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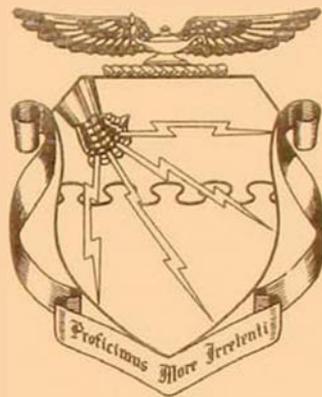
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ATTENTION

An alphabetical index of Volume II, Numbers 1, 2, 3 and 4, The AIR UNIVERSITY QUARTERLY REVIEW, has been inserted in the back of this issue.

AIR POWER

AS PEACE POWER

Colonel Dale O. Smith

ONE of the most striking lessons to come out of the psychological warfare operations of the past war was that words, to be most effective in persuasive power, must be accompanied by deeds. Many instances where mere words failed to influence the enemy were reported by the Psychological Warfare Division of SHAEF, and SHAEF eventually gave up the fruitless practice of trying to persuade the Germans with words alone. It would follow that in peacetime our words of national policy should consistently be reinforced with overt acts of some sort which would drive home the points we wish to emphasize. For example, our insistence to the world that we would not retreat from Europe carried slight conviction until we re-emphasized it with the Berlin airlift, just as now the peace propaganda of Russia remains unconvincing without some act on her part to demonstrate that she means what she says.

Many times in the past our armed forces have been of psychological benefit to us in performing deeds to accompany the words of national policy. The tramp of millions of soldier boots after the Civil War was deed enough to back our request that Maximilian give up his Mexican empire. The presence of Commodore Perry's warships in the harbor of Yeddo was the deed that turned the trick in our 1852 trade negotiations with Japan. In more recent times the maneuvers of our warships about the world have been acts which lent importance to our diplomatic speech. This technique is an old and effective one, but we have used it sparingly. Might not our national aims be furthered by using it more often?

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It is hardly enough to "approve in principle," to announce policies, to sign charters and treaties, to broadcast words of confidence, if we expect such words to be believed. The childhood admonishment of "actions speak louder than words" is nowhere more applicable than in the field of international politics where people have so often been deceived by words. To pay off fully, words of diplomacy must be underlined with acts.

The activity of our armed forces is usually straightforward: to prepare for security against attack or aggression. This activity may well secure a victory after war begins, but it will do little to deter war unless other nations know of the activity and know of its potency. Important as it is for us to be tough, it is far more important for other nations to *believe* we are tough. If others believe us to be strong they will not dare attack us nor will they threaten us unduly and peace will be assured. But if we are tough without their realizing it they are liable to push us too far and war will flame. Japan's folly in grossly underestimating our capabilities is a case in point, as is Hitler's misjudgment of "decadent" democracy. It would appear that we should bend every effort to let the world know how strong we truly are.

Strong as we are we have no intention of throwing our weight around in the manner of the Roman Empire or Tang China. Although those ancient nations each enforced over a hundred years of peace because the world was well aware of their great strength, their approach was to absorb their neighbors, whereas our aim is security for all nations.

THERE can be little argument in the Western World about what our national aims are. They have been reiterated in presidential speeches and public announcements of other governmental leaders. They have been published in numerous official documents and re-emphasized on the floors of Congress. Minor issues may be debated, but the major policies have remained substantially the same since the end of the war: the United States wishes to achieve a world order, through the medium of the United Nations, which will assure world peace. True, in recent years we have become disillusioned regarding the efficacy of the United Nations to achieve world peace. Nonetheless, we hold to the original policy on the outside chance that world cooperation will eventually be gained if we but keep steadily working toward our goal with all the wealth,

power, and persuasive ability that we can muster. Unfortunately we are riding off in many directions to advance our aims; some directions seem to be effective, some do not. We are employing our wealth almost to the ultimate limit in the Marshall Plan and other financial endeavors with some observable success. On the other hand, we have military power in abundance yet it does not seem to be advancing us toward our goal. Possibly our military power is failing us through our not using it in a persuasive manner. How can we better employ our power to advance our national aims? How can we best organize and maneuver our military force to influence recalcitrant nations in subscribing to United Nations cooperation?

When we talk of power and world peace in the same breath it might sound paradoxical. "Power," "force," and "military strength" are loaded words with an evil flavor for many of us and it is popular to avoid their use. In considering means to gain world cooperation and peace, people prefer to speak of "law," "order," and "education," which are also loaded words but loaded on the "good" side. Any reference to "power" frequently draws the criticism that peace itself is threatened by military power. So it is, but it is equally true that throughout history peace has only been secured in the civilized world through the presence and threat of power.

If the day comes when power will be no longer necessary to assure peace it will be a boon to mankind, but even our most peaceful American communities have not yet reached that exalted stage of social evolution. Their ever-present local police forces furnish the power to enforce the peace which is so often taken for granted. The international political activity in the world today should convince all that power is one of the dominating factors for peace or war. Like the surgeon's knife, power may either kill or cure, depending upon how it is used. In itself it is not evil. Hence we are obliged to face the reality of power.

In his report to Congress shortly after the Axis surrender, General Marshall advised strongly that the United States maintain a "good military posture." He implied that this posture was not meant to be solely a defense measure, but more important, a notice to the world that the United States was prepared to carry out its peacetime obligations and that it could back up its political commitments with adequate force. To some extent we have achieved this, but largely due to the fortunate results of the Manhattan Project. It has been assert-

ed that our possession of the atomic bomb has been a great deterrent to aggression, although aggression still continues. (It is interesting to speculate on what that aggression might have been had we not possessed the bomb.) General Eisenhower, however, once likened our demobilization after the war to disintegration. Except for the possession of the bomb, then, it can hardly be said that we have maintained a good military posture. Could our indifferent military posture be somewhat responsible for the deplorable condition in which the world now finds itself?

WHAT is a good military posture? It is one which will not only give us greatest security but which will cause a potential enemy to fear our strength. If we wish to impress a backslider in the United Nations' efforts for collective security, what kinds of military force will influence him most? Will a great navy give him much concern if he is not a maritime power? Will a strong army restrain him if he has us outmanned and is operating on interior lines of communications as opposed to our necessity for operating on extremely extended lines over vast distances of sea and land? Will a powerful long-range air force carrying atomic bombs cause him to take notice? If he be somewhat backward in technical development for air defense or counterattack, it would logically appear that the latter kind of force would worry him most. Although not what it could be, our Air Force today might well be considered powerful enough to deter any foreign aggression. Why hasn't it?

