In a world of international anarchy, foreign policy must aim above all at the improvement or at least the preservation of the relative power position of the state."*

Finally, and this is most important, it must be noted that the British strategy of bottleneck bases belies the impression that her ultimate aim was a world balance of power. She subscribed to a balance of power only as it pertained to the affairs of continental Europe. This was occasioned by an awkward geopolitical situation. In effect Great Britain could not in the nature of things pit her sea power directly against the resurgent land armies of Europe. Britain's worldwide aim was a "margin of power." Spykman notes that a nation must attain a balance of power which affords freedom of action.** In a sense this was true of the British policy, since she enjoyed a freedom of action resulting from the delicate power balance in Europe which willed her a margin of power elsewhere in the world. In short the realistic British foreign policy, while cognizant of the balance-of-power policy as unsuitable to real world stability, was forced by the physical dispositions of Europe's power states to make the best of a bad geographical bargain, to be content with forces in precarious balance on the Continent, and to promote a preponderance in the other world areas.

It is fully realized that this historic era of British foreign policy backed by strategic naval deployment, while remarkably farsighted, was not created in the hope of attaining world peace. Britain was primarily concerned with her economic development. Nevertheless her role as a world stabilizer is profoundly significant, if we are to plan for the proper utilization of our Air Power in support of a rejuvenated and statesmanlike U. S. foreign policy. Historians have termed the era of Great Britain's world leadership "the Pax Britannica." The stability of those times is a goal more likely to be wished for than achieved in the near future, but it is a worthy aim for our country, which has succeeded to the position of leadership previously held by Great Britain.

*America's Strategy in World Politics, p. 41.

**p. 105.

THIS historic example of astute foreign policy, coupled with a display of power at scattered vantage points, has set a recognizable pattern for the United States. In certain respects our moral position in promoting a similar alliance of air bases and foreign policy is undoubtedly more secure. For example, the United States could not reasonably be accused of the economic ruthlessness of which British expansion was accused. In place of economic betterment our position adheres to the basic aim of preventing wars which may become so destructive as to render it impossible to distinguish the victors from the vanquished in every aspect save perhaps the official proclamation of surrender. The basis of our foreign policy is a desire for world peace. The deployment of our Air Power is important for its influence in the attainment of that desire.

The sound geopolitics of British naval bases in the dominant period of sea power logically brings forth the question of the geopolitical implications of strategic air bases. It can be reasoned that any answer to this question must be predicated on at least the rudiments of geopolitics in the air age. A point of departure, then, is the kinship of Air Power and geopolitics.

One of the earliest proponents of geopolitics, Sir Halford MacKinder, devised a memorable thesis to forecast the tribulations which would confront the British Empire in the twentieth century. MacKinder foresaw that nineteenth century maritime power could be topped by land power, which would become more mobile as railroads and modern transportation developed. He held that the key to world dominance would some day be lodged in eastern Europe and that enlargement of the eastern European power position could lead to control of the land mass of Europe, Asia, and Africa—the "Heartland," as he chose to call it. Events have never completely confirmed his beliefs, but it is certain that his theories influenced German political thought and military planning prior to the last war. Although the Nazi strikes into Africa and eastern Europe were only transient, it was increasingly clear in the dark hours of those conflicts that consolidation and exploitation of the positions then held would inevitably reduce the Western Hemisphere, Australia, and other isolated land areas to impotent segments of the earth's surface.

MacKinder, however, did not include Air Power in his cal-

culations; indeed, current geopolitical thinking has thus far tended to skirt the air factor. The Reverend Edmund A. Walsh, a prominent geopolitician, asserts that Air Power modifies but does not cancel out the heartland theory. This position is taken by another authority, Burnet Hershey, who declares that, "Russia, [the present dominator of the heartland] from every point of view, has the strongest air position in the world today."* His remarks were not specifically propounded in consideration either of military strategy or foreign policy matters, since they dealt primarily with the commercial aspects of international aviation. Nevertheless the eastern European area lies strategically athwart air routes almost as prominently as it dominates large land areas and sensitive land routes.

Bearing in mind, therefore, that the United States is not geographically the most favored nation for the application of Air Power and recalling that Britain's strategy against the European land mass featured an encirclement with world bases upon which to pivot or concentrate her mobile naval strength, it becomes clear that a similar strategy for the U. S. may be geopolitically desirable if not absolutely necessary. We must assess the wisdom of undermining our less favorable aero-geographical position by a withdrawal to the bases within the national and territorial boundaries, since thereafter, we should have to rely upon publicizing technological advances in aircraft range and performance to compensate for less effective deployment. This course of action, it appears, would relegate our Air Power to the status of a war weapon. It would display that we did not intend to use this important instrument of power in direct support of peace by the prevention, rather than the winning of any possible future war.

A deployment of Air Power for geopolitical advantages, it must be recognized, is in itself only the means to an end. It would be foolhardy to deploy in such wanton fashion as to leave a nation's air arm without cohesion and warmaking capability. The problem, as stated previously, is to deploy in such a manner as to lend political stamina to peace aims of our foreign policy. This need not entail dangerous dispersion. On the contrary, if hostilities should occur, it is conceivable that at least some of the bases held would be tenable and of operational value.

*Burnet Hershey, "Skyways of Tomorrow," *Headline Series*, Policy Association, Number 47 (August, 1944), p. 40.

THE role of foreign policy is not difficult to understand. Foreign policy expresses the collective will and desires of the nation in matters pertaining to other nations. Mr. Joseph Jones, Associate Editor of *Fortune* and former State Department officer, has declared that foreign affairs "are American affairs in which we admit that foreign countries have a legitimate interest; and they are affairs of foreign countries in which we claim to have a legitimate interest." A familiar promulgation of U. S. foreign policy is the Monroe Doctrine, the capstone of U. S. foreign affairs for almost a century. Its phraseology tacitly admitted that other nations had a legitimate interest in American affairs by virtue of their New World colonies. Conversely the Monroe Doctrine recognized the legitimate interests of the United States in forbidding further New World colonization.

Serious accusations have been leveled against modern U. S. foreign policy. Walter Lippmann holds that our Twentieth Century foreign policy has largely been insolvent.* Many claim that all too frequently it has been compounded of wordy principles and simple expediency, facts which have befuddled not only the U. S. public but also foreign statesmen seeking to align the destinies of their nations with those of this country.

Granting the absence of a clearcut, long-range foreign policy for the future, it is, however, indisputable that this nation's current actions bear ample testimony to at least an unwritten policy of rehabilitating the shattered portions of the globe and of contributing a large portion of our energies toward a durable and honorable peace. The Marshall Plan and our intense participation in the United Nations Organization attest to our desire to stabilize the world. This nation no longer withdraws from world politics whenever the course of events does not measure up to the hoped-for results.

Much in the same manner as deliberate and forthright actions have preceded major foreign policy statements, we have acquired strategic air bases prior to any major documented policies on the subject. The war was the occasion for the air bases we now hold, and these were acquired for operational reasons. Many, however, we have been reluctant to relinquish. Bases in Iceland and Greenland are good examples. A Joint

*U. S. Foreign Policy: Shield of the Republic, p. 9.

Chiefs of Staff report of 1948 called attention to the northern approaches to the U. S. as critical and suggested that we retain a firm grasp on these two vantage points overlooking our Arctic and Atlantic frontiers. The British have suggested the manning of bases. Viscount Addison, government leader in the House of Commons, stated that the Atlantic Pact might provide "in the near future, a joint working arrangement, particularly affecting air power, which could be deployed and developed rapidly in defense of peace." His colleague, Sir Samuel Hoare, four-time British Secretary for Air, urged the organization of necessary bases without delay. It appears that regardless of formal intent we are holding present bases for their value to the peace.

The question may arise as to public support of a strategic air base plan. This nation has previously been divided on the subject of any overseas deployment of its military power in time of peace. Steadfast in the practice of military action only as a means of repelling a nation already on the march, this nation has clung to the belief that it should confine its military power within its national boundaries. That concept appears to be dying fast. Indeed it is questionable if it has ever been more than a sedative to even its stoutest proclaimers. Hanson Baldwin writes in his book *Price of Power*:

"... the basis of our whole past strategy has been to fight our wars overseas, and the basis of our diplomacy (as applied to strategy) sometimes has been, always should have been, and henceforth must be, to insure the United States positions (bases) in readiness overseas from which our military power could be applied to the enemy, and allies-in-being, so that we would not fight a war alone..." [p. 10]

If U. S. foreign policy is, however, to be aggressive for peace, it is constrained to utilize every means to accomplish the task. It follows that strategic air bases, acquired in pursuance of that mandate, need be regarded not solely as launching sites for U. S. Air Power if a shooting war commences but also as active, forthright weapons for peace. In a discussion of the problem of bases as it pertains to Britain, RAF Group Captain J. G. Davis defined a solution: "Our own aim should be, therefore, to deploy our air forces as to prevent war by the threat of action, rather than to follow our traditional tardy policy of replying to blows already struck."* The threat of action by

*The Employment of Air Forces in Imperial Defence and Combined International Enforcement Action. (Mimeographed Prize Essay in Air University Library), p.5.

strategically deployed U. S. Air Power is a potentially great force for peace. Its value to our foreign policy cannot be ignored.

More tangible recognition of the value of relating the mission of Air Power to diplomatic ends might be expressed in numerous ways. Adequate liaison between the Air Force and the Department of State will be increasingly necessary. Expanded instruction in foreign policy in the Air Force service schools would aid immeasurably in identifying and clarifying the possible bearing of Air Power upon international affairs. We can envision standard tours of duty with the State Department for selected Air Force officers. This proposition may violate military traditions of aloofness from political affairs, but it is to be noted that our government has recently entrusted officers of the Department of Defense with diplomatic positions of grave responsibility and sensitivity. The trend has been established by the pressure of international events, and the Air Force, as the prime mover of national peace power, cannot ignore its responsibilities for statesmanship.

Concentration of the Air Force within domestic borders would ignore the effects which more widespread deployment can produce in the political thinking of aggressor nations or nations which may waver between powerful sovereignties. We are not assured of a favorable geopolitical situation as far as our domestic air space is concerned. It is necessary, therefore, not only to exploit our present technological superiority in preparation for war, if it comes, but also to improve our geopolitical situation for peace. If U. S. Air Power is deployed advantageously to conform to the geographical dictates of the globe and in direct and recognized support of our foreign policy, it can be said that we have correctly applied geopolitics to the air age. The Pax Britannica, which resulted from an application of this principle to an earlier age, will be succeeded by a stable world free from the constant threat of war.

Finally the continuous interplay of foreign policy and strategically deployed Air Power must not be deprecated by the trustees of either element. Neither the makers of foreign policy nor Air Force planners can afford to proceed unilaterally toward desired ends. Group Captain Davis, in his treatment of the problem as it affects the British Empire, notes that "the defence of the British Empire and Commonwealth is, as it always has been, as much a political and diplomatic matter as a military." The truth of this assertion applied to the United

States must not be denied. The Air Force must regard diplomacy as a partner of defense and a strategic ally in the peace offensive. Our Government, conversely, must utilize the mobility and the capabilities of deployment of the Air Force for attainment of its stated international objectives.

Walter Lippmann has called U. S. foreign policy the "Shield of the Republic." A shield is a parrying weapon; in this sense our foreign policy may be thought of as an international safeguard by means of diplomatic maneuver. A shield is generally supplemented by a thrusting weapon, and in this respect our national power—land, sea, air, and industrial—must be integrated as that thrusting weapon for use in the diplomatic arena. U. S. Air Power, strategically deployed, can spearhead our composite of national power. It can ensure that U. S. foreign policy is recognized and respected throughout the world. In this manner the Air Force can logically substantiate its claim that Air Power is peace power.

Air Command and Staff School

We now have a real intercontinental bomber, a bomber that can take off from bases on this continent, cross the oceans, or the polar wastes, or the vast deserts, penetrate enemy defenses without friendly fighter escort, destroy the strategic target, and then return non-stop to this continent.

—W. Stuart Symington
Secretary of the Air Force
Speech, 12 February 1949

Aviation, world-encircling, world-shadowing aviation has come into being as the creature of war. Therefore, out of its parentage, it bears upon it the marks of the birds of prey. Like it or not, expensively and fearfully, we are forced to keep this weapon ready and even to improve upon it. It is the emblem and insignia of man's internal failure before God, which upon pain of death we must wear until either we destroy ourselves with it or we break out of our own self-created littlenesses.

—Oliver La Farge
The Eagle in the Egg
Houghton Mifflin, 1949

In My Opinion . . .

LIMITATIONS OF AN AIR DEFENSE SYSTEM

THE AIR DEFENSE COMMAND of the United States Air Force is in the process of developing an air defense system for this country. In May and June of 1949 the Command put into being the first increment of its proposed system—OPERATION BLACKJACK. This was the initial test on a unified basis of the equipment and personnel currently available for air defense work.

BLACKJACK was primarily a test of the communications system developed by the Air Defense Command. From it came several indications that we should perhaps question the feasibility of carrying on with the proposed defense system. By establishing such a system are we not trying to develop an impregnable defense barrier against *possible*, not necessarily *probable*, enemy attack from the air?

The radar equipment employed in BLACKJACK was in use at the termination of World War II. It is equipment that would have to be put to use if this country were to be attacked tomorrow or next week or a few months from now. Minor modifications have been made, but essentially the equipment is the same, with the same deficiencies that existed four years ago. It still has limited range, is easy to jam, is restricted to line-of-sight limitations, and each set has a permanent echo pattern according to the surrounding terrain. As for identification equipment, it was discovered that we are still using materiel that has been compromised time and again in the past.

Tests conducted by the Air Force at Muroc Air Force Base and Eglin Air Force Base reveal that we are also lacking in interceptor aircraft capable of satisfactory defense against hostile airplanes. For air defense work enormous sums of money will have to be spent for aircraft whose sole purpose is to intercept bombers or missiles. To be added to this money are the sums needed for research and development.

The Air Force, which has been given the responsibility for the air defense of the United States, has asked for and received

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from Congress 161 million dollars to meet the *minimum* requirements for such air defense. With this sum must be purchased new and expensive radar apparatus, equipment which would not supplement what we now possess, but would, because of the limitations mentioned above, replace it. In addition there are other limitations which must be omitted here for security. Also to be obtained with this sum are sites for the radar locations. And a major share of the money must go into construction: barracks, mess halls, administration buildings, GCI (Ground Control Intercept) stations, control centers, and an extremely costly and expensive communications system.

It is apparent that 161 million dollars will not go far. The USAF will have to go back to Congress many times, at the rate of 161 million dollars a time, before it can complete an adequate system. The original figure appears to be highly insufficient; it can only be considered a small down payment.

Along with the interceptor aircraft and control and warning stations already mentioned, the air defense system must have antiaircraft artillery. To protect the many vital targets in this country, we must have many more guns than our field forces now possess. We must have improved weapons which do not have the limitations of present pieces. In all likelihood we will not be firing at the type of aircraft which were used against us in the past war; future aircraft can be expected to fly faster and higher. To be effective, we must develop antiaircraft artillery capable of hitting them. Such artillery represents no small part of the total cost of an air defense system.