Power hardly exists without the will to use it. The mere existence of our supreme weapon is a negligible threat in the face of our repeated pronouncements to the world (amply verified by demobilization and aircraft scrapping) that we do not intend to use the atomic bomb under any circumstances short of a direct attack upon us. Any suggestion that we might otherwise use this great power is jumped upon by all and sundry as an approach to war—the one thing we wish to avoid. Such an attitude, regardless of our idealistic reasons for it, nullifies the very element that might contribute in a major way toward achieving world peace. True, if we intended to use our power, and were forced to, peace would be shattered. But when the preponderance of power is so obviously on our side, is it not logical to assume that we could readily persuade an ag-

gressor to desist if he were convinced we had power far greater than his and the will to employ it? Would not he be obliged to cooperate under such an overwhelming threat? After all, our aims are not unreasonable and he would not lose face by adhering to the United Nations' principles which he has already endorsed. Is it asking too much of another nation to cooperate within the United Nations framework so that true world peace may be made possible? If he thought we might use our superlative power in support of the aims of the UN Charter it is highly probable that he would come to see things in a new light.

Often in the past the threat of power has been linked with imperialism. Bismarck used it in unifying and expanding Germany. Hitler's *Anschluss* and his Czechoslovakian grab were accomplished with the same technique, and hence recent moral objections to "power politics" have been raised. But in other historical instances power influenced cooperation without imperialism being a factor in the circumstances, and few if any moral objections have been voiced to those uses of power. The reluctance of Rhode Island to adopt the Constitution undoubtedly was somewhat dispelled by the considerably superior power of the twelve other states. Not until 1790, two years after the Constitution had become legally adopted, did Rhode Island ratify it. The national government was still on unsound ground when the Whisky Rebellion occurred. Distillers in Pennsylvania were resisting federal tax collection, and Washington's firm display of power in sending troops to Pittsburgh insured cooperation and gained much respect for the federal government. Andrew Jackson's obvious will to use power, demonstrated at least once by sending a naval force to Charleston in 1832 to collect tariff duties, caused South Carolina to give up her plan of armed resistance and secession for almost three decades. Had James Buchanan been as firm in 1861 the bloody Civil War might have been averted. History is replete with other instances in which the threat of power enforced peaceful cooperation. Not the least important use of power in achieving noble aims was that instance in medieval England when the very foundation of our civil rights was established: the signing of the Magna Charta by King John. While his army was waging a losing war on the Continent his leading barons united with a preponderance of power at home and forced the king to affix his seal to that momentous document.

to visualize this dread reality. Even now, with our assurance from many authentic sources, such as The President's Advisory Commission on Universal Training and the Finletter Report, *Survival in the Air Age*, that no other nation will have the atomic bomb in significant numbers before 1952, we live in apprehension of that future time. To the foreigner our possession of the bomb in quantity is a known certainty of the present. It would seem that our continued insistence that the bomb will not be used gives him his major reason for relaxation—and boldness as an aggressor.

There is the possibility, of course, that he fails to appreciate the ultimate nature of the bomb. Certainly, in a police state with a controlled press the bomb's decisiveness would be played down, because if its true power were admitted, faith in the government incapable of producing it would be weakened. But the masses in a police state neither set national policies nor start wars. On the contrary, the elite governing class of such a state directs the policy course and makes the final decisions. It is difficult to conceive of this ruling class not being cognizant of the bomb's vast potential unless its members have been deceived by their own deprecating propaganda. Representatives of every major nation witnessed the Bikini tests. Tons of literature and many films have poured from this country concerning the bomb. It is the function of the elite in a dictatorial society to be well aware of such vital and threatening truths. If this public information has given us considerable pause it is even more likely that the elite of a totalitarian state have become concerned.

There is one weakness in our defense program which might give the opposition some respite. If we must deliver the bombs with 5000-mile range B-29 aircraft, we can fool nobody about our need for advance bases. Air refueling will expedite delivery and extend the range somewhat, but tankers will still have to rise from advance bases if the bombers are to make intercontinental round trips. Unless one-way tactics are planned we shall have to operate B-29s from European or Asiatic bases in order to reach vital targets. It is doubtful that such bases could be held against the large ground forces in the vicinity that could be dispatched against them. With B-29s used conventionally, then, it is possible for an enemy to hold us at arm's length by denying us the necessary staging bases. The bomb might just as well not exist under such conditions. A foreign nation

could breathe easily until we either produced significant numbers of longer range bombers or revised our tactics to get greater take-off to target range for our many current airplanes.

If we are to soon influence cooperation within the United Nations we should eliminate this possible reason for foreign tranquillity. A step in this direction has recently been taken by the announced increase of B-36 production. This airplane has a round trip range that will permit intercontinental operations, thus obviating the need for advanced bases. Still, much of our Air Power-in-being is in the form of the shorter range B-29s. The introduction of one-way tactics for them would bring much psychological pressure to bear on recalcitrant nations, and the results might be immediate.

One-way tactics should not be construed as suicide missions. Rather they are missions similar to the shuttle-bombing missions of the past war between England and Russia, with bombs dropped en route. When atomic bombs are the cargo, the bomb load becomes far more important than the B-29 which carries it, and limiting the placing of the atomic bomb simply for the sake of preserving an old B-29 is being penny wise and pound free. Most one-way missions could land in friendly or neutral territory without advance preparation, since the airplane could be expended with profit after delivering a bomb. On flights to some of the most distant targets it might be necessary for the bomber crew to bail out or crash land in enemy territory, but evasion and rescue techniques could be planned and perfected to assure a high survival rate even on those few missions. This technique would make every one of our hundreds of obsolescent B-29s a potential intercontinental bomber. Such a force would fill the power gap between the present and the time when modern very-long-range bombers can become operational in quantity. As 1952 rapidly approaches, it behooves us to move swiftly.

THE flight of Captain James Gallagher and crew in the *Lucky Lady II* which circled the globe without landing is another step in the right direction. This leaves little doubt that air refueling is more than a fancy and that B-50 and B-29 ranges can be appreciably extended. But the feat of one airplane, no matter how astounding, is only a potential threat to an unfriendly nation. Not until hundreds of airplanes conduct such an operation in unison can the very life of a possible

enemy nation be held in the balance. The numerous aircraft "on order" are not very impressive *today*.

Another recent maneuver, the flight of Captain Roy Showalter's B-36 for 9600 miles nonstop, with a 10,000 pound bomb dropped half way, should give more bad dreams to the leaders of aggressor states. But here again, *one* airplane portends only a potential, not a force-in-being. Unfriendly diplomats can stall for time hoping for a break when there is no *immediate* problem to face. The sooner we have the *numbers* in operational condition and the sooner we demonstrate them, the sooner the problem of the dictatorial rulers becomes acute.

If we adopt intercontinental operations as our primary tactical doctrine, we should have to run frequent, well-publicized exercises in massed strength to extreme ranges in order for the world to know fully of our capability. To be most realistic our tactical exercises should be oriented toward the specific objective. The principle of the objective has long been firmly established as a principle of war, but more important it would focus the implication of our intent. With our air armada drilled to strike specific (though unannounced) targets, the soft-spoken words of our diplomats to envoys of the nation in our bombsights would most likely be deliberated with increasing respect. A sword of Damocles cannot be long ignored.

True, certain nations would call us warmongers, but we are victims of that epithet already. Certainly all nations living up to the spirit of the United Nations Charter would welcome our display of strength. It would mean security for them.

An overwhelming advantage in a real attack will go to that side which gains tactical surprise. This is not, necessarily, an attack without warning, but an attack with lightning rapidity, a great preponderance of force, and following operational plans unknown to the enemy. Clausewitz wrote that "one great decisive aim should be pursued with force and determination." A single crushing blow of this nature, saturating the enemy defenses, might well be sufficient to decide the war's outcome. Almost as soon as it was begun, a war could be won.

To have optimum probability of winning the war on a single operation, the initial strike should be an all-out one of maximum effort. Many strategists will object to the all-eggs-in-one-basket concept and insist upon holding back a reserve in the event the attacking force is destroyed. Airmen of the past war will point out, however, that time after time no reserve (other

than those aircraft undergoing repair or en route from the production line) was held out from strategic bombing missions. "Maximum effort" missions were no exception for two general reasons: first, the larger the force the smaller the relative losses because the enemy defenses became overloaded or saturated; second, the relatively short duration of an air mission as compared to a land battle left little opportunity for the enemy to inflict major losses regardless of his strength. The greatest relative loss on any major strategic bombing operation of the past war, Allied or Axis, was the Eighth Air Force's Regensburg-Schweinfurt operation of 17 August 1943, with 20 per cent shot down. Even that great loss is not prohibitive if a single mission wins the war.

NOW we have laid the groundwork for a military posture of significance—our tactics founded upon intercontinental operations and a particular strategic objective; our Air Force poised to take off at a moment's notice with an overpowering mass attack. The calculated risk involved would be reduced to a minimum through mass, speed, and tactical surprise. A sufficient number of atomic bombs could be delivered to destroy every vital strategic target almost simultaneously. The persuasive impact of a tactical doctrine like this, if known and kept in the public eye by maneuver, could scarcely be without effect on international relations.

Open and repeated practice of these procedures would make certain that the rulers of dictator nations know of these tactics and of their adequacy. Missions could be simulated which, when drawn on map overlays, might be reoriented to show what actual targets *could* have been attacked under wartime conditions. For example, an operation of several hundred bombers could be launched from Caribbean bases and "penetrate" 5000 miles to Alaska. "Opposing forces" would attempt to intercept and destroy the attackers. The attacking forces would use every ruse and technique known to air warfare in getting through the "defenses" and in simultaneously attacking many Alaskan "cities." Those aircraft with insufficient fuel to return or to make a friendly or neutral airport would simulate crash landings and their crews would attempt to evade "capture" while working their way to safe territory. This exercise would very pointedly leave the inference that a similar

mission could be launched from Alaskan or Newfoundland bases.

The sheer magnitude of these maneuvers should assure good world news coverage, and would certainly reach the eyes of the ruling classes we wish to impress. Constant repetition and improvement of these exercises would cause aggressive rulers to become more and more aware of the devastating consequences to them should war break out. In pursuing this strategy we would be taking the advice of Sun Tzu Wu who successfully campaigned against the Mongols about 500 B.C. He wrote that “. . . the supreme excellence consists in breaking the enemy's resistance without fighting.” Our total aim will be realized when the obstinate aggressor rulers, faced with a vivid reality of decisive power-in-being, come to alter their policies, discontinue aggression, and sit cooperatively in the United Nations chambers.

A totalitarian government which decides on war as the instrument of its policy can build up its forces and make its dispositions based on its chosen moment, passing over to the actual attack when its preparations have reached their peak. It can likewise, through the exercise of its police power, in large measure conceal or disguise these preparations, just as Nazi Germany was able to do in 1939. Some signs will be visible to the discerning eye, but these signs will be largely offset by the insistence of the peoples of free countries on wishful thinking right up to the very last moment—as, again, was the case in 1939.

—George Fielding Eliot

If Russia Strikes (1949)

PERSONNEL MOBILIZATION IN WORLD WAR III

Colonel Clyde Box

UNTIL such time as convincing proof is offered that World War III will be of the Blitz type, fought only by the forces in being, and of such short duration that mobilization will be an impossibility, the problem of personnel mobilization planning must continue. In fact the possibility of direct and sudden attack upon our industrial areas creates the necessity for more effective mobilization and utilization of the nation's manpower than has been required in any previous war. This possibility of attack eliminates the old concept that wars are fought solely by military forces and that the danger zone is confined to battle line action. It extends the fight to all citizens of the nation. No one will be immune from the hardships involved.

Since modern war is recognized as total war, new requirements for personnel arise. It is currently estimated that fifteen million people will be needed for civil defense in the next war. While many of these may be volunteers, the total is a requirement for which personnel must be earmarked if not actually assigned. Recognizing this as a requisite over and above that of World War II and realizing the possibility of Blitz tactics being employed, it is obvious that by D-day of World War III personnel must be mobilized more effectively and with greater speed and in greater numbers. Time will not permit a trial and error placement of individuals.

Mobilization would not present a difficult problem if it involved only the obtaining of personnel to meet the needs of the armed forces. Complexities begin to appear, however, when consideration is given to the necessity for gearing personnel

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mobilization to a strategy involving the total resources of the nation and requiring the maintenance of a military-economic balance. The military-economic balance simply means that for each person taken in the armed forces provision must be made back of the lines to feed, clothe, shelter, transport, and arm him, in addition to providing for his wife and family. This requires that the nation's manpower be used to meet the military requirements and, simultaneously, to expand the munitions, mining, farming, manufacturing, and transportation industries as well as to support the civilian economy on at least a minimum standard.

In view of the civil defense requirement previously mentioned, and assuming that other demands remain the same as in World War II, there will be a manpower requirement in essential activities of fifteen million more persons than were utilized in World War II. The question immediately arises as to the sources from which such numbers may be obtained. In 1941 eight million Americans were looking for jobs. This manpower reserve is not available today and may never be in the future. This situation confines the sources of manpower to: (1) converting individuals from less essential tasks to jobs in war production (2) those not regularly employed (3) those who can be spared from farms (4) private owners of business who either quit or are forced out and (5) those who can be spared due to savings resulting from the development of ingenious mass production methods.