These three elements then—radar, aircraft, and antiaircraft artillery—form the basis for air defense. At present we have all three, but in limited quantities and of questionable value. They will be used because of the *possibility* of attack in the air. The *probability* of attack remains to be seen.

Two wars have shown that no defense system could stop a bomber stream from reaching an objective. Air defense commanders were pleased when aircraft and guns could knock out ten per cent of the hostile bombers. The over-all average was somewhat less than that. These defenses were against bombers carrying conventional high explosive bombs, limited in capacity for damage in comparison with new mass destruction weapons.

In the future it must be expected that the attack will not be mounted with a few aircraft but with formations in the nature of armadas, carrying not conventional high explosives

but atomic bomb-type weapons capable of fearful and widespread destruction in one raid. Guided-missile-type bombs, traveling at speeds far in excess of the speed of sound, will also likely be employed. Combating them is a problem in itself.

If our enemies send over great numbers of aircraft carrying enough atomic bomb-type weapons to attain a goodly part of their strategic objectives, and if our air defense system is capable of destroying only about ten per cent of their planes and probably a lesser percentage of their missiles, is the expenditure of such an enormous sum of money—probably billions of dollars—for an air defense system feasible and acceptable? Are there perhaps other places for us to put our money in order that the *probability* of attack might be made more remote?

General Omar Bradley, Chief of the Joint Chiefs of Staff, has stated that Western Europe is our first line of defense. The United States, he says, should see that the nations involved in the North Atlantic Pact are given arms and equipment with which to meet the attack from any aggressor. He believes the first action in any future war would be an attempt to conquer the countries of Western Europe. General Bradley, in discussing our offensive and defensive requirements and those of our allies, gives the air defense of the United States a fourth priority, subordinated to (1) a U. S. strategic bombing force, (2) U. S. Navy and Western European naval operations, and (3) establishment of ground power in European and other nations.

We do not wish to pillory air defense. If funds were of little or no consideration, a mighty defense system aimed at making this country literally unpenetrable would be mandatory. Unfortunately such is not the case. There is a ceiling on what we can spend, necessitating the establishment of priorities. The proposed air defense system does not rate a high rung on the priority ladder.

Air Command and Staff School

Lt. Col. Harry M. Pike



TROOP CARRIER AVIATION IN THE USAF

ONE PROBLEM Air Force planners must solve concerns the place of troop carrier aviation within the present Air Force structure. While it must be capable of important air cargo operations, the primary mission of troop carrier forces is to transport airborne forces into combat, re-supply them, evacuate casualties,

and evacuate the airborne force itself if necessary and feasible. Progress in tactics, equipment, and techniques bearing on this mission has been negligible since the last war.

One has only to review the troop carrier effort required during the past war to realize that a large force of this type cannot be maintained under current budget ceilings. Concentration then must be on a nucleus of highly trained, adequately equipped personnel, around whom a sizable force can be built.

Today troop carrier wings are assigned to various numbered air forces. While they sometimes operate with airborne and standard ground force units, the bulk of their effort is devoted to transportation of miscellaneous cargo and personnel. An attempt should be made, therefore, to organize troop carrier aviation in such a manner as to accomplish both airborne training and normal air transportation missions. Obviously a troop carrier command with all troop carrier units assigned is the answer, but budgetary limitations, unfortunately, do not now permit its establishment.

Although troop carrier units must presently be used for routine transportation duties because adequate other means are not available, it is not acceptable that our handful of trained troop carrier staff personnel be scattered to the four winds. How, then, should this specialized force be assigned within the Air Force to retain and further develop its primary mission while still furnishing vital air transportation? If troop carrier aviation is considered a force, its present assignment to numbered air forces is improper. Violations of the principles of management and organization are apparent; piecemeal operations, of primary value to the various headquarters, are the primary accomplishments. Troop carrier forces are theater forces and should be utilized on missions of importance to the theater as a whole.

Since a Troop Carrier Command Headquarters with all units assigned is not feasible at this time, a merger with the Military Air Transport Service is the next best answer. With all military transport aircraft and units assigned to one headquarters, more economical utilization can be expected. This proposed merger should structuralize itself into a headquarters with two numbered air forces: one air transport in its present form, the other combat air transport (troop carrier). Scheduled operations within the continental U. S. and to foreign terminals would constitute the major effort of the Air Transport Division.

The Combat Air Transport Force (troop carrier) would concentrate on Army airborne training and non-scheduled air transport operations. It would plan and execute training operations with airborne and air transport troops.

Troop carrier and airborne forces are two components of a team, and certain joint activities are necessary. Standing operating procedures must be established, staff functions outlined, and responsibilities of each component agreed upon. A Combat Air Transport Air Force Headquarters would provide facilities and trained personnel to accomplish the necessary elements of planning and supervision of training operations. Normal rotation of officers through the headquarters would provide an ever-growing nucleus of trained staff officers. To fill current needs, plans for the transport of troops for defense of vital areas could be effected and approved. Emergency disaster operating procedures would save valuable time in relieving suffering caused by acts of God. Accomplishment of such operations would provide valuable training to both planning staffs and combat crews.

Air transport requirements, in the event of war, will be staggering. Although existing military and civilian transport aircraft are too few, it is imperative that all transport aircraft be organized to provide a maximum lift effort. Cross training and rotation of personnel between the two air forces and the command headquarters would provide an acceptable transport organization. Military air transport personnel would become proficient in parachute and glider operations, while troop carrier forces would gain valuable training in scheduled cargo transportation. Adequate numbers of aircraft and trained crews capable of performing scheduled or non-scheduled, maximum-effort operations would then exist. Our strategic effort would be supported more adequately by such a capability. Standardization of equipment types and service testing could be accomplished more economically, resulting in improved items suitable for all air transportation needs. A command headquarters would be at such a level as to plan operations and develop procedures for defense and supply of vital areas. Development of doctrine and improved tactics would be ensured, and cooperation with airborne and Army troops enhanced, because of the single, adequately staffed headquarters.

If such a merger is not acceptable, for reasons unknown to the writer, a planning and operating command headquarters

similar to Tactical Air Command is proposed. While this is not as desirable, from a standpoint of utilization of force, it would still be a great improvement. Although troop carrier units would continue to be assigned to various numbered air forces, they could be made available to the command for joint maneuvers and training. A training schedule could be promulgated to rotate the various troop carrier wings through training periods of thirty to sixty days each. Total-effort maneuvers could be included each year to develop and polish troop carrier airborne operations. Day-to-day airborne training jumps could be performed during the training periods of the troop carrier groups. A flight section, permanently assigned the Command, could furnish effort for the Airborne School at Ft. Benning, Georgia. Independent airhead operations could be coordinated with Tactical Air Command, joint amphibious operations with the Navy, and the land assaults with the Army. Joint staff training with the airborne headquarters would provide valuable experience to troop carrier staff officers.

Air Command and Staff School

Lt. Col. Leroy M. Stanton

MILITARY RESPONSIBILITIES IN THE ATOMIC AGE

WARFARE IS A DYNAMIC FORCE, changing as its weapons change, increasing in scope and destructiveness. While World War II was termed a total war, future warfare will approach totality as never before. One result of this total nature of war has been to force military men to become students of world economic and political problems, as well as of strategy and tactics.

Weapons now available make possible strikes against our country directly from other continents. These blows may come without warning. Our military establishment, therefore, will no longer be able to plan and build forces after a war starts. Hence, we are responsible for the provision of weapons with qualitative superiority over those of possible enemies. Around these weapons a force in being, adequate to meet threats to our security, must be created. Strategic plans based upon the best intelligence must be formulated. But, if our military plans are to be sound, we must accept a vastly increased responsibility for broad and sound thinking in many areas. We cannot isolate the military establishment from the nation and the world of nations. We must solve military problems through realistic and

objective perception of the complexities that enfold them.

We find, for example, that annual peacetime expenditures for national defense have greatly increased. How close to the absolute spending limit we have come is a question the future must decide; but certainly, today, these expenditures are so tremendous that the military establishment must plan more economically and manage more efficiently than ever before to husband national resources.

In international economics military responsibility has also skyrocketed. The Marshall Plan is economic warfare and a good example of its vastly increased scale of operations. The Atlantic Pact and plans for military aid to Western Europe are other programs whose success depends, to a considerable degree, upon close coordination of many departments of our government, including the military. Although these programs are the direct responsibility of civilian agencies, they now require the participation of military leaders to a degree unthought of before in peacetime. We must be more than merely aware of these facts.

In the past, military participation in political warfare and foreign relations has been limited. After each war, except World War II, our military forces have been so drastically reduced that we have been unable to support national policies or foreign commitments. Geographical barriers and armies of friendly nations formerly permitted us to conduct foreign affairs with only potential military power. Today this has changed. The development of military weapons has erased geographical barriers, and World War II nearly eliminated the military forces of our traditional allies. Thus now, as never before, our foreign policy commitments must be adequately backed by actual U. S. military power. If our national strategy is to be sound, close and continuous coordination between the governmental departments dealing in foreign affairs and in military problems is essential. Here again military men must be well informed if their participation is to be of value.

In politics the military has always exerted considerable influence during wartime. Indeed many authorities believe it has been too great. Let us leave the question of the proper degree of military participation in our nation's wartime foreign policy program for others to decide. But the fact that we have won military victories in two world wars without winning a peace in either leaves room to doubt the wisdom of past

military advice in this sphere. Thus the need on the part of military men for a broader knowledge of political warfare and a better understanding of its role in time of war is underscored. Today it is imperative that the military so prepare itself that its influence in a possible future war will lead to winning the peace as well as the military victory.

In the psychological field we find an aspect of warfare that has only recently come into prominence. At the beginning of World War II most Americans, including military leaders, knew little of psychological weapons, and there is no doubt that our ignorance hindered the implementation of an effective program of psychological warfare. Although the future military role has yet to be determined, it is evident that the armed forces must give considerable attention to its possibilities.

Today, the position of the United States in world affairs demands that our military leaders become thoroughly familiar with many vital subjects.

Air War College

Col. J. M. Chappell

TACTICAL SUPPORT AVIATION IN THE USAF

SINCE WORLD WAR II increasing concern relative to the apparent lack of attention being given to air support of surface units has been expressed. Apprehension regarding tactical aviation has been stated publicly by leading military and political officials, with the result that many citizens have themselves begun to question this phase of our defense planning.

The facts are, however, that the Air Force has at the present time trained tactical air units, capable of expansion necessary to meet the requirements of any joint air-surface operation the military establishment is capable of supporting. These units are equipped with modern, high-performance ground support aircraft equal or superior to whatever types an enemy may possess.

Many critics believe the Air Force should maintain large numbers of tactical support units, not realizing that our surface forces are small and require only a modicum of air support. The Army today has approximately two and one-half divisions in the European Theater, five divisions in the United States, of which one is full strength and four are part strength

but which are being built up, and less than five divisions in the Far East. This total Army strength, if combat ready, insofar as equipment and training are concerned, is roughly equal to one field army. Past experience reveals that normal air support for one field army can be furnished by one tactical air force.

At present the Continental Air Command has the equivalent of one tactical air force in trained and equipped units, plus another equivalent force now trained in air defense functions and capable of being converted to tactical operations in a few months. Disregarding those Air Force units outside the continental United States, it is obvious that the Air Force is more than prepared to uphold its share in any immediate joint air-surface operation.

Exception to the last statement may be taken by those who have expressed concern over the capabilities of jet-type aircraft to perform the ground support mission. Admittedly the introduction of jet-type aircraft into ground support operations has increased the difficulties of this type of air operation. But great strides have been made during the past four years in the design of jet aircraft and their armament installations; most of the difficulties have been overcome. It should be remembered that the first P-80's were designed as high altitude, high performance aerial fighters. Attempts were made to adapt them to the ground support role, and admittedly the results were poor. Since then several jet fighters designed primarily for ground support operations have been introduced into tactical units and a steady increase in their ground support capabilities has resulted. The results of tactical and operational suitability tests of the latest jet fighter-bombers prove they are capable of performing all of the missions performed by P-47's and P-51's during the last war and at the same time producing more accurate results.

As for expansion capabilities, the Air Force can enlarge its tactical air units in ample time to support adequately any expanded surface force. During the past war, when the induction system, training programs, training stations, and the nation's industry were operating at peak capacity, it took approximately one year to get a division ready for overseas shipment. Supporting air units were trained and equipped in a comparable length of time. They can repeat this performance now and in the future.

Air Command and Staff School *Lt. Col. Howard D. Sutterlin*

Airman's Reading

Stalin, by Isaac Deutscher (Oxford U. Press, \$5)

Reviewed by
Major Kenneth F. Gantz

THE AUTHOR of this definitive study of the career of the Red Sphinx calls it a political biography. It is actually a remarkably objective and thorough examination of the web of individuals and circumstances within which a dictator arose and the effect of his rise on the revolution.

Mr Deutscher's explanation of how a shrewd and ruthless man can come to power through the channels of political spadework and the collection to himself of the influence of powerful party committees of which he becomes a member is particularly illuminating.

Joseph Stalin was born Vissarion Ivanovitch Djugashvili in a little town in the oriental, tribal, feudal Caucasus in 1879 to the poverty and squalor and the class hatred of a family of serfs. At the age of nineteen he became involved in clandestine political activity and began to display proficiency as a technician of revolution, helping to stage the first successful May Day in the Caucasus and organizing strikes under the name of Koba (The Indomitable).

By 1917 he had spent seven years in prison or banishment. In comparison with the gifted intellectuals of his party he had seemed more the crude handyman of underground activity than a great party leader like the imperious aesthete Trotsky of inspiring eloquence or the idealistic Lenin of comprehensive mind and boundless political resources. He had remained immersed in the drudgery of daily revolutionary work, with no inkling of the broad internationalism of his master Lenin and his colleagues and no part in their stormy doctrinaire congresses. This was the source of his strength. The son of serfs, although Marxist and a clumsy expounder of Lenin's ideas, was, in contrast to the projectors of world revolution, a *Russian* revolutionary, the peasant driven by the urge to throw off the burden, becoming master of the tactic and maneuver of rebellion. When Lenin changed the concept of the party from a

loose organization embracing all the working class and the Socialist intelligentsia and organized it as a vanguard of the more determined elements of the working class for disciplined action, he found Koba an instrument at hand, a practical worker, for membership in the guiding Central Committee.

It was Koba, now Stalin (The Man of Steel), who rushed back from Siberia in the February revolution of 1917 to take over the Petrograd Soviet on the strength of seniority in the party and Stalin who led the party until Lenin could get back into Russia. When the first Soviet Government was formed, it included Stalin, and when the Government delegated urgent business to an inner Cabinet, Stalin was, with Lenin and Trotsky, made one of the five. Stalin, the man of practice, the administrator who could act, had become indispensable to Lenin in his fight with the ultra-revolutionary dreamers.