Realizing that the limited manpower resources will not be sufficient to fulfill all demands, the job of personnel mobilization boils down to one of locating, recruiting, and placing every available person in either the armed forces or in essential war work in a balanced proportion. It will then be necessary to insure that those employed in essential industry are used effectively in their specialty. Everyone is familiar with the old principle of "get the right man on the right job and keep him there." Future mobilization will demand that our attention be focused on that principle more closely than ever before. We take great pride in our ability to develop and use the right materials in cars, airplanes, and other mechanical devices. Likewise, we must realize that getting the right man in the proper place is equally essential for an effective mobilization program.

Thus, personnel mobilization cannot be considered without

taking cognizance of the associated industrial mobilization. A production commitment on what to produce, how much, when, and where to produce it includes, a corresponding manpower commitment. Such commitments, if uncoordinated, may add to the already complicated problem by necessitating the movement of manpower. It should be realized that manpower units generally have families that must be supported by community facilities and that, because of their cumbersome nature, it is generally more costly and more difficult to move them than to move production to them.

It can be safely stated that any consideration in the personnel mobilization field is directly related to the field of human nature or human relations. This relationship is not always a placid one. It is unfortunate that all people cannot be treated exactly alike under an effective mobilization program. An occasional mother, for example, may have difficulty in understanding why her boy should be placed in the armed forces to be shot at while the boy next door continues to live at home, draw good wages, and work eight hours per day behind the guarded walls of a munitions plant.

The personnel mobilization problem then is one of determining the personnel requirements, finding the people, maintaining a military-economic balance, placing individuals in essential war work, insuring that the individual is utilized effectively in a proper skill and, at the same time, "rubbing" everyone the right way in order to maintain friendly feelings in the field of human relations.

FOR further proof of the complications of the mobilization task, it is only necessary to review the difficulties encountered during World War II. No doubt there was a tremendous amount of skill and capacity that was not effectively utilized. There has been doubt expressed as to whether we were ever even sixty per cent mobilized and whether we were sixty per cent efficient where we did mobilize. This view is shared by a congressional committee which described mobilization as being haphazard.¹

Looking into the causes for such a situation, it is found that there was a lack of understanding and appreciation of the ne-

¹John J. Corson, *Manpower for Victory: Total Mobilization for Total War* (Farrar & Rhinehart, 1943), p. 3.

cessity for maintaining an industrial-military balance. Take, for example, the Selective Service Act passed by Congress on 16 September 1940. It provided that all men between the ages of twenty-one and thirty-six register for military service. This, in effect, placed the responsibility on the Selective Service System to perform the dual role of deciding which men should enter the military and which ones should remain in essential industry. While the War Production Board or the Army and Navy procurement branches made the decisions as to what to produce, how much and when, the Selective Service System actually functioned to maintain a balance between industry and military personnel requirements by taking those needed in the services and deferring the rest. It might be argued that this situation was desirable in that one agency had responsibility for personnel utilization including deferment authority. Such an argument cannot be sustained because personnel commitments often ignored production commitments and vice versa. Too frequently, vision was not broad enough to recognize the necessity for activities which did not appear on the surface to be related to the whole. For example, the demand for farm produce climbed to a new high during the war, yet farm labor was drafted and the manufacture of farm machinery was curtailed. In fact, two million farm laborers were lost to the military or to industry during 1940-42. The labor could have been better spared had production of labor-saving machinery not been curtailed. Another example was the serious lag in copper mining as a result of the drafting of miners. Eventually 5000 soldiers were released and workers were imported from Mexico to work in the mines.

The records are filled with examples of skilled people being pulled into the military from industrial jobs while an ever increasing load was being imposed on industry. This tendency also applied to scientific personnel and college students. It was not fully appreciated that the scientist, working behind the line, could aid the men at the front to win and shorten the war or that many of his accomplishments could make life more pleasant when the war was over. College students who would have received Bachelor's degrees could be filling the existing deficit of about 150,000 scientists had they not been drafted for the war. Here we failed to profit from the experience of World War I. On 3 April 1944 Dr. Vannevar Bush wrote to the Secretary of War: "In 1914, Britain sent into the front line

trenches one of the greatest of modern physicists. He had revealed for the first time some of the secrets of the nucleus of the atom, and he was known throughout the world as one of the geniuses of his day. His name was Moseley. He was soon killed in action"² Dr. Bush also pointed out that we were doing the same thing with men of lesser ability and that such action was a definite hinderance to the war effort.

While we were drafting people or permitting their voluntary enlistment at an unprecedented rate, less than one-third of the proposed strength could be transported overseas. Many of these individuals could have served a better purpose by producing weapons or by building ships to transport personnel and equipment.

Not all of the fallacies lay in the method of selection. Many new factories were built and others expanded which could not be used nor were they needed. Many of these could not even be supplied with raw materials or with personnel to operate them. Critical material and manpower were frittered away in this fruitless effort.

THE foregoing examples, which are only a portion of those that could be cited, point to a lack of awareness in the national mobilization structure of the necessity for a military-economic balance. A tendency is thus created to destroy the balance before an opportunity exists to organize it. It behooves future planners to realize that wars can be lost as easily by having personnel in the wrong place as by having equipment out of phase. Future plans must provide for proper scheduling in order that the military-economic requirements will remain in phase.

A mere recognition of the necessity to make an equitable allocation of manpower to meet the military and industrial requirements is not the complete answer to the problem. Attention must also be focused upon community problems which are created during periods of mass production for total war, because the conditions existing in the community influence greatly the productive effort and efficiency of the individual. Due to expanded production, many small localities boomed to sizeable cities in the short period of a year. Radford, Virginia, the home of Hercules Powder, more than quadrupled in size

² James P. Baxter, III, *Scientists Against Time* (Little, Brown, 1947), p. 128.

between 1940 and 1941. As a result, a tremendous burden was placed upon the existing facilities. Schools, sanitation, water supply, dairy products, garbage disposal and transportation were wholly inadequate to cope properly with the influx of inhabitants. Housing was so critical that people lived in basements and old storerooms and, in some localities, rooms were rented on a three shift basis. Similar conditions prevailed in many other parts of the United States and added considerably to the manpower waste in the form of inefficiency of the individual worker. It is easy to understand why a worker would be absent occasionally if he were forced, by poor housing conditions, to leave his family elsewhere. The natural tendency of any person would be to go home on weekends. Of course, this in turn would create an additional load on an already congested transportation system. Too, long journeys, whether to visit a family or in going to and from work, increase the fatigue of the individual in addition to placing him in the unhappy situation of having little time available for his family, to shop, or for recreation. Some workers actually felt there was no use to work and make good money if they could not be with their families and have sufficient time to spend their earnings.