After three years of civil war Stalin was virtually the behind-the-scenes ruler of Russia, having been voted into positions of decisive importance by his uncomprehending rivals. As Commissar of Nationalities he dealt primarily with Russia's vast Asiatic and Eastward-looking provinces. His first-hand knowledge of their primitive populations was unsurpassed, and as they reasserted themselves decisively in the spiritual climate of Russia, he drew devoted support from their leaders, to whom he had interpreted Russian communism. As Commissar of the Workers' and Peasants' Inspectorate he controlled every branch of the administration from top to bottom through his mission to create an efficient civil service. And Stalin's particular business on the Politbureau, the real government, was the day-to-day management of the party, the marshaling of the party in accord with the Politbureau's directives. He was therefore at one time the executive voice of government, the overlord of government personnel, and the personification of the Communist party for the local leaders of huge blocks of the population whose Asiatic cast of mind like his was foreign to the Europeanized Socialist intellectuals who were party leaders.

This formidable power entered upon its penultimate stage on the road to dictatorship with the creation in 1922 of the post of General Secretary of the Central Committee, to which Stalin was appointed. The Politbureau may have been the brain and spirit of the party, but the General Secretary, who prepared its agenda and documented its debates, who translated its decisions to the party functionaries, in turn depending

on him for advancement, could prejudice its views and distort the execution of its decisions as he desired. With the head of the party, Father-of-the-Revolution Lenin, still alive Stalin was in practice master of the party and the Russia the party ruled. At the death of Lenin the story became one of crafty playing of rival against rival, who one by one, including the arch-foe Trotsky, succumbed. In 1929 he could inaugurate by personal decree the second revolution, the Five-Year Plan, an enormously complex social upheaval of appalling cost to 160,000,000 people. The committeeman without peer had become Dictator.

Like his earlier chapters Mr. Deutscher's accounts of the second revolution, the great purge of the Thirties, and the direction of the German war are well-rounded and penetrating analyses of the stemming of events from the personality and motives of their leading actor. In and around the flow of the central biography are woven excellent mappings of numerous tributaries. Outstanding are the tracings of the suppression of Menshevism by Bolshevism, the feud between Stalin and Trotsky, Stalin's departure from the internationalism of Leninism to the concept of the self-sufficiency of the Russian revolution, Stalin's dealings with rivals, real or potential, Stalin's oriental-ization of the party and the facing away from Europe, and, above all, the turning of the revolution, which began from a great popular movement led by idealogues, toward a police state by surrender to its own instrument, exclusive power concentrated for its own defense in the few at its peak.

This last is the tragic theme that gives universality to Mr. Deutscher's book. Through it the story of Stalin and the story of the Russian revolution bear on the ways of all human beings. Lenin was caught in the great dilemma that besets the societies of men: whether to permit a catholic freedom of diversity in which cardinal unities may be lost or to enforce a dogmatic conformity by anointing a chosen and centripetal few. Fearing that the revolution might be dissipated, Lenin chose the latter—and begat a dictator. After that choice the sequence of things that came seems almost mechanistic in Mr. Deutscher's rich and well-documented telling.

Stalin is, in the opinion of this reviewer, mandatory reading for the Air Force officer and for any person who needs to come closer to a realization of the gulf that separates the lay of mind of a ruler of a nation so much different from his own habits of thinking as perhaps to pass his understanding.

The Foreign Policy of Soviet Russia, Vol. II, 1936-1941, by Max Beloff (Oxford Univ., \$5.00)

Reviewed by

Eugene M. Emme

UNFORTUNATELY many of the numerous studies concerning the foreign objectives and actions of the Soviet Union have been of short-lived usefulness because of their *a priori* assumptions or their skimpy factual foundations. Mr. Max Beloff's second volume on the *Foreign Policy of Soviet Russia*, like the first, is a masterful attempt to wed unemotional analysis to reliable facts. Picking up the main narrative where the first volume ended, just after Hitlerian Germany had remilitarized the Rhineland in March 1936, this volume spans the eventful course of international affairs from the viewpoint of Soviet diplomacy until the *Wehrmacht* plunged into Russia in June 1941. Undeniably historical in his approach, Mr. Beloff has nevertheless laid bare many of the basic elements of Soviet policy in copious and documented detail, making his two-volume work of invaluable usefulness to serious students of contemporary affairs as well as of merit to the more historically minded.

Devoting almost half of the second volume to the "Breakdown of Collective Security" preceding and including the Munich crisis, Mr. Beloff prefaces this section with a valuable discussion of the strategy and conduct of the Narkomindel (People's Commissariat for Foreign Affairs) via official diplomatic channels, as well as of the tactical diplomatic functions of Comintern representatives and other adherents of the Moscow "line" abroad. With scholarly detachment Soviet Russia's double-barrelled diplomacy is first examined with respect to the Spanish Civil War, which, as may be recalled, was highly publicized by both Berlin and Moscow as a struggle symbolizing the ideological conflict between fascism and communism. Then the main stream of international affairs in Europe, of necessity, receives full treatment until the tombstone engraved at Munich was placed upon the grave of "collective security" which Russia considered had been embodied within the framework of the League of Nations. The passive position of Great Britain and France, in conjunction with the unsympathetic reception accorded Soviet diplomacy in most of Western Europe, lent substance to the fears in the Kremlin of a

more active crusade against Bolshevism led by the Third Reich, perhaps in collusion with Imperial Japan. Attempting a balanced appraisal of Soviet diplomacy during the rise of German hegemony in Western Europe, the author presents valuable but brief chapters on "Russia, Turkey, and the Straits," "Russia and the Far East, 1936-1939," and "Russia and the Middle East, 1929-1939."

After the violation of the scheme for "peace in our time," when Prague was forcibly seized by Germany in March 1939, Soviet diplomacy assumed a new course, the analysis of which constitutes the major portion of the remainder of Mr. Beloff's detailed study. It was a policy of isolation and neutrality maintained upon Marxist-Leninist doctrines until the "Second Imperialist War" (as Stalin labeled it in 1939) became the "Great Patriotic War of the Soviet Union" in June 1941. Mr. Beloff examines this policy when both the Western Powers and Germany sought the friendship of Russia during the summer of 1939 and traces it through the conclusion of the Nazi-Soviet Pact (August 23, 1939), the fourth partition of Poland, the Soviet war with Finland, and the course of affairs eventually leading to the entry of the Soviet Union into war as a belligerent in the West while maintaining neutrality in the East.

Mr. Beloff's concluding chapter, "The Principles of Soviet Foreign Policy," presents an enlightening discussion on the methodological problem facing those concerned with the delicate task of interpreting the objectives and tactics of Soviet diplomacy. Since factual information is seriously lacking for an objective examination of the actual motives of Soviet leaders in making decisions on foreign policy matters, a belief contrary to that held by those who willingly accept the "contemporary speculations of foreign journalists," the author admirably attempts to outline what he considers to be the fundamental trends and underlying purposes of the foreign policy of the Soviet Union. In brief he makes no patent thesis but ably synthesizes the now prevailing interpretations of Soviet diplomatic strategy, not without first offering valid criticism for the widespread oversimplification of a most complex problem. Mr. Beloff, for example, does not accept the thesis that the Kremlin's actions are essentially founded upon a priority or opportunistic basis in diplomatic matters, for it cannot be assumed or proven that diplomatic decisions are a reasoned

choice. On the other hand the emphasis upon the "physical, automatic, and compulsive elements" of Soviet diplomacy, those policies which are explained either by the continuous influence of historical traditions or geographical necessities (e.g., "the urge to the sea") or by rationalizing the dominating gospel according to Saint Marx as it has been refined since 1917, Mr. Beloff dismisses as ignoring reality.

It is the impassioned marriage between the territorial power-complex of Russia and the fervent, class-struggle geared ideology of Marxism-Leninism which the author proposes as a central concept for interpreting Soviet foreign policy. Similar in historical analogy to the expansion of Islam and of Arab rule or to the inter-relationships of the Counter-Reformation and the Habsburg dynasty, the wedding of Russia and Marxism in 1917 has produced an ideology which is irreconcilably dedicated to the extinction of non-communist states on one hand and the preservation of the Russian State as a Bolshevik symbol of a better life on the other. Above all, the bearers of this ideology are "bound to put the preservation of their regime above all considerations," while their belief in the inevitable victory of the international proletariat provides the Communist faithful with a conviction of "absolute righteousness" and an "extreme flexibility in daily action."

"The Soviet Government is then like other governments necessarily and at all times faced with a possible divergence between its short term objectives—security and consequent progress within its own frontiers—and long term objectives—the extension of the area of Sovietization. Which alternative will hold the field at any particular time will on this analysis, depend upon the external situation as viewed through Marxist-Leninist spectacles. Where a single powerful enemy has emerged in the capitalist environment, Soviet diplomacy has sought to isolate it, as during the "collective security" period from 1934-1938. Where the outside world is in turmoil, and the capitalist powers indulging in internecine strife, the opportunity for expansion recurs, as in 1939-1941." (p. 394)

The conduct of Soviet foreign policy during the "Great Patriotic War" and the revitalization of international Communist agitation after the conclusion of hostilities only confirms Mr. Beloff's generalization.

In the final analysis, Mr. Beloff has contributed a reference work of considerable merit, one faithfully annotating most pertinent facts to demonstrate the source of his information

as well as to provide the basis for continued research in depth. It should be pointed out, however, that the author frankly admits that he does not attempt to present a definitive analysis but rather has sought to weave those facts in general acceptance into a meaningful fabric. For example, he traces the diplomatic damage done Soviet prestige abroad by the bloody purges of the Red Army leadership in 1937-1938. He also records Colonel Charles A. Lindbergh's significant role in undermining French and British estimates of the strength of the Red Air Force (while magnifying their apprehension for the *Luftwaffe*) during the critical days just preceding the Munich Conference. The author does not, however, exploit the two volumes of *Documents and Materials Relating to the Outbreak of the Second World War* published (in English) by the Foreign Office of the U.S.S.R. in the summer of 1948. In addition, he was unable to exploit fully two excellent monographs of very recent vintage which would have been of value: Mr. Wheeler-Bennett's *Munich: The Prologue to Tragedy* and Mr. Namier's *Diplomatic Prelude, 1938-1939*.

While this is not just another study of the workings of Soviet diplomacy, Mr. Beloff's literary style, quite apart from his methodological approach, is frequently dry and laborious. For the alert reader, however, this is no handicap, even though the format of the work itself invites eyestrain. At the end of the second volume can be found a series of maps illustrating the territorial changes in Eastern Europe, 1938-1941, a classified bibliography covering the citations used in both volumes, and a useful index.

With his final sentence, Mr. Beloff concludes that "the student of Soviet foreign policy is likely to arise from the task with a strengthened conviction that history above all is the study of the imperfect, the contingent, and the unique." To authoritatively disagree with this statement one would necessarily have to disprove every page of two lengthy volumes on which the non-Marxist policies of the Soviet Union appear as unscientific and imperfect as those of any state and Marxist prognosis has yet to be proven infallible.

Department of the Air Force Library



**Russia and the West in Iran, 1918-1948, by George Lenczowski
(Cornell Univ., \$4.50)**

Reviewed by
Robert W. Schmidt

RUSSIA and the West in Iran, 1918-1948, is an account of Soviet attempts to extend Russian control over Iran and the various moves and counter-moves which were made to thwart Russian designs.

The Communist Party which took over the government of Russia after the close of the First World War considered Iran to be the key to Communist conquest of the Orient. In the beginning the Soviet Government was forced by circumstances not only to ignore Iran but also temporarily to give up Russian territory on the northern border of Iran to short-lived republics. Once the Communists had consolidated their position in Central Russia, however, the republics were duly liquidated, and propaganda and military operations were extended into Iranian territory.

Nevertheless it soon became apparent that military operations, if continued, would create a condition unfavorable to Russia. Soviet forces were withdrawn, and a Treaty of Friendship between Iran and Russia was signed at Moscow on 26 February 1921. (A nationalist revival in Iran began in this general period under the leadership of Reza Khan.) In spite of the Treaty of Friendship, Communist agents continued to be active in Iran. By arresting many of the party leaders Reza Khan was able to more or less keep the Communists in Iran under control.

As an additional means of counteracting Russian activity and pressure the government of Iran turned to the United States and Germany for technical personnel and advisers. From a slight beginning, German influence in Iran grew until it reached tremendous proportions at the outbreak of the Second World War.

Almost immediately after the beginning of World War II, Russia and Great Britain intervened in Iran in order to assure themselves that Iran would not become a base for German operations against either Russia or India. This intervention took the form of a military occupation of strategic transportation and communication areas by Russia in Northern Iran and

by Great Britain in Southern Iran. Both countries announced that they had no designs upon Iranian territory and that they would withdraw six months after hostilities had ceased.

British forces, after interning German and other enemy nationals, confined themselves to strategic areas and interfered with the internal life of the country as little as possible. Russia, on the other hand, occupied positions that had relatively little or no relation to the announced purposes of the occupation, closed the occupied territories to all except Russians and Iranians, and interfered extensively in the internal affairs of the occupied areas. To all appearances Russia considered the occupation a preliminary step to outright annexation of the territory.

During the war Iranian protests against Russian activities were of no avail. After the surrender of Germany, Iran protested against continued occupation, and British and American troops were withdrawn, in spite of the fact that Russia was showing an increasingly hostile attitude toward Great Britain and other western nations. Iran then protested even more vehemently against the continued presence of Russian troops in Northern Iran. Before Russian troops withdrew from Iran, however, they aided local elements in Iranian Azerbaijan in carrying out a revolt against the Iranian Government. Furthermore, the Iranian Government was forced to grant Russia an oil concession.

While Russia was thus engaged, Iran protested to the Western powers, but no relief was forthcoming. Iran then appealed to the United Nations. Here, too, there was temporizing at first. Eventually the United States Government took an interest in the case and supported Iran as a means of preventing further Russian expansion.

In the face of Iranian opposition, of world opinion, and of the support of the United States, Russian troops were finally withdrawn. After some months the central government of Iran was finally able to restore order in the areas and to crush the revolt of the communist elements in Azerbaijan.

The author's descriptive analysis of the Soviet program and techniques of expansion in Iran is very well done. In fact it appears to be the soundest part of the book and will be of inestimable value to government, military, and business personnel who plan to work in countries adjoining Russia or who

must deal with Communist organizations. It will give them valuable insight into Communist methods.

This reviewer feels that Mr. Lenczowski has a tendency to overemphasize the part played by western nations in stopping Russian encroachments in Iran. The British certainly knew how to take advantage of elements in Iran which opposed Communist expansion and used them to the fullest extent possible, but it is doubtful whether much could have been accomplished without these Iranian elements of opposition. (The chapter describing the elements in Iran which opposed communism is very good.)

A number of useful documents are included in the appendix. The volume has an index and footnotes but no general bibliography.

Department of the Air Force Library



Japan—Enemy or Ally? by W. Macmahon Ball (John Day, \$3)

Reviewed by

Paul E. Eckel

THE author of this interpretative and critical study is Australian, a former British Commonwealth representative on the Allied Council in Tokyo, and concurrently Australian Minister to Japan. At the outset of his book Mr. Ball admits his prejudices in that he is primarily concerned with setting forth views which will "protect and promote the best interests of the British nations, and particularly of my own country, Australia" (p. 5). He confesses that his "first interest in Japan is undoubtedly a negative one: to assure by every means that she shall not regain the power to become an aggressor in the foreseeable future" (p. 5).

There are two major concepts set forth in the book: (1) that there has been no fundamental change in Japan's social structure or in the political outlook of her leaders; and (2) that fear of Russia and communism has caused America to covet Japan as a friend and ally rather than punish her as a hated enemy. In eight chapters the author approaches these two ideas, not too convincingly, from a variety of angles.

While Mr. Ball admits that considerable good has been ac-

complished by the American military organization (SCAP) in Japan, he does not believe that such an organization, hierarchical in structure, is suited to foster democratic procedures, since a military administration tends to eliminate individualism and freedom of discussion. The author stoutly maintains that any apparent changes in Japan's social and political concepts are only superficial, that the very channel of Allied control—the Japanese Government—is still reactionary, composed almost entirely of unconverted militarists, bureaucrats, and imperialists. He feels that the “clever” Japanese are outwitting the Americans at every turn and plotting another Greater East Asia movement which may well materialize to menace the Pacific, and especially Australia.

There is much in the present SCAP program which needs rethinking. According to the author's observations over a period of two years he is convinced that the economic and financial policy of the Japanese Government has been carefully calculated to frustrate the Allied aims of 1945. In other words the Japanese Government is only ostensibly cooperating with SCAP but in reality has been working along the lines pursued by Germany after World War I, whereby that country was able to obtain drastic reductions in reparations and at the same time covertly prepare for rearmament by obtaining credits and industrial specialists from abroad. Mr. Ball is so convinced that economic imperialism is returning to Japan that he has recommended the adoption of a program of sanctions for the purpose of preventing the establishment of industries which might be converted to war uses in another mad gamble for control of Asia.

While it is true that the author brings to light many problems and dangers which occupation authorities encounter in their attempt to rule an empire of more than seventy million people, there appears to be an overemphasis of these dangers and the dire consequences which may follow if the controls on the present Japanese leaders are relaxed.

It is the author's apparent contention that the United States, by making Japan the “workshop of East Asia,” is aiding her to achieve those economic imperialistic ambitions which she failed to gain by force of arms. America aims to help Japan regain her postwar position in four ways: (1) by permitting Japan “to retain industrial plants which the Allies had previ-

ously intended to remove as reparations," (2) by giving Japan "direct financial help to restore her secondary industries, to re-equip her plants, to secure overseas raw materials and overseas markets," (3) by restoring "to the large Japanese business groups many of the freedoms of which SCAP had earlier intended to deprive them," and (4) by withdrawing some of the "new freedoms which SCAP had previously given to Japanese trade unions" (p. 167). The Japanese have realized that such a program will create in Japan a safe field for American loans and credit and are convinced that "America's fear of Russia would force her to prevent economic collapse in Japan" (p. 105). The author firmly believes that the Japanese feel that they are now indispensable to the United States.

The strategic problems facing the American occupation forces in Japan and the Far East in general are not adequately treated. The sinister purposes of the USSR, overt and covert, are only lightly touched on, so much so that the reader gains the distinct impression that they are relatively insignificant when compared to the alleged insidiousness of the aims of Japan's "Old Guard" to sabotage the economic and social reforms already underway in agriculture, labor, education, and industry. It is not always clear what worthwhile plan for reform Mr. Ball would substitute for SCAP's program. He concludes his study on a rather weak note when he states that "by giving firm friendship and effective help to the Japanese people . . ." (p. 194) all will come out nicely in the end.

University of Pennsylvania



The Royal Air Force in the World War, Vol. III, 1940-45, by Captain Norman Macmillan, M.C., A.F.C. (Geo. G. Harrup, 15/)

Reviewed by

Air Commodore H. E. Nowell, C.B., O.B.E., RAF

VOLUME III of Captain Norman Macmillan's "Royal Air Force in the World War 1940-45" is an admirable factual story of the operations of the opposing air forces in the Middle East, North Africa, Mediterranean, and Italy, with sufficient material covering the land and sea operations included to bring out clearly the important and often the decisive role which the air forces played in the final defeat of the Axis powers in the areas under review.

It ought not to be necessary to mention the salient factor of air warfare so clearly brought out in Captain Macmillan's narrative, namely, that land and sea operations can only be successful to that side which controls the air over the area of operations. This control, or air superiority as it is more commonly termed, need not necessarily go to the side which has a clear majority in numbers: as for instance, the German superiority in numbers in her operations over Crete in 1941. It can be won by that side which has superior training, discipline, and determination to win. This is so clearly shown in Wavell's operations in the Western Desert. Here the numerically inferior British Air Force defeated the Italian air forces, despite the disparity in numbers.

Another theme which runs throughout the narrative in Volume III is the vital importance of secure communications and the ability of air forces, given freedom of action, to disrupt or protect them. This applies particularly where land communications lie across miles of inhospitable desert or where they cross narrow seas or pass through narrow defiles. The operations in Greece show clearly the important part played by the Luftwaffe in preventing the weak British and Greek air forces from attacking the German columns marching through the difficult passes towards Athens.

In the campaigns in Cyrenaica against the Italians and Germans, singly and combined, the battle of communications played a decisive role, particularly in the later battles leading to the capture of Tripoli. Rommel's army, dependent for its success on the free employment of his armour, was crippled when the Allied air forces virtually cut the sea lanes between Italy and North Africa and so deprived him of his much needed petrol. Again we see the same results in the final phases of the battles in Tunisia in the continuous successful attacks against ships and troop carrying aircraft between Sicily and Tunis.

In Italy the use of the Air Force to cut communications leading to their battle area virtually "sealed off" the area of operations and prevented the much needed German reinforcements from reaching the front.

One point which is not mentioned in this book but which future historians may consider to have been a decisive factor in the over-all defeat of Germany lies in the decision of the Allies to go to the assistance of Greece. From a short term

point of view this was a debatable decision, since the dispatch of troops and aircraft from Cyrenaica to Greece so weakened Wavell's forces that retreat from Benghazi to the Egyptian frontier was forced upon him by the determined German advance.

But the German Supreme Command was running to a very fine schedule in the planned operations against the Soviet. Germany had not counted on a winter campaign in Russia. The splendid defence put up by the Greeks and British, culminating in the disasters in Crete, had not been foreseen when the plan against Russia had been drawn up. Nearly four valuable weeks were spent by Germany in these operations. This delay threw out of gear the offensive against Russia and resulted in the winter campaign, which was the beginning of the end of German aspirations in that area.

I have only one real criticism to make of the whole of Captain Macmillan's narrative. In pages 131 and 132 the author compares the roles of Tedder and Harris to the detriment of the latter. There can be no comparison. Each had an entirely different set of circumstances with which to contend. Tedder had to fuse the efforts of the land and sea and air into one comprehensive whole; Harris, working to the directive given him by the War Cabinet, was to slog and go on slogging Germany with all the might at his disposal. Any deviation from this role was to Harris a negation of his orders and so it was only natural for him to resist with all his power and argument. Each was highly successful in his allotted role.

*British Joint Services Mission
Washington, D.C.*

**Military Justice Under the 1948 Amended Articles of War, by
Major Louis F. Alyea, USAF (Oceana Publications, \$2.50)**

Reviewed by
Major Ira H. Smith

THIS compact volume is a carefully prepared summary and explanation of the various sources of criminal law, as applied to the United States military forces (distinguished from the Naval forces), and particularly to the Air

Force. It is valuable as a basic reference in that it assembles, for the first time under one cover, all those various separated bits of legislation, common law, executive directives and legal interpretations which, taken together, authorize and set up our present system of military justice.

This work does not define or explain the various day-to-day situations and disciplinary problems that confront unit commanders and the appointing authorities of subordinate courts. On the other hand it is a learned and painstaking treatise on basic authority for the whole system. Superimposed upon this is a detailed explanation of the many provisions for appellate review in the cases of sentences which involve bad conduct discharge, dishonorable discharge, or dismissal from the service.

Among the valuable features is a complete text of the 1920 Articles of War as we now know them, which includes minor amendments made in 1927, 1942, and 1945 and the complete Congressional revision in the 1948 amendments to the Articles of War. In order to show the changes the retained provisions of the old articles are set forth in standard type, those old provisions which have been rescinded are clearly inclosed in brackets, while the new provisions, effective 1 February 1949, are printed in bold-face type. By this simple means the reader can quickly discern the changes in each Article. In addition to this there are author's comments at the end of each Article, where appropriate, explaining the changes and at times the reasons therefor, including Congressional debate and discussion.

Another similar feature is the inclusion of a topical table of contents, with bold-face captions indicating Articles of War that have been amended in any way, together with sub-captions which summarize the contents of long articles of unlettered subparagraphs.

This volume should be particularly welcome to two classes of officers. First, it is valuable to those technicians who are the lawyers of the Air Force, i.e., the legal officers and judge advocates. For them far-reaching but little discussed portions of the military justice system become an open book. The Congressional efforts to do away with former injustices in the disciplinary aspect of the military service are competently explained. Secondly, this book will have considerable value to unit officers who make the initial and semi-annual explanations of the Articles of War to enlisted personnel, as provided in Article of

War 110. The current trend of obtaining discipline and good service through education and understanding rather than through force will be aided by the ability to answer airmen's questions through reference to or reading from this volume. The discussion of the various automatic appeals and reviews shows the great lengths to which Congress has gone in an effort to have the fairest and most advanced criminal system in the history of the world.

In short, Major Alyea has made a valuable and timely contribution to the administration of the new Air Force. His work is not a substitute for the now-rescinded Technical Manual 27-255, *Military Justice Procedure*, which will have to be rewritten. Meanwhile Major Alyea, through his research and initiative, has laid the groundwork for a long-range approach to the use of the Articles of War and pertinent executive orders. On this basis alone the book is recommended for the use of legal officers, judge advocates, members of courts-martial, and commanders of all echelons.

Headquarters, Air University

Handbook for Spies, by Alexander Foote (Doubleday, \$3)

Reviewed by
Major Robert E. Work

IN full appreciation of the commercial value of the title *Handbook for Spies* it must be stated here, at the outset, that this book is not exactly what the name implies.

Alexander Foote, the author, would himself no doubt be one of the first to agree that such a handbook is yet to be written, and it is not entirely unlikely that he would also agree that such a handbook never will or can be written, certainly not in the sense that the title of this volume implies.

Espionage, either as technique or science, is much too fluid, too variable in method to allow any appreciable part of the picture to be condensed to paper as standard instructions. True, a type of "Ten Commandments" control does govern the *modus operandi* of espionage. These commandments, such as the development of reliable nets, good communications, perfect cover stories, are cardinal, regardless of the nationalities or

individuals involved. And what Mr. Foote has accomplished is perhaps more a good demonstration of the inviolability of these commandments than the presentation of a working handbook. But in spite of his misleading though business-wise title, Foote has written an account of the innermost workings of the Soviet spy network in Switzerland during World War II that is no doubt as reliable as any work on the subject that is ever likely to appear in print.

According to his own testimony the author is probably the very best authority available to deliver this expose. He was at all times prominent in the Swiss net and for a period exercised absolute control over it. He personally transmitted much of the information concerning Nazi Germany that was forwarded from Switzerland to the Soviet military intelligence throughout the war.

An Englishman by birth, Foote has a communistic background that dates to the Spanish Civil War, in which he participated openly as a communistic sympathizer. From this background as a starting point, he relates in considerable detail how he trod the path to international espionage. The reader may experience a certain sense of impatience as he follows Foote through the rationalization and the subconscious inner process of apology that he mires through before he finally gets down to his invisible inks and stolen documents. At any rate the reader will be relieved when Foote is finally admitted to the inner circle and actually takes up his work in one of the world's oldest professions. This initiation is accomplished in the best cloak-and-dagger fashion.

After crossing most of Europe, moving according to the strictest orders, he finds himself at high noon one day standing in front of the Post Office in Geneva, Switzerland. He is wearing a white scarf and holding a leather belt in his hand. A woman, carrying a net shopping bag containing a green parcel and holding an orange in her hand, approaches. The colorful stage-props are in perfect accord with his prior briefings. The woman is no less perfect in her role, and Foote describes her in the best Mata Hari tradition.

She stops at his side and says, "Excuse me, where did you buy that belt?"

He replies, "In an iron-monger's shop in Paris." And with that the prearranged tableau is complete. Author Foote has stepped

across the threshold into the half-world of spy and counter-spy.

From here on Foote accomplishes the surprising task of satisfying the two distinct and widely separated segments of his reading public. The first, and by far the most preponderant of the two, may be referred to as the "non-professional" or lay-reader group. For this segment the paper jacket of the book was particularly designed. This cover shows the usual sinister, hat-down, collar-up, shadow-enshrouded figure. He is carefully observing movements of a lithesome, flaxon-haired, beret-topped beauty as she steals away from the quarters of some unsuspecting and no doubt thoroughly drugged General with her overnight bag stuffed with documents. For this group of his reading public Foote has sprinkled in all the characteristic little condiments that spice the spy world of Oppenheim. But in this book, with their aurora of truth about them, they become real and startling in a sense that Oppenheim at his best did not equal. Here is all the terminology made familiar in fiction. Here are the situations that movies are made of. But here the spy-game is factual, historical, with an actual war between living countries as the scene.

The second or "professional" group of Foote's readers will be advised to exercise their sense of selectivity and thereby quickly pass over much of what the first group may dwell upon at length. The value of the work will be enhanced considerably. This second group includes the many known or unknown individuals who are or have engaged in similar activities. It includes those who possess an honest academic interest in espionage, and it no doubt also includes various Communists interested in the extent of the expose. These people will find that much of the book rings true. They will be convinced or at least inclined to believe that Alexander Foote was a Russian agent of considerable importance. They will recognize his terminology and vernacular as authentic, and this will lend credence to his description of exactly how the Communist net in Switzerland operated. They will find this to be an interesting starting point for conjecture as to what the complexion of present Communist nets might be.

The "professional" reader will also be interested in the apparent connections between the Swiss net and the ill-fated and now defunct Canadian network and how the initial clue leading to the close-out of the Canadian net was apparently traceable to Foote's difficulties in Switzerland. The "trade"

will also find much to consider in Appendix A, in which Foote gives some notes on the wireless code he used in communications with Moscow—simple yet remarkably secure. And it is almost certain that the “trade” will carefully examine his implication that the best type of interrogation, be it of your own agents or suspected enemy agents, is by the written question and answer method, provided that no duplicate copies are available to the interrogatee.