At the same time that some industrial areas were being overcrowded others became ghost towns. In many cases curtailment of nonessential activities forced people from the type of work they had been doing all their lives. Such individuals would have been happy to work in war production had the opportunity existed nearby, but they were reluctant to leave their homes and establish new residences for the limited period of the war. This situation was particularly true in the gold-mining areas and in metropolitan centers in which garment work was the predominant industry. New York alone had, at one time, a quarter of a million workers idle due to a shortage of materials for garment production.

OF the factors that caused these situations, there are really two major and several minor ones. Our industrial structure has always been concentrated in certain areas and this has led to an uneven placement of contracts. An analysis made shortly after the beginning of World War II indicated that, in relation to available manpower, the New England and Pacific Coast states had received nearly twice the volume of contracts as had the remainder of the nation. Another major

reason was the failure to utilize the manpower that was available. This really stemmed from the reluctance of employers to hire certain classes of people, especially Negroes, and from the lack of authority of the War Manpower Commission to convert personnel from nonessential tasks to war production jobs. To cite one case in point, a shortage of twenty thousand laborers existed in the congested Baltimore area, a condition which forced local industry to import workers; but at the same time there were 371,000 people in the area employed in nonessential activities. The shortage could have been easily met from personnel available in the area if legal authority had existed to convert nonessential workers to essential tasks. A similar situation involving a tremendous migration of workers into an already overtaxed community could have been alleviated, to say the least, at Mobile, Alabama, except for the reluctance and consistent refusal to employ Negroes residing in that locality. Associated with these two major causes was the confusion that existed in the minds of the American people. Most citizens were eager to do their part in the war effort and were willing to undergo some hardships in making their contribution, but few knew what was expected of them. Unfortunately, planners had not created an agency that could properly direct their efforts into productive channels and, as a result, large masses of people engaged in continuous and confused movement.

Closely related to the inefficiencies existing under the conditions outlined above were the various types of manpower wastage. It appears that most governmental agencies must bear some of the guilt along with industry. General Hershey stated that 500,000 men were sent home from overseas assignments because they were thirty-eight years of age or older while at the same time the Selective Service System was inducting people aged thirty-seven years and nine months. Needless to say there was wasted effort in such action. The question also has been raised as to whether the military services were not hoarding personnel in some of the specialized training programs.

If we look on the side of industry we find two major deficiencies. There was a constant migration of workers who were attracted by a higher level of wages. Scouts were sent from the west coast to Detroit, and vice versa, generally preceded by attractive advertising, to attract workers by offering higher

wages. This encouraged migration and made it difficult to explain to other workers, copper miners for example, who were working at lower wages, why they would not be contributing equally as much to the welfare of the country by going into shipbuilding or some other occupation. It was quite obvious that they would be bettering themselves.

The finger can also be pointed at labor malpractices, especially "feather-bedding." Typical examples were that prefabricated piping would be installed by union labor only if the threads were cut at the site of installation; restricting the use of the spray gun for painting and requiring the slower job of using a brush; and requiring that a local driver accompany each truck driver that entered the city of New York.

Most of the waste and inefficiencies in the field of manpower point to the fact that there was little if any prior planning in personnel mobilization on a national scale, and to the inadequacy of controls to accomplish the job. While the War Manpower Commission, established by executive order of 18 April 1942, was given the responsibility of formulating plans and programs to assure effective mobilization and utilization of the nation's manpower, there was no real authority granted to permit it to do more than persuade. Even during the period that the Selective Service System was under the WMC, from December 1942 to December 1943, the War Manpower Commission had little or no control over the local draft boards. Neither did the director of Selective Service for that matter. The War Manpower Commission could request the local draft board, through the Selective Service System, to consult the local employment agency before deciding occupational deferments but there was no authority to require the local boards to comply with such a request. Due largely to this lack of authority and since the draft boards were composed of individuals who were not qualified to determine the value of a skill, they operated too frequently on the basis of letting individuals avoid undue hardships. In other words, men were deferred for sentimental reasons rather than for their value to the war effort in an occupational skill.

IN focusing attention on the wastage and inefficiencies that occurred in manpower mobilization during World War II it is not intended to be hypercritical or to imply that it was all a failure. It was not a failure by any means, and some

proponents of the system might argue that it was good because it provided sufficient manpower in both industry and the military services to win the war. An analogous statement might be made that a car hitting on four cylinders climbed a hill. The question is whether the car, operating at the same efficiency, could climb a steeper hill and whether the successful ascendancy did not impose an undue strain upon the motor that could have been avoided by a small amount of remedial action. It is believed that a realistic appraisal of the record indicates the necessity for improvements in the national mobilization picture.

In addition to inefficiencies, congested conditions bear another relationship to the nation's security when considered in the light of modern atomic or biological war. While we have had no direct experience with the latter, it is recognized that a congested area, in which inadequate housing, hospital, or sanitary facilities exist, would create an ideal situation for its effective employment. On the other hand, we have demonstrated the destructive power of the atomic bomb. As a result, we can take a lesson from the studied fact that factories, personnel, housing, etc., on the periphery of Hiroshima and Nagasaki suffered little damage. This one lesson points to the necessity for dispersion of both plant and personnel in the interest of security. We must never again permit production to be confined to centralized plants in congested areas. Atomic weapons are designed for mass destruction. Thus, the nature of war itself dictates that nonessential personnel be moved from threatened urban areas which would in turn reduce the construction effort required to provide adequate shelters for those who must remain. If this be true a positive determination must be made in advance as to the essential and nonessential military and civilian activities within a given area.

Aside from the security aspect, the dispersal of industrial plants is required to insure adequate availability of personnel. Plant placement was done on a limited scale and on the initiative of individual companies during the last war. In deciding where to locate a new engine plant, the Studebaker Company surveyed a certain community, determined the number of available workers, checked the total against their requirements, and found a shortage. After the survey it was decided to put part of the plant in South Bend and the rest in Chicago and Fort Wayne to act as feeder plants. The argument may

arise that this could not be done in localities in which no personnel existed with previous training in a mechanical skill. Such an argument can be refuted by the fact that the Fairchild Aircraft Company established a plant in a North Carolina town and converted the workers from twenty-five hosiery mills into aircraft workers. The highest basic skill from which this conversion was made was that of a loom fixer.

In order to accomplish an effective placement of industrial plants, it will be necessary to determine the nonessential activities as a means of insuring the availability of labor. In so doing, however, it must be realized that there is little advantage in curtailing nonessential activities, especially if they are not utilizing equipment or materials needed in war production, unless the personnel thereby released can be placed in war production jobs.

Once the decision is made as to the essential activities, the major problem of effective allocation of manpower between the armed forces and the needs of industry must be faced. As we have noted, the World War II approach to this problem was for the Selective Service people to draft certain individuals and defer others. While it was generally recognized that the armed forces required industrial support in the form of equipment and munitions, the fact remains that the civilian contractor had a continuous and often unsuccessful battle to get the men he needed.