But perhaps the final evaluation of Foote, of his book, and of the work he says he performed must be left to that master in the “professional” category who is able to use Foote’s own rule of thumb to judge Foote himself. This he describes when he says, “After one has dealt with secret agents in all walks of life one begins to have a feeling regarding them and their genuineness.”

Even were such an evaluation possible now, it obviously could not be made here. Suffice it to say that *Handbook for Spies* is written by a man who seems to know his field and whose reliability is underwritten by the British with whom he is presently employed in a government office in London.

It could hardly be said that Foote’s book in any way makes profound reading. But it must be added that it does make good reading. For with considerable authority it does depict the actual operations of a recent Communist spy network. From that account various conclusions may be drawn that can be of considerable value and certainly of great interest.

*Directorate of Intelligence
Headquarters, USAF*

An Army in Exile, by General W. Anders (Macmillan, \$5)

Reviewed by
Lieutenant Colonel Joseph L. Dickman

WHEN the II Polish Corps was demobilized and its troops evacuated from Italy to England in the summer of 1946, there was marked the end of an epic that has few equals in modern times for heroic achievement in the face of overwhelming difficulties. The Polish army rose from humiliating defeat and degrading enslavement to take its place among the Allied forces and assume its share of the struggle

against the common enemy. It is tragic that these gallant soldiers did not also receive their reward from the victory; instead of marching in triumph to their homeland they were led to virtual exile on a foreign soil.

General Anders' book opens with the invasion of Poland by Germany in September 1939, at which time he was in command of a cavalry brigade. Driven back by the Germans, and then suddenly attacked from the rear by the Russians, the Poles were quickly forced to capitulate. Thousands, including General Anders, who had been wounded twice while attempting to escape to Hungary, were taken prisoner by the Russians. General Anders spent almost two years in Soviet prisons, where he obtained a bitter knowledge of the methods of the infamous N.K.V.D. In August of 1941, shortly after Germany declared war on Russia, he was released from prison and instructed that by agreement between the Russian government and the Polish government, located in London, he would organize and command a Polish army, composed of former prisoners of the Russians, to fight the Germans.

Assembling and organizing the army presented extreme difficulties. Collecting points were established, and to these commenced a flow of emaciated, exhausted creatures released from prisons and labor camps scattered from the Ukraine to Siberia. They had to be rehabilitated and trained, in the face of shortages of equipment, clothing, and rations. An attempt to locate large numbers of unaccounted-for prisoners revealed the shocking fact that thousands had been summarily executed by the Russians. From the reports brought back by the returnees, it was concluded that half of the 1,500,000 Poles deported to Russia had been executed or died from privation or brutal treatment in the two years since the war began. General Anders' constant inquiries to the Russian authorities concerning the fate of these unfortunates produced only evasions or denials.

It became apparent that the Polish army could never operate cohesively and effectively as long as it was on Russian soil. The Russians were either unwilling or unable to provide adequate support to the Polish troops. Further, their plan of employment envisaged piecemeal assignment of Polish units to Russian commands; this plan General Anders attributed to the Russians' desire to "expend" the Poles until none were left. Finally, after months of negotiation hampered by Russian obstruction-

ist tactics and anti-Polish propaganda, permission was obtained in July of 1942 to evacuate the Polish army to Iran.

Once outside Russia the Polish army came under operational control of the British. Training was completed in Iraq and Palestine, and in December 1943 movement was commenced to Italy. The Poles received their baptism of fire at Monte Cassino, where they were given the assignment of capturing the abbey and the town of Piedimonte, beyond. Their courageous achievement in this action is a matter of history. In the subsequent operations of the Eighth Army, the Polish Corps participated in the drive northward, capturing Ancona and Bologna. Then, with the rest of the Allies celebrating the end of the war, the Poles could only stand by and watch their country handed over to the Russians, as the result of the Teheran and Yalta agreements. Able to choose between return to Russian-dominated Poland or evacuation to a resettlement corps in England, of over 100,000 that made the exodus from Russia with General Anders in 1941 only 310 elected to return in 1945.

An Army in Exile is not only a fascinating personal narrative and an intensely interesting history but also a revealing account of the methods and motives of the Russians. General Anders' knowledge of Russia is intimate and his description is forthright. And if there is also a trace of bitterness in his feelings about the Allies' handling of Poland, that is understandable and pardonable.

Headquarters, Air University

BRIEFER COMMENT

A Dictionary of International Affairs, by A. M. Hyamson

THE American Council on Public Affairs has reprinted this book from the British edition of the same title. It consists of 353 pages of entries alphabetically arranged and will be of primary value as a reference handbook. Major emphasis is given to devel-

opments since World War I which are of continuing importance.

Public Affairs Press \$3.75

Public Opinion and Foreign Policy, by Lester Markel and others.

PUBLIC opinion has become a powerful instrument of national policy, a weapon we must come

better to understand and utilize. This volume examines the influence of public opinion at home and abroad on U.S. foreign policy and concludes that we are failing to give it the emphasis it deserves: ". . . at home we are confronted with a public opinion that is only one-quarter informed, abroad . . . with . . . [one] that is widely distrustful of us." Unless these attitudes are changed, the consequences may be grave. The authors, writing under the auspices of the Council on Foreign Relations, suggest remedies.

Harper \$3.50

Dictionary of Modern Economics,
by **Byrne J. Horton.**

PREPARED with the advice and cooperation of leading American economists, this is a comprehensive coverage of the basic concepts and terms of economic theory and practice. Digests of important laws, condensations of Supreme Court decisions, descriptions of governmental and private agencies operating in economic fields, and innumerable citations of reference books on specialized aspects of economics are provided. The entire field of economics is compressed in this handbook under short alphabetical entries.

Public Affairs Press \$5

World in Transition, by **G. D. H. Cole.**

IN part a modern history-government-economics text, this volume also contains the author's views on how all peoples can best attain decent living standards and individual freedoms. Mr. Cole carefully reviews important world

political events and economic trends of recent years; he studies such problems as the rehabilitation of Germany, Russia's position in international affairs, population changes, and social systems—all with a view toward making our present world a better one in which to live. The many charts and myriad facts make for an adequate reference volume.

Oxford Univ. \$6

Flight into History, by **Elsbeth E. Freudenthal.**

SUBTITLED *The Wright Brothers and the Air Age*, this is the inside story of the race between many men to be the first to fly. Centered on the Wrights, the drama is also shared by Chanute, Lilienthal, Langley, Maxim, Farman, Santos-Dumont, Herring, Curtiss, and others. The attempt of the Wrights to make the science and theory of aeronautics into a paying business—the beginning of modern aviation industry—was the primary cause of much of their friction with their contemporaries. A very interesting history of the first decade of flying (1900-1910).

Univ. of Oklahoma \$3.75

Les Forces Aériennes Françaises de 1939 à 1945, by **Col. Pierre Paquier and others.**

A minutely detailed account of the operations of the French Air Force in World War II as part of the *L'Aviation Française au Combat* series. Attention is first devoted to the 1939-40 campaign, with emphasis on the Battle of France in the summer of 1940. The sections that follow then cover the Army of the Air during

the armistice, the Free French Air Force, the French Air Forces based in England and North Africa, and the employment of French aviation in the Battle of Germany of 1944-45. Each pursuit, bombardment, and reconnaissance operational unit is covered.

Berger-Levrault, Paris 375 fr.

Behind the Curtain, by John Gunther.

MR. GUNTHER'S first report from Europe since the war is contained in this volume. Actually he visited only four "curtain" countries—Yugoslavia, Hungary, Czechoslovakia, and Poland—in addition to Italy, Greece, Turkey, Germany, France, Holland, and England. Writing with considerable animation and apparent haste, he records his interviews with Europe's important figures, comments on living conditions and political developments, and offers interesting tid-bits relative to train travel, hotels, and meals. While lively enough, this book misses being one of his "most urgent analyses of politics, problems and personalities," which the jacket blurb would have us believe.

Harper \$3

Toward Efficient Democracy, by Arthur C. Millspaugh.

THIS is a book about our government and its organization. Dr. Millspaugh believes the United States Government, as it is presently organized, is incapable of efficient operation; only by a fundamental reorganization of its various components can it adequately meet the requirements of the modern age. He examines the

evolution of the Presidency, legislative bodies, political systems, and elections. After pointing out their defects and shortcomings, novel and controversial proposals for basic alterations are set forth.

Brookings Institution \$3.50

A Tent on Corsica, by Martin Quigley.

HERE is a moving, yet plausible tale of air warfare as seen through the eyes of several crew members of a Corsica-based B-26 outfit in 1944. Operating under the maddening tensions springing from the ordeal of completing 75 missions against targets in German-held Northern Italy, which only one man in four survived, each airman involved had to make his own highly specialized adjustment. For Steve Thompson, more thoughtful and sensitive than his tentmates, this was a particularly grievous task. But this book is more than a character study, for there are gripping portrayals of Marauders roaring through heavy flak and gunners spitting their deadly missiles at enemy fighters, plus a tense rescue scene of a nearly drowned flier who had parachuted into enemy waters. Wartime Rome, impoverished and wretched, is the place where tensions were relieved on short leaves. It is unfortunate that the author, in mirroring certain types, i.e., ground officers and war correspondents, apparently allowed personal bitternesses to cloud some of his presentations. Although this book lacks the scope and incisiveness of such World War II novels as *Guard of Honor* and *Stalingrad*, it has much to recommend it.

Lippincott \$2.75

The Hoover Commission Report.

TWO years ago Congress created a commission, headed by former President Herbert Hoover, to study and report on the possible reorganization of the Executive Branch of the government with a view toward greater economics and efficiency. This volume summarizes the Commission's findings and recommendations. Each major department—e.g., the Department of State, Veteran's Administration, Bureau of the Budget, and the National Military Establishment—was studied by the Commission's members, all of whom are experts in their various fields. As for the military establishment, it was concluded that the authority of the Secretary of Defense should be materially strengthened and that substantial savings could be effected without weakening our military might.

McGraw-Hill \$3.75

The Atomic Age, by Bertrand Russell and others.

CONSEQUENCES of the most significant event of our age—the harnessing of atomic energy—are summarized in this small book. Six English specialists, M. L. Oliphant, P. M. S. Blackett, R. F. Harrod, Bertrand Russell, Lionel Curtis, and D. W. Brogan, have contributed single essays dealing with atomic power's effect on the military, economy, politics, and morals of not only England and other nations but civilization in general. Professor Blackett's study, "Military Consequences of Atomic Energy," will be of extreme interest to Air Force readers, as will the essay entitled "Values in the

Atomic Age," by Lord Russell. This book was first published by George Allen and Unwin, London.

Macmillan \$2.50

Technology and International Relations, edited by William F. Ogburn.

TECHNOLOGICAL inventions and scientific discoveries such as the airplane and the release of atomic energy by nuclear fission have created new and powerful forces underlying relations among nations. In this volume seven authorities contribute essays on various phases of this relationship: Quincy Wright, discussing the new technology and world order; Bernard Brodie, analyzing new techniques of war and their influence on national policies; Hornell Hart, studying the influence of recent inventions on the size of nations; and Mr. Ogburn and the others, writing on mass communication, steam and steel, and air and atomic power.

Univ. of Chicago \$4

Experiments on Mass Communication, by Carl I. Hovland and others.

THIS is the third of a four-volume series, "Studies in Social Psychology in World War II," on the work of the Research Branch of the Army's Information and Education Division. (Volumes I and II were reviewed in the Summer 1949 issue of the QUARTERLY REVIEW). The research reported on here was intended to evaluate Army films made to acquaint soldiers with the issues behind

the past war. Audience evaluation of films, the effects of films on soldiers of varying degrees of intelligence, and the results of presenting "one side" versus "both sides" films on controversial subjects are a few of the topics studied. The findings throw new light on the changes in opinion and knowledge this media is capable of producing.

Princeton University \$5

Atoms in Action, by George Russell Harrison.

HERE is the solution for those seeking a knowledge of modern applied physics without becoming involved in equations or formulae. The most complex phases of the physical sciences, including atomic energy, radar, and electronics, are explained by Dr. Harrison in simple graphic language. This most interesting and lucid book is an enlarged version of the 1939 edition which was originally undertaken upon the recommendation of the American Institute of Physics. For those wishing to delve deeper into a particular phase of physics, the book includes an excellent bibliography of writings, both technical and popular.

Wm. Morrow & Co. \$5

Peace or Pestilence, by Theodor Rosebury.

ASSEMBLED here for the first time for public consumption are the released facts on biological warfare. Dr. Rosebury speaks with authority as wartime chief of the Air-Borne Infection project at Camp Detrick, Maryland. Facts given about BW are that units can

be constructed in the smallest laboratory in the poorest country; the materials are widely available and cheap, the methods for production common knowledge. In the event of World War III BW is almost certain to be used, if only in desperation, and once started, continued to the bitter end. Following the general explanation of BW, a vigorous plea is made for the necessity of avoiding a war which will employ such a genocidal weapon. An excellent bibliography is furnished, limited only by the paucity of information on a subject surrounded by possibly more security controls than shield atomic energy.

Whittlesey House: McGraw-Hill \$2.75

Day Without End, by Van Van Praag.

AMONG the several competent combat novels published since World War II this volume alone is reminiscent of Norman Mailer's outstanding *The Naked and the Dead*. While considerably shorter and minus the searching psychological and sociological insight, it mirrors with the same stark realism the horrors and fears and miseries of a group of American foot soldiers engaged in mortal combat. The infantrymen in this story, all ordinary men, belong to a platoon fighting in the St.-Lo area. But caught in the maelstrom of a cunning enemy, suicidal orders from their own battalion, and fifty-eight excruciating days at the front, they tend to resemble animals more than men. This is a powerful, bitter story, told by a man who undoubtedly was there.

Wm. Sloane \$3

AIR ANTHOLOGY

A GALLERY OF MILITARY PORTRAITS
FROM
JAMES GOULD COZZENS' PULITZER PRIZE NOVEL
GUARD OF HONOR

Captain Hicks and Major Post

THERE was now a general agreement about what parts of the text were wrong; but Captain Hicks had not yet found two fighter pilots in complete agreement on what would be right. He had gone to Sellers Field to talk to a Major Post, a noted AVG flyer. Major Post had lost an arm in China, and though they had fixed him up a good mechanical substitute, he did not like it; and he did not like being relegated to Operations Officer at Sellers Field. It was soon plain to Captain Hicks that Major Post, consciously or unconsciously, also disliked at sight anyone who had all his limbs, was not a fighter pilot, or came from Ocanara to bother him with a lot of talk. Seeing that Captain Hicks wore no wings and had no ribbons, Major Post stared at him in a surly way while the project was explained. He then said: "How the hell are *you* going to rewrite it?"

Captain Hicks, who was thirty-eight to Major Post's twenty-eight, and who was, in civilian life, a magazine editor whose judgment might often do much to determine what several hundred thousand people like Major Post were going to read, and so, going to think and believe, accepted this criticism in good part. Nathaniel Hicks said that he was not writing the new manual himself. He was getting the views of qualified pilots on the proper changes. He would write these up in a report and, on the basis of them, prepare a synopsis of new material. This would go to the Training Aids Division of AAF Headquarters, which handled manuals. It would be for them to write and publish the revision.

Major Post said: "What am I supposed to do?"

Captain Hicks suggested, if the major had time, that he go

over the present text, of which this was a copy in case he didn't have one, and simply mark out everything he thought was wrong. Captain Hicks had already done this with Captain Wiley, at the School of Applied Tactics at Orlando; and with—

"Who the hell is he?" said Major Post, taking the manual brusquely and slapping it open on his desk.

"He was with the Eagle Squadron, flying off Malta," Captain Hicks said. "He has seven Axis planes."

"Axis!" said Major Post. "Wops, I suppose he means."

"Five of them were German," Captain Hicks said. He was a good-tempered man and ready enough to subordinate his civilian dignity or consequence to those who were in the after all important fighting end of the war. However, bumptiousness irritated him now just as much as it used to when staff writers put up loud, persistent, and foolish arguments about things that few or no writers seemed capable of understanding—what was good and interesting because it interested them personally, for instance, and what was intrinsically interesting to people at large.

Captain Hicks had a frank, round face not suited to conceal his feelings. A warm color appeared on his temples below his short, fuzzy, blond hair. His blond mustache, cropped to a stiff growth of quarter-inch hairs, stiffened more, and his eyes began to snap, for he liked a fight when he was finally forced to it.

General Beal

THE GENERAL'S FACE was frowning and intent, strained around the mouth and eyes, and Nathaniel Hicks could see that he was repeating a lesson that he had made himself learn in a field entirely foreign to him. General Beal probably did not see any real need to fill in big overall stories, or did not see it until the Commanding General ordered him to. The need then became, of course, actual and absolute. It occurred to Nathaniel Hicks that General Beal, though accepting the order, felt the indignity of any obligation to "put over the AAF story," to assure the public that the AAF was good, on its toes, doing its duty. General Beal's own instinct might be to shut up and get on with the war. They were going to win it; so do that first, and tell the story, if you had to, afterward. Nathaniel Hicks was obliged to admire a simple, unlimited integrity that accepted

as the law of nature such elevated concepts as the Military Academy's Duty-Honor-Country, convinced that those were the only solid goods; that everyone knew what the words meant.

They needed no gloss—indeed it probably never crossed General Beal's mind that they could be glossed, that books had been written to show that Country was a delusive projection of the individual's ego; and that there were men who considered it the part of intelligence to admit that Honor was a hypocritical social sanction protecting the position of a ruling class; or that Duty was self-interest as it appeared when sanctions like Honor had fantastically distorted it. In his simplicity, General Beal, apprised of such intellectual views, would probably retort by begging the question; what the hell kind of person thought things like that?

Formal logic was outraged; but common sense must admit he had something there. Few ideas could be abstract enough to be unqualified by the company they kept.

Colonel Jobson

A WEEK after their arrival, a full colonel—Nathaniel Hicks identified him later as Colonel Jobson, Director of Personnel Analysis—happened to observe their desirable apartment. The colonel, who had just got down, was in the act of locking his not-very-desirable bedroom door. The door of the apartment at the end of the corridor was open. A number of officers, all first or second lieutenants, were cheerfully, and perhaps from Colonel Jobson's standpoint, over-luxuriously, having a drink before dinner in the big living room. Nathaniel Hicks came out while Colonel Jobson, his morose face drawn down, stared. When Nathaniel Hicks was near enough, Colonel Jobson said to him: "What's that up there; a common room, or something?"

Though, in fact, that was just what it seemed to be much of the time, Nathaniel Hicks, in the Army only four months, did not venture a pleasantry. He said: "No, sir. It's part of an apartment."

"Who lives there?"

"I do, sir. With two other officers."

"You in AFORAD?"

"Yes, sir. Colonel Coulthard's Directorate."

"Hm!" Colonel Jobson said. "Flying pretty high for a first

lieutenant, aren't you?" Without waiting for an answer, he turned and clumped off down the hall.

As it happened, Colonel Jobson's irritation was disinterested. The next day, he was moving into a house where his family would join him. But if no house had been waiting, if he had needed to live at the hotel, the little dodge of being left off the list would hardly have availed them. The irritation was understandable enough. Colonel Jobson could not be unaware of the fact that lots of these amateur officers had for years, and as a matter of course, flown much higher than men like himself, who devoted their lives to serving their country, could ever hope to fly.

Captain Solomon

CAPTAIN SOLOMON was a swart, perky little man with Service Pilot's wings. His job before the war had been persuading civic organizations in small cities to establish airports, and thus avoid being left behind by the Air Age. If his persuasion proved successful, he was ready with plans, and could put them in touch with contracting and equipment firms. Captain Solomon's nature was free and friendly; when he met anyone he began the conversation by asking that person to call him Manny. As Adjutant he was in a position to do people small favors and he did them willingly. He had the successful—though perhaps small-time—promoter's facility with smiles, compliments, and slaps on the back, which after all cost nothing. In the end, they usually paid off, even with people who recoiled at first from the pushing good fellowship and friendly inquisitiveness. Captain Solomon knew that what every man is most interested in is himself; and if you want to please him, you must show the same interest. In the end, the merry smiles and warm indications of liking would win.

Captain Duchemin

"WELL, the scene was the Scheherazade Bar and the loot seemed to be in fine fettle. He was goggling at some chicks there; but you know how I shrink from the gross taint of commercialism. Bless his little heart, I thought, the old AAF can do better than this for a brother officer of a sister arm—"

"Keep shaving, pal."

"I am. So then I just happened to remember June." Beaming

broadly, he broke into song, laying his hand on his fleshy chest and waving his razor: "Oh, June, like the mountains, I'm blue—" he broke off and hastily began to run the razor down his cheek. "In fine voice this morning!" he said. "Wait till I soar and sing in Manny's flying machine! Then, there was some unfinished business with my lovely little Emerald, and something about their aunt going to Tampa. So I rang up, and aunty had sure enough gone. The occasion offers and the youth complies!"

Captain Andrews's face showed signs of uneasy strain. Captain Andrews led a chaste and sober life, and though it was not in his nature to take a censorious attitude about what other people chose to do, he did not approve. He did not want to listen. On the other hand, he did not want to appear priggish. Nathaniel Hicks was sure that Captain Duchemin recognized and relished this little dilemma. Like Captain Andrews, Captain Duchemin did not take a censorious attitude about what other people chose to do; but, after all, a belly full of beer and a girl in bed were solid goods, suited to the nature of man. People who really did not want them had something wrong with them; people, a good deal more numerous, who really did want them, but refrained for various artificial reasons from getting them, struck Captain Duchemin as ludicrous.

"So," Captain Duchemin said, "quick as a flash, we whipped out there. The loot looked all right to me. He joined heartily in the introductory inquiries about each other's healths and the exchange of compliments. I prepared some refreshments; and we extinguished a few lights to avoid eye strain—" he wiped his razor and began to splash his face with water. When he could, he said, "My lovely little Emerald and I drifted out to a fine broad hammock on the verandah to study the stars, unfortunately at the time obscured by a few thunderstorms. I left the loot going good." He buried his face in a towel, wiped the basin out with it, and threw it on the floor. "Look!" he said, pointing beyond Nathaniel Hicks, who involuntarily turned his head. Captain Duchemin darted his hand up to the shelf and, taking Nathaniel Hicks' bottle of shaving lotion, poured a quantity into his other palm. "Never touched it!" he said, putting it back and applying the palmful to his cheeks.

"Well," he said, beaming again, "now, comes catastrophe! The shame of it! I just hope it never gets back to the Chief Signal Officer! Clear case of conduct unbecoming! There was

June, her warm little heart pitter-patting, ripe for romance, and halfway through some sweet nothing he was whispering to her, the loot goes to sleep! Mind you, I don't say I cared about him; but I cared about me. My lovely little Emerald, studying the stars (in absentia) with pleasing enthusiasm and eager soft abandon, had about completed the course. Her able mentor was on the verge of tendering her the diploma, when out pops June, sore as any lady would be. The cup is dashed from my lips. I have to start resuscitating the loot and getting a taxi. What an end to a beautiful evening!"

Major Sears

MAJOR SEARS, though not an Army man, but appropriately enough a former State Police lieutenant, stood and moved in that perfect position of the soldier which is seldom seen outside pictures in *New Infantry Drill Regulations*. With no visible effort or strain, Major Sears carried his head erect on the correct vertical axis; his neck and head squarely to the front, chin in, eyes level. His straight shoulders, lifted chest, and narrow, evenly-held hips set off the fresh creases of his khaki shirt and trousers. His shoes gleamed. His brass belt buckle shone colorless as a clean mirror. The insignia on his collar tabs were centered to at least one thirty-second of an inch.

Colonel Ross, though he didn't, and didn't purpose to, practice himself any such excesses of bearing and grooming, looked at Major Sears with an approving eye. If you are going to do a thing—especially if you are a young man in your thirties and have a chance of doing it successfully—you should do it right. In performing his duties, one of which was to see that Ocanara personnel looked, as well as behaved, like soldiers, Major Sears properly began with himself.

Master Sergeant Dominic Pellerino

MASTER SERGEANT DOMINIE PELLERINO, General Beal's Crew Chief, had gone early to eat, at half-past eleven. Quickly fed, he put a toothpick in his mouth and sauntered, by an inconspicuous route, from the Ocanara Base Mess to the Electrical Shop abutting on the vast cavern of Hangar Number 2. Tracing his way through the machines and work benches to the supply section and stock room, he signaled the clerk at the issue window. The clerk pressed a button that unlocked the

side door. Sergeant Pellerino passed along the ranges, dimly electric-lighted, of racks and bins. At the end was another door, with the words: *Knock and Wait* stenciled on it.

This had been the darkroom of a photographic laboratory before the laboratory moved to a building of its own. Nominally, the present use of the old darkroom was miscellaneous storage—a place to put those bits of equipment and odds and ends which had been dropped from accountability, but which a wise Shop Chief never threw away. They, or parts of them, might come in handy on some job sometime; and, anyway, he might want to fiddle with them for his own amusement. Thus in one category were used motors and generators of various sizes; resistors and condensers; relays and solenoids; thermal overload resets and AN connectors. In the other category was the most considerable item; a whole Martin power-operated gun turret, without the guns, from a crashed B-24. Master Sergeant Storm, Chief of the Electrical Shop, had ideas about rewiring it.

While this storage use was real, and enough to justify the assignment of space that would be little good to anyone else, it was not the principal use of the darkroom. The darkroom provided quarters for what was known, not unnaturally, as the *Knock and Wait Club*. This was an informal group of the top sergeants in engineering and maintenance, crew and shop chiefs, marked out from the common run by their important positions, and by their resulting special attitudes of mind and manner. Their habits were unhurried; they spoke with laconic assurance. They had extra privileges and established perquisites to which they helped themselves with authoritative aplomb.

Almost everyone in the Air Service Group knew of the Club's irregular existence, and knew who belonged to it; but as a matter of form, the members acted as though all was very secret. This was one of those practical, give-and-take arrangements, a co-operation with their various commanding officers, who tacitly agreed to be ignorant as long as they plausibly could be ignorant. It was a practicable arrangement, because membership in the club was self-limiting.

To be free to frequent the darkroom, a man had to be good. Unless he knew how to organize his work and discipline his personnel so that his absence for an hour or two made no difference in the progress of the jobs on hand, he could not go

to the club without soon losing his stripes. He must have the judgment and experience to know exactly what his valuable abilities entitled and enabled him to get away with. A competent organizer and disciplinarian endowed with judgment and experience was a treasure. He was much more important than most of the officers supposed to be over him; a point made plain by the fact that he had more real power and far more effective authority than most of his officers.

The lieutenant could give all the orders he wanted, but none of them would be carried out until the sergeant decided whether it was necessary and reasonable. If it was held to be unnecessary or unreasonable, it would never be carried out. Busy motions might be made, but one thing after another would go wrong until carrying it out was patently impossible. The lieutenant learned, if he was capable of learning, not to give that kind of order. If he was not capable of learning, he found himself fixed up for royal chewings by the higher echelon, and for eventual reassignment as unsatisfactory. When a top sergeant gave orders, it was different. Reasonable or unreasonable, necessary or unnecessary, they were really orders. Any GI who didn't jump to obey, fully and completely, then and there, without argument or stalling or gold-bricking, was asking for, and would certainly get, the dirty end of every stick. They would ram him so full he wouldn't be a week in wishing he were dead.

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FOREIGN HORIZONS

SOVIET AIR POWER

Asher Lee

From *The Nineteenth Century and After*, June 1949

THE SOVIET UNION deservedly holds the blue riband for inaccessibility. Her highly developed system of secrecy is worth many fighter squadrons and anti-aircraft guns to Air Marshal Constantin Vershinin, who is head of the Soviet Air Force and who plans the air defence of Russia. But in spite of Soviet security, intensive research and study over the years permit the specialist to assess, within reason, the strength, organisation and fighting value of Russia's air squadrons; not with complete accuracy, of course, but that is no more possible in Moscow than in London or Washington. No one can predict the date or the climatic conditions in which Soviet air squadrons may have to do battle. Nearly all air weapons are to-day in the melting pot. Except for a few American six-jet 'planes, the long-ranged jet bomber is not yet an operational reality. Flying faster than sound has been achieved experimentally, but not in normal aircraft conditions that make supersonic flight a serious military factor for at least two or three years. Radio and radar-controlled anti-aircraft shells and rockets may or may not revolutionise air defence in the next few years. The atomic bomb is untested against serious air opposition. Its hitting power may be further reduced by defensive dispersal and underground factories. The range of military rockets of the V2 type, their degree of accuracy and their explosive potential are as much a subject for scientific conjecture on Soviet rocket ranges near Irkutsk as on America's White Sands or on the Australian rocket ranges.

One thing must be said at once about the Soviet Air Force of to-day. It has benefited enormously in the last four or five years from German scientific brains, technicians and tacticians in almost every field of aviation. In mobility, in the design of its jet-engines, in the improvement of its aviation fuel, in the manufacture and use of radar equipment and in the

development of rockets, German influence is predominant. We can accept the published testimony of Colonel Grigori A. Tokaev that the Soviet Air Force scientific legacy from the Luftwaffe in 1945 was considerable. Equipment from dozens of Germany's aircraft factories and experimental air stations was decanted into the Kremlin's eager lap.

In World War No. 2 one of the greatest of the Soviet air weaknesses was the absence of any kind of radar equipment in operational aircraft. It is not surprising that three American Superfortresses which force-landed in Siberia at the end of the war, were pounced upon and retained by the Soviet as war booty. Valuable radar bombing equipment was aboard.