These battles for personnel were conducive to poor utilization. They created a tendency to hoard manpower and to hire more than were actually needed as a buffer against future contingencies. In other words, improper scheduling of manpower resulted and contributed to the inefficiencies that existed.

We also failed to recognize the potential value that could have been gained by proper utilization of crippled and partly disabled individuals. The military insisted on extremely high physical standards even for those doing clerical and administrative work. Generally speaking, industry was equally guilty. Since it is believed that future wars will be total ones, planning should point to the utilization of every man and woman who can assist the war effort even in a limited capacity.

LITTLE effort is needed to study the records and, in retrospect, indicate the places where improvements should

have been made. It is quite a different matter to formulate corrective actions for the future. The first impulse is to say that there must be compulsory national service, similar to that which existed in Great Britain, wherein each individual would be told where to work. Doubtless this type of control was effective in Great Britain, but will it work in the United States where freedom has been the keynote since the beginning of the nation and where that love of freedom is still the dominant characteristic of the masses?

There are many arguments for national service legislation. It has been said that such legislation would provide equitable treatment between servicemen and civilian workers in total war. This statement is open to question when considered in the light of reality. Is it equitable to place one man in the cockpit of a bomber or behind a bombsight where the chances of survival are poor, while another man is placed in industry, in the comforts of his own home, where he is relatively safe even if enemy attacks should come? Is there equity in the pay of the two individuals? Realistic consideration indicates that there is no equity, nor does modern war lend itself to placing everyone in a situation of parity.

There is no doubt that national service would provide rigid controls which would eliminate excessive labor turnover, absenteeism to a large extent, labor hoarding and pirating, racial discrimination, and nonessential work. These are some of the prices paid for a free economy. The question of national service arose during World War I. At that time Bernard Baruch testified before a congressional committee as follows:

A soldier serves the nation directly. There is but one master in the case and that master is America. He serves to profit no one but the country as a whole. There is no distinction between him and his comrades. He enters an immemorial status. His entry is not contractual. He is clothed, fed, housed, and attended. As long as our present industrial organization maintains, industry is in the hands of millions of private employers. It is operated for profit to them. The employee, therefore, serves in private industry for gain. Enforced and involuntary service for a private master is and has been clearly and repeatedly defined by our Supreme Court as slavery inhibited by the Thirteenth Amendment to the Constitution of the United States.

The Government cannot say, work here. Work there or work for Mr. A. But it can say as it did in 1918: "Work or fight."³

³Bernard M. Baruch *American Industry in the War* (Prentice-Hall, 1941), p. 395.

The question of slavery could be avoided by nationalizing all industry. Such a move would destroy the free economy which has been the primary source of America's strength and replace it with a fixed price economy or a socialistic state. It would destroy the freedom of the individual. These are the things for which America has fought and will continue to fight. Since the cause of World War III may be based primarily on an ideology, in which many citizens will be in disaccord, nationalization through national service would provide a fertile field for a psychological campaign in our dissident minority groups that might be disastrous. The risk is too great. We must rely on a cooperative effort of the people and recognize that productive efficiency can be accomplished through the willingness of the people themselves. National Service as such must be used *only* as a last resort.

ADMITTEDLY, there must be more rigid controls than existed during World War II if mobilization is to be efficient. Rigid controls cannot be established without prior planning or without a good estimate of total manpower requirements. A survey of requirements should be made in both industry and the military to determine the numbers and skills of personnel needed. Consideration must be given to the priority for expansion in each case in order that personnel can be scheduled in the most important task at the time needed. The survey should determine the areas in which personnel engaged in nonessential activities may be converted into war production as a basis for new plant location or for existing plant expansion.

We should have legislation requiring national registration of all persons between the ages of eighteen and fifty in order to obtain pertinent details concerning their work capacity. The information thus obtained would be of invaluable service to the placement offices in meeting calls for labor or military service. Many individuals above fifty years of age are capable of productive work, but it is believed that their registration would be unnecessary, because those already employed would continue work and the bulk of the remainder would be unsuited physically.

As a means of preventing pirating, hoarding, migration, and improper scheduling, legislation or regulations should provide for an adjustment in the wage scale between industrial activi-

ties. They should prohibit the employment of an individual except through a national employment agency established by law, and should provide authority to such agency to establish regulations consistent with the economic utilization of manpower. Without going into detail, some examples of regulations that should be invoked are:

- (1) Prohibit the placement of personnel in military or civilian service until actually needed.
- (2) Prohibit travel of workers except as authorized by the employment agency.
- (3) Require the exploitation of all manpower sources, such as the unemployed, those engaged in nonessential activities, etc., prior to permitting migrant workers to be moved into a community.
- (4) Require the establishment of labor-management committees in the industrial plants to act as advisers regarding better productive methods.
- (5) Provide that, insofar as possible, personnel be placed in positions in accordance with their choice but commensurate with their ability, thus eliminating the idea and use of the word *deferment* and substituting *placement* to convey the idea that regardless of the position it is the one in which the individual can do more to further the war effort.

Obviously, such a program would be of great magnitude and would require an organization with authority to implement it. The National Security Act of 1947 established the National Security Resources Board composed of a chairman and the heads or representatives of the Executive Departments and independent agencies as designated by the President. The function of the board, as stated in the law, is to advise the President relating to the coordination of military, industrial, and civilian mobilization, including:

- (1) Policies concerning industrial and civilian mobilization in order to assure the most effective mobilization and maximum utilization of the nation's manpower in the event of war;
- (2) Programs for the effective use in time of war of the nation's natural and industrial resources for military and civilian needs, for the maintenance and stabilization of the civilian economy in time of war, and for the adjustment of such economy to war needs and conditions;
- (3) Policies for unifying, in time of war, the activities of Federal agencies and departments engaged in or concerned with production, procurement, distribution, or

transportation of military or civilian supplies, materials, and products;

- (4) The relationship between potential supplies of, and potential requirements for manpower, resources, and productive facilities in time of war;
- (5) Policies for establishing adequate reserves of strategic and critical materials, and for the conservation of these reserves;
- (6) The strategic relocation of industries, services, government, and economic activities, the continuous operation of which are essential to the nation's security.

THUS, all planning relating to manpower mobilization that has been pointed out as a necessity is charged by law to the National Security Resources Board. There must be an agency, however, to implement the policies and regulations that it promulgates regarding manpower. It is believed that the United States Employment Agency, now established under state jurisdiction, should be nationalized and combined with the Selective Service System to act as the operating agency or placement agency of the National Security Resources Board. Such a system would have centralized direction of the agency that is charged with the coordination of the national mobilization of industrial and manpower requirements for war, thereby assuring proper scheduling and utilization of our manpower resources. It is evident that the final placement decision as to who should go into the military and who should remain in industry would be made by a local committee or placement office in each area. This is an advantage because no one is better qualified to determine an individual's ability than those who know him. In the final analysis, it is believed that each community should solve, to a large degree, its own problems. That is the true democratic way.