The operational use of radar is one of the keys to modern long-range bombing. Britain's Air Chief Marshal Arthur Harris should be listened to on this point. In his book *Bomber Offensive*, he writes: 'Unless an effective non-visual (radar) navigational aid is provided, the task of the night bomber is immensely difficult.' Now all Soviet long-range bombing of Germany in World War 2 was done at night without the use of radar. No surprise then if it was second-rate and ineffective. The U. S. S. R. never used more than 250 long-range bombers on any of these operations. Three-quarters of the bomb loads were usually wide of the target area. Nowadays the thousands of German Air Force prisoners and German émigré factory workers at present in the U. S. S. R. are helping to remedy this state of affairs. There are German radar technicians lecturing and expounding at the aviation schools at Frunze, Novosibirsk, Sverdlovsk, Khabarovsk, Baku and elsewhere. The U. S. S. R. also has the use of thousands of German radar workers from the Siemens Telefunken and Askania factories working in Leningrad, Kuibishev and Kiev. In the next few years, these Germans may atone for some, but not all, of the Soviet ignorance of the use of radar in war.

The Germans not only bequeathed their radar equipment and technicians to the U. S. S. R. The Soviet have also acquired the secrets of a whole range of Nazi radio-controlled bombs and rockets which they are now exploiting. There are the Henschel radio bombs that the Germans used against Atlantic convoys and in the Salerno operations off Italy in 1943. World War No. 2 saw these bombs in the experimental stage—the Germans pressed them prematurely into operations, but the Russians have had time to develop them at leisure. The same story of

German legacy is to be told about radar-controlled and anti-aircraft rockets, such as the Henschel V3 projectile. In fact, any future opponents of the Soviet Air Force may have to reckon with the whole gamut of Luftwaffe scientific weapons. Nearly the complete string of Germany's experimental air stations fell into the Soviet lap at the end of World War No. 2.

However, long before the Soviet Union got hold of the German flying bomb (V1) and the long-range rocket (V2), Russian technicians had been working on their own domestic models of these air weapons. Some say the doyen of Soviet rocket scientists is Constantin Ziolkowsky. With his colleagues Rynin, Perelman, Petrovitch, and Scherchevsky, he was making large fuel rockets at the Soviet ZAGI research centres at Moscow, Leningrad and Kazan, in the 1928-30 period. ZAGI is the central organisation for Soviet air design, production and experimentation. In the 1930's, the Soviet acquired some refugee workers from Germany's chief rocket centre at Peenemunde. Most notable was Herman Oberth. Stalin realised too late that heavy rockets were to become a major weapon of war. Instead, he concentrated on developing a small rocket projectile, used with moderate success on his fighter 'planes throughout World War No. 2. But the Soviet flying bomb was a failure. In the last three or four years, however, Russia has been making up the leeway. The Soviet have already improved on the performance of Nazi rockets and flying bombs. Of the two weapons, the rockets are likely to be developed most—especially for use from the increasing number of new Soviet long-range submarines. But the range of Russian heavy rockets delivering a ton of explosives will not exceed about 500 miles for a year or so. Nor will they exceed 1,000 miles in the foreseeable future. Soviet metal-scientists and radio-control experts have the same problems to solve as those of other countries. The metal encasing rockets gets hot, the fuel in the rockets takes up a lot of room and weight. The difficulties of controlling by radio large missiles travelling at over 3,000 miles an hour are far from solution. In fact, really effective long-range military rockets are at the moment beyond the wit of man.

Numerically, the Soviet Air Force is smaller than it was at the end of World War No. 2. It has a personnel strength of about half a million, but that is only the total of the men and women in uniform. There are, of course, thousands of other civilian helpers—test pilots, cooks, clerks and the like. From

the peak war operational strength of about 22,000 'planes, split up into about 650 air regiments, each with a strength of thirty to thirty-five 'planes, the Russian Air Force is down to about 15,000 'planes and about 500 air regiments. This reduction is no disarmament gesture. It is simply the slow-down effect of building larger and more modern 'planes in the last three years. The war-time monthly peak production of 2,500 to 3,000 military 'planes, excluding trainers and production in the Cominform satellite countries, is down to about 2,000 to 2,500 a month. But this smaller Soviet Air Force has much greater hitting power and is a much better instrument of air defense than the rather clumsy machine which enjoyed air domination against a much weakened Luftwaffe on the Eastern Front for the last two years of World War No. 2.

The Soviet Air Force made extraordinary progress during the Second World War. When it had to go to war with Germany in the summer of 1941, it was on the whole, a second-rate fighting machine. Large numbers of its fighters were obsolescent and had top speeds of little more than 300 miles an hour. Many of its bombers lacked the protection of adequate gunnery and armour plating. The standard of blind flying was low. There was a general lack of mobility fatal to an air force largely designed for tactical continental air warfare over vast European spaces. During the war, things improved rapidly. By 1944 Soviet designers, Lavrochkin, Mikoyan, Gurevich and Yakovlev were turning out fighter planes almost as good as the German Focke Wulfs and Messerschmitts, British Spitfires and Tempests or American Thunderbolts and Mustangs. Soviet cannon-firing fighters with top speeds of 375 miles an hour were the rule, rather than the exception, in the Soviet Air Force of 1945. Soviet twin-engined planes designed by Ilyushin and Petlyakov had also become modernised and were then comparable in performance with their German opposite numbers. Large-scale production of American Dakota transport 'planes was in full swing at Moscow and Tashkent. Production of four-engined heavy bombers, which had been slowed up between 1941 and 1944, resumed at the prewar rhythm during the last year of the war in Moscow and Kazan. In addition, Soviet Air Force radio communications and the supply organisations were vastly improved.

But when the end of the war came, the Soviet Air Force was lacking in many operational respects. It had never pitted

itself for long against a modern air force of approximately its own size. Either its equipment had been too obsolescent to deal with the Luftwaffe or else it had so outnumbered the Luftwaffe that the Germans were simply overwhelmed in the air. The Soviet Air Force had had no experience of operating radar equipment, jet-propelled 'planes, large rockets, radio-controlled bombs or aircraft carriers. It had shown the world little of the hitting power of its long-range bomber force reformed in the Spring of 1942 under General Golovanov's command and Stalin's particular patronage. The Soviet air defense system had hardly been tested, for the Luftwaffe was never able to launch a full-scale attack on Soviet cities. The German raids on Moscow in the summer of 1941 were modest in size, averaging about seventy-five 'planes per attack, and they petered out after half-a-dozen operations.

But what of the organisation and fighting value of the Soviet Air Force of to-day? Over two-thirds of the 15,000 aircraft in units are organised into a dozen tactical air armies of about 1,000 aircraft each. These are under the direct authority of the Red Army Commanders, who have their permanent headquarters at Odessa, Minsk, Leningrad, Tiflis, Tashkent and Chita. In addition, there is a Fighter Command of about 1,000 'planes and a Long-Range Bomber Command equipped with 750 to 1,000 four-engined machines. Both these forces are independent of the Red Army. The fighter air regiments come under the command of General Vassilyi Stalin, whose rapid war-time promotion reeked of unwonted nepotism at the Kremlin. The Soviet Bomber Commander-in-Chief is General Golovanov. Both Bomber and Fighter Commands are directly controlled by Marshal Constantin Vershinin. Just as the tactical air regiments come under the army, so the Naval Air Forces come under the Soviet Fleet commanders. The strength of the naval air regiments totals about 2,000 'planes, of which about 10 per cent. are multi-engined torpedo-bombers. The remainder are fighters and fighter-bombers which would be used more to defend Soviet ports or to support Red Army coastal operations than they would to support the Soviet Navy at sea.

Soviet transport 'planes number about 3,000. This figure includes the civil air-lines. These need to be taken into the military account because they could and would be quickly integrated with the military transport units, some of which are also part of the Long-Range Bomber Command. The war-time

twin-engined P.S. 84, the Soviet version of the Dakota, is being replaced by the more powerful twin-engined Ilyushin 12. In addition, Ilyushin is building a heavier four-engined transport 'plane and there is a transport version of Tupolev's four-engined bomber, the TU. 70.

The TU. 70, comparable in performance with the British Lincoln or Lancaster, is the current type of Soviet long-range bomber and most of Golovanov's air regiments are at present fitted with it. It has eight guns, including four cannon, four engines of about 2,500 h.p. each and can carry about 5 tons of bombs for a range of about 1,000 miles. The Soviet four-jet bomber designed by Ilyushin is not yet in squadron service, but should appear soon in small numbers. Radar bombing aids will shortly be standard in all Soviet long-range bomber units.

Soviet jet-fighters and fighter-bombers have been replacing the war-time conventional fighter 'planes in Air Force units since 1946. Svetzov, chief Soviet jet-engine designer, has been working on jet-engines since before the German war, but by the summer of 1945 the U.S.S.R. was still without its first jet fighter squadron. Then came the German windfalls. Hundreds of Junkers 004 and B.M.W. 003 jet-engines were acquired in 1945 from the Junkers Dessau factories and the aero-engine plants in Austria, Czechoslovakia and Hungary. The Luftwaffe abandoned to the Soviet Air Force dozens of samples of the single-jet Heinkel 162, the twin-jet Messerschmitt 262 and the two-jet Arado 234. Long before the first fifty British Rolls-Royce jet engines arrived in the U.S.S.R. in 1946, the Soviet were flying their own Yak and Migg jet planes. To-day they have between 1,500 and 2,000 jets in squadrons. They are more heavily armed than British jets. The Soviet fighters have 30 and 37-mm. cannon, against the more general British 20-mm. gun, but their engines have not the same power and so the 'planes are not as fast as the latest types of British Meteor and Vampire. Most Soviet jet-engines in service have a static thrust of about 4,000 lbs., though engines of about 5,000 lbs. thrust will shortly be in squadron service.

And what about the men behind the 'planes? What about the human factors of morale, training and leadership?

The morale of the Soviet Air Force will nearly always be high. It gained great national prestige in World War No. 2. It is, of course, a bad second to the Red Army in the Press and

annals of the U. S. S. R. But it has received a generous allowance of national back-slapping and a generous allocation of war decorations, like the orders of Victory, Suvorev, Alexander Nevsky, Bogdan, Glory, Red Star and Patriotic War. If the staple breakfast diet for many is Vodka, there is also a generous allocation of fruit, meat, cheese and chocolate at main meals; there are also special Air Force holiday centres. There is, on the whole, a healthy atmosphere in the Soviet Air Force engendered by healthy grumbling about aircraft and senior officers, by a blind passion for flying, and a devoted patriotism to their country.

Basically, training in the Soviet Air Force is run on sound lines. In the holocaust of defeat and withdrawal in the summer of 1941, there were chaotic phases. Flying instructors were sent for front-line duties, there was a shortage of 'planes in the schools, particularly for the vital later operational stages of training. But the Soviet got over that and they are now back to peace-time schedules. Luxury training standards can be indulged in once again. Young Soviet hopefuls begin at the aero clubs, of which there are over 500 in the U. S. S. R. Some of the smaller ones have only about ten old-fashioned biplane trainers with perhaps half-a-dozen flying instructors. But the larger clubs at Leningrad, Moscow, Kiev, Kuibishev, Irkutsk, Tashkent and elsewhere run to twenty to thirty modern planes with one instructor per machine. They pick out promising boys and girls at school. They give them basic technical training, elementary navigation schooling as well as a bit of flying at the aero clubs. These clubs have over 100,000 young aspirant pilots using their facilities.

The next stage is military flying proper. Soviet citizens are selected for the Air Force during their period of military conscription, which has been, of course, a non-stop feature of Soviet life ever since the 1917 revolution. Air Force personnel are usually an *elite* choice. The basic military flying training takes about two years. The first three months are spent in marching, drilling, handling guns, physical training and a fairly hefty dose of political instruction. The inevitable lectures on theories of flight, air navigation, aircraft instruments, map reading—all are there—the stock catalogue of topics which goes before flying proper. The written and oral examination follows. Then a year or so of circuits and bumps, and short cross-country flights. The Soviet air instructor at this stage is

guessing whether his protégé shows more promise as a bomber or as a fighter pilot. He makes up his mind and the young pilot is given his wings and drafted to a bomber, fighter or reconnaissance school. About half the young pilots go to fighter specialist schools like those at Kirovobad, Grozny or Dyagilevo.

If one had to select a point of major interest in the Soviet air training system it would be the merging of the small war-time specialist bomber, fighter and reconnaissance schools into giant training centres catering for several thousand pupils. Here Soviet air gunners, fighter pilots and radio operators are schooled in one big communal flying camp. Flight mechanics, army support specialists and bomb-aimer-observers rub shoulders in the same mess huts. This makes a fine breeding ground for the exchange of ideas. It generates flexibility, camaraderie and sympathy between bomber, fighter and reconnaissance crews. Apart from that, these combined training centres are more economical to run than a large number of small camps.

There is a place carved out for women in the Soviet Air Force training schemes just as you would expect. Girls get the same chance as the boys in the aero clubs and the best of them become flying instructors. During the war military training centres for women were set up in the Urals, at Astrakhan and just east of Moscow. Soviet airwomen played a slightly greater role in their country's Air Force annals than women in other countries. Like British women, they made, and are still making, a major contribution in aircraft factories. Like British women, they were used for air photographic interpretation and they 'manned' anti-aircraft batteries. Soviet airwomen, like their Anglo-Saxon counterparts, ferried aircraft to and from the battle areas. Soviet women were, however, exceptional in that some of the best pilots did fly on combat duties—usually on short-range night-bomber operations and as fighter pilots usually in a defensive role, covering Soviet cities and industrial centres. It would be sheer feminist or Stalinist exaggeration to say that they played, are playing, or will play more than a token part in operational flying duties. One per cent of Soviet Air Force combat sorties would more than cover their past or future contribution. On the ground, however, they played and continue to play an important role. With the post-war introduction of radar, Soviet airwomen may become more important in guiding young Ivan's flights, in identifying the approach of hostile planes and plotting the

paths of raids or flights in and out of the U. S. S. R. But there will never be a sizeable race of Soviet Amazon combat crews, who will embarrass their male opposite numbers, both friendly and enemy. Most Soviet women, in spite of undoubted emancipation opportunities, want to bring up a family. Military flying is a long way from the home.

The great weaknesses in Soviet air training are in the realms of radar and long-range bombing. In World War No. 2, the Soviet had a very second-rate long-range bomber force, led by Air General Golovanov. The transport and close support demands of the Red Army, the lack of sound navigational training, the effective Anglo-American bombing of targets all over Germany, Central Europe and the Balkans, all contributed to clip Golovanov's long-range wings. In the post-war period, Russia's air leaders undoubtedly regret their lack of know-how in strategic bombing, and are doing all they can to remedy the situation. Moscow Radio may pour out bogus post-war pity for Germany's battered cities just in order to make political capital. Their transmitters may blare out the fairy story that it was the wicked Fortress, Liberator and Lancaster crews from U.S.A. and Great Britain who vented their barbarian bombing spite on the poor German population. But all the same, Soviet air leaders like Novikov, Gromov, Golovanov and Vershinin took more than a passionate interest during the war in both British and American strategic targets, 'planes and bombs.

Who are Russia's air leaders to-day? In the Politburo Malenkov and Molotov have most influence on air matters at the direction and control level. Stalin is anxious to build a large strategic bomber force and to build large numbers of trans-ocean rockets on the German blueprint of Dr. Sanger, but the ex-Generalissimo is not well-versed in the difficulties of developing modern air weapons. Vershinin, C.-in-C. of the Soviet Air Force and General Sudets, his chief-of-staff, have a reasonably free hand in developing their own ideas. Colonel Tokaev has published statements on the Soviet Air Force implying that the threat of purges or imprisonment plus a centralised bureaucracy handicap the development of the Soviet Air Force. There is little evidence to support this view. Sudets and Vershinin are well aware that the average reign of their predecessors was from one to two years—that Soviet air chiefs like Alksnis, Loktionov, Rychagov and Novikov lost the Kremlin favour and suffered violent treatment. But Vershinin and

Sudets, his chief-of-staff, are full-blooded commanders, and like most Russian airmen, accept the normal operational risks of life in war and peace. So do Generals Repin, Grendal, Schegalev and Nikitin, Air Marshal Vershinin's planners.

What are their air plans and hopes? Defensively, they must build up the chain of radar stations along the Arctic, Baltic and Black Sea coasts as well as along the shores of the Far Eastern Maritime provinces. As quickly as they can, they are manufacturing and installing these radar stations which will give warning of the height, direction and numbers of incoming 'planes. They are practising and training intensively so that their radar operators can interpret the 'blips' in the cathode ray tubes reliably and quickly. But it is a long process which will take several more years to complete. Apart from radar, they will need to stiffen their fighter and anti-aircraft defences. No doubt when the time comes, many of the fighter regiments at present under tactical command with the Army and Navy, will be switched to a master Fighter Command responsible for the strategic defence of the U. S. S. R. It is, however, a vast area to defend, and should always be vulnerable to feints and tactical variations by incoming bombers.

Offensively, the Soviet Air Force will do well in a tactical role, and it should succeed strategically if it confines itself to night and bad-weather bombing.

In daylight operations, its long-range bombers, unescorted, would be ready victims of jet-fighters. We can assume that the Soviet have no immediate plan for long-range daylight bombardment, apart from the use of the rocket. The air squadrons of the Soviet Air Force are being made as mobile and self-contained as possible. This is partly the Russian answer to the threat of atom bombing, partly the inevitable result of having multi-air fronts in prospect both over the Black Sea, Western Europe, the Far East and the Arctic. Long before air leaders like Generals Arnold and Spaatz laid stress on the future strategic importance of the Arctic air-lanes, Soviet aircraft were making test flights over the North Pole routes. One of Golo- vanov's long-range bomber divisions specialises in Arctic flying and operates from Siberian bases. But apart from Russia's in- experience with radar equipment, which is more vital than ever for North Pole air operations, she is handicapped by the long distances from her present bomber bases to potential target areas. A mere glance at the map across the northern hemi-

spheres from Bering Strait to the Barent's Sea, from Scandinavia and Greenland to Alaska, will show how the Arctic air distances are at present weighted against the U. S. S. R.

In any final survey of Russia's air power, one inevitably compares it with that of the United States. Although the 'Price of Power' (Royal Institute of International Affairs) finds Russian industry more vulnerable to bombing than that of U. S. A., this is compensated for to some extent by the ignorance outside Russia of where the vital war factories in the U. S. S. R. are located. Industrial intelligence, as the records show, was a weakness in the war against Germany. It is likely to be an even greater weakness of any power waging war against the U. S. S. R. On the other hand, America has a big technical lead in radio-controlled bombs and rockets, in the development of long-ranged jet-propelled bombers and in total industrial potential. Both powers are committed to providing air forces for others, but it is likely that this will prove a greater drain on the Soviet than on the U. S. A. Moreover, the forces of the Western Union are likely to provide a better operational return and more industrial co-operation, than the satellite countries of the Cominform. In the overall man-power situation, Russia and her satellites are likely to provide fewer first-class pilots than the Western Powers. Not that Soviet pilots are not fearless, well trained and competent—it is simply that the Balkan and Transcaucasian populations are likely to produce less first-class airmen and technicians per million head of population than the inhabitants of Western Europe, North America and the Commonwealth.

The Russian Air Force would do well in a short Continental war where tactical airpower played a dominant role. In strategic warfare, either offensive or defensive, it will be vulnerable and relatively ineffectual. The wide-open spaces that daunted Napoleon and Hitler's Wehrmacht will provide openings for incoming bombers. The lack of the atomic bomb, the location of her bomber bases, her inexperience in strategic bombing make her deficient in the kind of long-range hitting power that could add bluster to the Kremlin's negotiations with foreign Powers. Perhaps because of these weaknesses, Russian Air Power may be a factor for peace. If it is not to be so, it should not be underestimated, for Soviet technicians learn quickly and Soviet airmen fight bravely.

Editor's Notes . . .

SOME NEW FEATURES have been planned for the next issue of the REVIEW. First, we want our readers to contribute our guest editorials. Accordingly we are offering a prize of twenty-five dollars for the best editorial submitted for each issue, to be chosen by the Editor and the Editorial Board, whose judgment of the suitability of entries for publication will be final, the Editor reserving the right to reject all entries. Entries should be between 800 and 1000 words long and should offer a firm opinion on a timely matter of concern to the Air Force or otherwise closely related to air power. Topics of very specialized or local interest should be avoided, as should those of such passing significance that they would be cold by the time they could appear in a quarterly. Other submissions than the prize winner will also be considered as offered for publication in the REVIEW, and suitable materials will be used in our new department "In My Opinion . . .", either entire or in part. Contributors of published pieces will be awarded a year's subscription.

Individuals wishing to sound off at greater length on controversial subjects are invited to contribute up to 2000 words to "In My Opinion . . ." or a full-length article of 5000 words or less. The QUARTERLY REVIEW is a professional journal for the professional airman, published by the Air University to disseminate advanced thought on problems of air power, particularly those relating to the strategy and tactics of air warfare. It is especially intended to provide a forum for expression of controversial points of view on matters of professional significance.

Also beginning in our next issue will be a department of Letters to the Editor. We invite comment on any of the materials we print—normally we like three hundred words or less, but send along whatever you think you need. Anything published, even in part, wins a year's subscription.

If you want to amplify or to argue with any of our authors or disagree with a book review or the book itself, here is your chance—Letter to the Editor, "In My Opinion . . .", or full-length article.

LIEUTENANT JAMES G. COZZENS reported in early September of 1942 to the Director of Individual Training, Hq. AAF, for duty with a cadre of specialized officer personnel being assembled under Col. Harvey Holland to plan and establish the AAF School of Applied Tactics, location as yet undecided. His fine novel, *The Just and the Unjust*, had recently added popular success, it was the August Book-of-the-Month Club selection, to his reputation with critical readers, steadily growing through the Thirties, for impeccable technique and sure instinct for phrase which he applied to the writing of long narratives principally devoted to what was called character study in the old books of criticism. Another way to put it might have been that he is more interested in his characters and in understanding them than in a series of happenings hung together to make a "plot."

Within a few days after Lt. Cozzens was settled down at a desk at Gravelly Point he was not unreasonably assigned to what was eventually

to become the Training Literature Section and put to work preparing a training manual on flying, a job not unlike the one occupying Captain Nathaniel Hicks in Cozzens' *GUARD OF HONOR*, which has been awarded the 1949 Pulitzer Prize for the best American novel of the year (see p. 80). When Orlando was selected as the site for AAFSAT, Lt. Cozzens went along with the Training Literature Section to Orlando in November 1943 for the ensuing six months. In the Training Aids Division, to which his section belonged, he found an organization composed of writers, artists, professors, engineers, lawyers, advertising men, publishers, and other such professional non-military types who had been cast into the military mold by six weeks in the Miami Officers Training School but had been set to labors related to their civilian specialties. He had constant opportunity to acquaint himself with the effect of the military upon such men and the effect of such men upon a military organization which found itself putting all sorts of queer fish in its uniform to accomplish newly complex jobs the old army had not dreamed of as requiring expertise beyond that of a second lieutenant of infantry.

Orlando is the real scene of *Guard of Honor*, a study of men like Cozzens and his associates and the military, professional and citizen soldiers, with which events had brought them face to face, and the most distinguished novel yet written with the war as subject matter. The two most-discussed novels of the shooting war, *The Naked and the Dead* and *The Young Lions*, both of the this-is-the-way-it-was school, recreate combat with the verisimilitude of motion picture photography but fall far behind *Guard of Honor* in another great prospect of art—the piercing comprehension of human being, what men are and why they are, that made Shakespeare concern himself with other matters than the detail of fence in the duel between Hamlet and Laertes.

And what happened to Cozzens? After producing manuals for two years he worked out the last year or so of the war in the Pentagon as advisor to the Air Staff on public relations matters and stage manager of General Arnold's press conferences, whence he separated into the Inactive Reserve to spend three years on *Guard of Honor*.

OUTSTANDING among soon-to-be published books of interest to airmen will be General Hap Arnold's *Global Mission* and *General Kenney Reports*. According to the publishers (Harpers), *Global Mission* tells the story of the development of American air power and the great decisions of the Second World War in all the intimate detail that only the wartime Commanding General of the Army Air Forces and a member of the Combined Chiefs and Joint Chiefs of Staff could know. Certainly its author dealt with most of the great and not-quite-so great figures who stood out from the backdrop of a war that wrapped itself around the whole Earth. He sat at Casablanca and Cairo and Quebec and Teheran. In the Pentagon he was "Mr. A," and to the thousands who crowded into his antechambers the "A" stood for Air Force. He spoke up for Air before the committees of Congress and in the sessions of the Joint Chiefs of Staff and to the Presidents and Prime Ministers of great nations. And he drove, constantly drove, the procurement, the training, the manufacture, the planning and the shaping, and the commitment and employment of the most powerful

war force the world had yet seen. If *Global Mission* embraces its author's vast experience, it will be one of the most important books on the war.

General Kenney's 200,000-word story of the way from Buna is said to be based on a diary he kept during the war, and the word from his publishers, Duell, Sloan & Pearce, is that he has kept the movement and the suspended immediacy of unfolding action in its telling. Probably the thing most remembered about General Kenney is his brilliant victory in the Battle of the Bismarck Sea, and we have long awaited his personal, detailed account of how he fought it. But there are other names that are remembered—Dobodura, Marilinan, Wewak, that sounds like an indiscretion, Nadzab, Lae, Rabaul, Cape Gloucester, Los Negros, Hollandia, Noemfoor, Sansapor, Morotai, Leyte, Ormoc—a rosary of islands that had to be told, one by one, to escape them. To the many thousands of airmen who struggled to leave them behind, General Kenney's book, which he subtitles a personal history of the Pacific war, will be a revelation of the man whose thinking and decisions were largely responsible for the details of their own personal history of the fight in the Southwest Pacific. For students of the war and historians and for the generations ahead it will be a primary source for an understanding of what Americans were like in that new island-hopping warfare that began in July of 1942 under the shadow of impending battle for Australia and how they did things in that kind of warfare and, particularly, why they did them.

HISTORICAL PAPERS of first importance for the study of the impact of air power in the Second World War have recently been acquired by the Library of Congress in the more than 150,000 papers of General Carl Spaatz, to be known as the General Spaatz Collection.

Of principal interest in the Collection, which annotates not only the air phases of the war but also the rise of American air power, is what General Spaatz called the Diary, really an assembly of documents, rather than a series of autobiographical notes, put aside over a period of twenty-six years from 1922, when General Spaatz began the practice of consigning to a personal file documents, memoranda, notes, comments, and correspondence which he felt were of more than passing interest. Of the 30,000 documents in the Diary 22,000 represent the war and postwar years.

Also in the category of papers personally collected by General Spaatz are many special reports, a longhand journal kept in England in 1940 during the Battle of Britain, the full report of the endurance flight of the *Question Mark* in 1929, thirty-three volumes of the "Semimonthly Report of Bombing Results" of the Strategic Air Forces in Europe, "The Commanding General's Log," a brief of incoming and outgoing messages from General Spaatz' tour of duty in the Pacific during August and September 1945, a series of documents relating to the atomic bombing of Hiroshima and Nagasaki, a file of several thousand copies of incoming radio messages, and several hundred photographs of historical events and personages to be added to the nineteen volumes of strategic bombing photographs from the European war which General Spaatz presented to the Library two years ago.

A portion of the documents of the General Spaatz Collection are duplicate copies of official Air Force records deposited with the Collectic 1 under

the terms of a three-way agreement to which General Spaatz, the Department of the Air Force, and the Library of Congress are parties. The great mass of these papers have been arranged under some forty subject categories in a division of the Collection known as the Subject File. Under these subject headings are found the usual folders of correspondence, memoranda, and general reports, together with special reports and studies, collected by archivists of the Strategic Air Forces in Europe.

Deposited with the Collection are segments of the papers of many leading figures in aviation, such as General H. H. Arnold and Lord Tedder. There is also a copy of the journal of Major General F. L. Anderson, General Spaatz' deputy in charge of operations, and extracts from the correspondence of General Ira C. Eaker.

The eventual worth of the General Spaatz Collection to scholars and researchers of military history awaits its employment, but there can be no doubt that it provides an outstanding entry into understanding of the conduct of the war and a valuable source for the study of the philosophy of air power. These are documents collected around an idea rather than as a result of the mechanism of an organization. They were selected for preservation by a man whose career embraces the rise and growth of air power in the military power of the United States. As the concept of air power developed and grew in his mind, he accumulated and preserved the tangible records of daily activity that interested him because they did relate to the concept. It is not too much to say that General Spaatz is one of the two or three men who holds in his person the story of the development of American aviation into the great war machine of 1944 and 1945. The story is now in these papers on public deposit. It awaits the historian and the philosopher of air power.

ASHER LEE, author of "The Soviet Air Force," reprinted in our *Foreign Horizons* department, is a former Wing Commander in the Royal Air Force and one of Britain's foremost authorities on the Luftwaffe. His *German Air Force*, with foreword by General Carl Spaatz (Harpers, 1946), a study of the rise and fall of the German air arm, is a sound, non-technical, sometimes brilliant, and in part definitive, treatment of the thesis that through domination of the air Germany nearly achieved her ambition of world domination but that Hitler and Goering eventually crippled the Luftwaffe by forcing its growth as a political weapon instead of a military one. Mr. Lee is now engaged in writing a book-length study of the Soviet Air Force.

The Nineteenth Century and After, which very pleasantly gave us permission to reprint Mr. Lee's article, was founded in 1877 as a literary review to publish poetry and general articles. Tennyson wrote a "Prefatory Sonnet" for its first issue and Matthew Arnold contributed an essay. In its later issues the work of Arnold, Ruskin, Swinburne, and Tennyson frequently appeared, Tennyson's famous poem "The Revenge: A Ballad of the Fleet" finding its first publication in *The Nineteenth Century*, as the magazine was then called.

K. F. G.

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