Mobilization planning along the lines discussed herein will result in an effective utilization of the nation's manpower, if the need arises, without abrogating the freedom to which the people of the United States have become accustomed.

While it is realized that the proposed controls for mobilization in World War III are more stringent than those invoked heretofore, the American people must be willing to accept them—or face the consequences of a possible defeat.

THE VALUE OF TRADITION

Wing Commander H. C. D. Blasbery, RAF

STUDENTS attending the Air War College are instructed to read, as background material for their further studies, the reports of the three major investigations into the U. S. air arm which have taken place since the end of World War I. A major point which emerges from this part of the curriculum is the long-term "continuity of conflict" between the various arms of the military establishment.

The Morrow Report (1925) referred to the bitterness of the "controversy which arose between the newer and the older arms of the service . . . such conflicts have gone on from the beginning. They will go on until the end The fundamental problem may not be settled. It may, however, be understood if men will approach it with less feeling and more intelligence."

The Baker Report (1934) referred to the "idea that the ills of the Air Corps can be cured in part by placing their officers on a list separate from the rest of the Army . . . this continuing issue has seriously hampered proposed reforms, either for the Air Corps or for the Army as a whole, and is fundamentally at the bottom of much of the unrest and dissatisfaction existing in the Air Corps."

The Brewster Report (1948) found itself unable to obtain a unified (Navy/Air) plan of action and makes the astonishing statement that "we are not unaware of the fact that the Joint Chiefs of Staff, who individually represent the three separate Services, may find it difficult to prepare truly coordinated and integrated plans. The loyalty of each service to its traditions is understandable, but unyielding adherence to service loyalties at the expense of national security is a luxury the Nation no longer can afford."

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 Morrow Board felt that "the fundamental problem may not be settled," but failed to define in precise terms what the fundamental problem was. Senator Brewster's Committee, on the other hand, seemed to indicate that the source of inter-service conflicts lay in "the loyalty of each service to its traditions"

Shortly after this somewhat depressing reading students are invited to select a subject for a thesis from a long list of suggested topics. The writer, a native of a very tradition-conscious nation, had no difficulty in selecting as his subject, "The Value of Tradition."* No less an authority than General Wavell has said, "Devotion to a man has sometimes inspired soldiers in the past—but tradition and discipline, anyway so far as the British are concerned are the real root of the matter." Examination of this subject might also point towards the solution of the "conflicts" which the Morrow Board viewed as continuing into all eternity—a grim and depressing prospect indeed.

THE word "tradition" is derived from the Latin verb *tradere*—to give up; to transmit. Webster's *New International Dictionary* defines it as "The oral transmission of information, opinions, beliefs, customs, etc., from father to son or from ancestors to posterity . . . more generally, any belief, custom, way of life, etc., which has roots in one's family or racial past; an inherited culture, attitude or the like, sometimes a long established convention."

The word connotes devotion to a cause or idea. Normally (and especially in a military sense) it carries with it an air of success, of triumphing over temporary set-backs, of not letting the side down and of handing on to the successors to a tradition the same aura of accomplishment, pride, and success as is currently associated with that tradition. Hence the supreme symbolic importance of the regimental flag. "Men will do much to live up to tradition. They will do things for the honor of the regiment that they would not do for themselves."¹

A potent factor in the establishment of a great tradition is time; time which has been used to knit together the aspirations and efforts of many sorts and conditions of men, perhaps

*Note the interesting contrast to the Latin motto of The Air University *Proficimus More Irretenti*, which may be translated "We Progress Unhampered by Tradition"! Editor.

¹ Pennington, Hough, and Case, *The Psychology of Military Leadership* (Prentice-Hall, 1943), p. 222.

in many different circumstances and points in time, thereby synthesizing ideals, effort, and accomplishment into a great tradition.

We may illustrate this point by reference to the English naval tradition. The Spanish Armada was virtually annihilated in attempting the invasion of England in 1588, this event giving impetus to the growing renown of British sea power. Many years later it was the memory of that catastrophic defeat which lent an air of unusual caution to another would-be invader of English soil. In fact, the great fleet which Napoleon gathered together at Boulogne, between 1802 and 1805, never put the matter to the test.

A century later the British people watched with angry eyes the menacing growth of the German Navy from 1900 onwards. Parliament and press expressed the national will through vociferous support of measures taken to preserve traditional British superiority on the seas. Their instinct was sure; when war finally came in 1914 British naval strength was such that except for two fleet actions the German High Seas Fleet, over a period of four years, was reduced to sporadic raids on English coastal towns and cruiser warfare in the outlying seas.

On December 17th, 1939, when the World War II land war was popularly labelled phoney, Hitler and his admirals were given a sharp reminder of that same tradition with the blowing-up of the *Graff Spee* at the mouth of the River Plate. And in the grim days of 1940, and notwithstanding the fact that the portents were in the skies, where the RAF inspired by its Cranwell based tradition carried the main heat and burden of the day, that same naval tradition was a potent factor in sustaining the morale and confidence of the British people in the face of the threat of invasion.

During this era the American nation had been nurtured in an atmosphere of almost aggressive freedom. The Pilgrim Fathers would not conform to restrictions on their religious freedom, and were men of such calibre that they carried their tradition of freedom across 3000 miles of stormy waters in a 180 ton barque in order that they might not be gainsaid. This spirit has lived and breathed in all subsequent American political, economic, and social life and thought. Now the tradition has reached full maturity and the hope of the civilized world rests in the United States as one of the major bastions of freedom.

These brief and random examples merely serve to bring our subject under the arc lights of history. A thousand illustrations could be cited in support of the fact that a great tradition has frequently proved to be a pearl without price, and in an ever changing world often displays a continuity which spans the centuries. Once it has acquired a certain momentum, often provided by a noble ideal or outstanding feat of arms, the tradition is carried forward through the years, each subsequent success consolidating and developing what has gone before. The armed forces will certainly continue to foster the invaluable military characteristics which accrue to the inheritors of a great tradition.

AT this point an impatient reader may say, "But this is just another eulogy on the theme of tradition. No one is arguing with you . . . it is, indeed, a wonderful thing; it confers great benefits; let's pass on to something else . . ." Well, the writer is fully prepared to agree that he can add little, if anything, to the wealth of literature establishing the enormous value—especially to military forces—of the concept of tradition. But simply because this is an imperfect world, and since all nature loves a balance and normally demands that where there is a positive there should also be a negative, perhaps we should pursue this inquiry in its military context somewhat further, in case the concept of tradition does carry with it anything of a less agreeable nature. For instance, in the poem "Mary Garvin" John Greenleaf Whittier writes:

*Tradition wears a snowy beard,
Romance is always young.*

The first line seems somewhat out of accord with the tempo of our age; as a bon mot splashed across the nose of a jet fighter it would look strangely out of place.

In *Human, All Too Human* Nietzsche wrote, "every tradition grows ever more venerable—the more remote is its origin, the more confused that origin is. The reverence due to it increases from generation to generation. The tradition finally becomes holy and inspires awe." This is faint praise indeed!

But a good solid work like Emerson's "Literary Ethics"—surely one can place some reliance on that—but no: "Men grind and grind in the mill of a truism, and nothing comes out but what was put in. But the moment they desert the tradition

for a spontaneous thought, then poetry, wit, hope, virtue, learning, anecdote, all flock to their aid." Perhaps, after all, the subject does deserve further study.

Leaving these general observations for a moment let us consider a series of questions posed in a specifically military context, remembering particularly the Brewster Committee's opinion that the source of inter-service conflicts lay in "the loyalty of each service to its tradition." Why, for instance, did Winston Churchill in World War I find it necessary to *fight* for the development and introduction of tanks in the teeth of fierce opposition from the top military echelon? Some thirty years later in *The Gathering Storm* he wrote: "The awful gap, reflecting on our pre-war arrangements was the absence of even one armoured division in the British Expeditionary Force. Britain, the cradle of the tank in all its variants, had between the wars so far neglected the development of this weapon, that eight months after the declaration of war our small but good Army had with it, when the hour of trial arrived, only the First Army Tank Brigade, comprising seventeen light tanks and one hundred infantry tanks"

Why was it that De Gaulle, the exponent of armour and mobility, faced a similar situation in France, and was finally rejected in favor of the proponents of the Maginot Line theories?

WHEN one picks up a copy of *The Infantry Journal* there is always likely to be an article on "The Military Mind" or "In Defense of the Army Mind" or some such associated topic. The inference is that the military mind, with its strongly rooted traditional background is something peculiar, something apart. If so, why?

Professor James L. Cate, one of the editors of *The AAF in World War II*, prepared by the Office of Air Force History, writes: "Worse still, most of the manuals [War Department] published before 1935 were actually antagonistic to the most advanced thought in the Air Corps. The reason is not far to seek. Control over the formulation and dissemination of combat doctrines was vested in a General Staff composed of ground officers and the air manuals had to be denatured to suit their taste."²

²"Development of Air Doctrine, 1917-41." *The AIR UNIVERSITY QUARTERLY REVIEW*, Vol. I, No. 3, p. 13.

These are statements of terrible import. Surely there should have been no question of denaturing to suit their taste, for this suggests an emotional basis or a simple incapacity to think straight and judge a problem solely on its merits. But to continue, Army Training Regulation 440-15 (1926) states that the organization and training of air units should be "based on the fundamental doctrine that their mission is to aid the ground forces to gain decisive success"—and this in what even the professionally uninformed public took to be an air age!

Major Alexander de Seversky has stated that "Strategic Air Power [in World War II] was virtually smuggled into our overall strategy by a devoted group of our airmen with magnificent moral courage and at terrific personal sacrifice. We forget too easily, now that the truth of their conception is more generally recognized, that the men who nurtured the idea lost promotions, were exiled to minor posts and otherwise 'discouraged,' yet stuck to their vision and imposed strategic Air Power on the national strategy by their sheer tenacity."³ A comparable struggle was waged in England where Lord Trenchard fought long and hard to secure a place in the sun for the Royal Air Force. Was all this necessary? Did the United States have to have its General Billy Mitchell? If we could find specific answers as to the whys and wherefores of all these questions, perhaps it would be possible to propose remedial measures which would eliminate or at least minimize similar happenings in the future.

Our understanding of the problem will be developed by considering how a great military tradition is fostered and passed on. Studies of famous Regiments of the Line, West Point, Sandhurst, Cranwell, and the naval tradition all point to the fact that it is based on intensive training in a rigidly prescribed doctrine of conduct related to a treasured conception of an ethical code which has its roots in history. Sometimes the period of time involved is relatively short (e.g., the RAF and its Cranwell College), but in these cases it is found that the record is a glorious one, with volumes of history packed into a comparatively small span of years. Bertrand Russell proclaims that "A creed or sentiment of some kind is essential to social cohesion . . ." and we may note how much more vital this requirement is to a military body.

³"A Lecture on Air Power." The AIR UNIVERSITY QUARTERLY REVIEW, Vol. I, No. 2, p. 39.

Military training institutions insist that novitiates should be placed in their care at an early age and we are reminded of the well-known precept "Give me the child and I will give you the man." In this connection it is interesting to note that Webster's *New International Dictionary* gives as a secondary definition of tradition, "the act of delivery into the hands of another; a surrender; a yielding up"

Though not stated in so many words the trainee is specifically required to "deliver up" a certain portion of his analytical and critical faculties (in return for which his training endows him with many other valuable qualities) in order that he can be moulded into a certain general pattern. When rough (or dissident) edges are eliminated the trainee is ready to be fitted together brick by brick with his fellows into a staunch, rock-like structure, firmly cemented in their joint tradition, the unified body being specifically designed to withstand abnormal stresses and strains.

PRACTICAL effect is given to the well tried conception that the total effort of a unified body of men inspired by a common idea or tradition is infinitely greater than the sum of the unrelated efforts of the individual members of the group. Herein lies one of the principal military virtues of general acceptance of a common tradition.

The widely based tradition, which embraces a service as a whole, is later refined and concentrated into more narrow loyalties within the overall tradition—for example, the infantry, regimental, cavalry, bomber, battleship, or submarine tradition. Professionals value the recognition and praise of their peers. It is, therefore, an intrinsic characteristic of a tradition which helps to cement a group together that it should tend to become exclusive in character. One is either a member of the club or not; there are no half measures. If accepted as a "good type" one can be sure that the novice faithfully conforms to the traditional doctrines of his speciality. The man who does not conform runs the risk of being dubbed a radical, ill-informed or ill-disciplined, or insufficiently steeped in the glorious traditions of his service. And since man is a gregarious animal, he is happier when going along with the herd than when running against it. In brief, both traditional doctrines and "the weight of adult custom has been thrown upon retaining and strengthening tendencies toward conformity, and against

those which make for variation and independence."⁴

Training, discipline, development of loyalty, and continued education all centered in the great tradition, serve to etch a well-defined groove in the novitiate's mind. This has an almost evil sound about it because we are well aware that these were the techniques adopted by Mussolini and Hitler to implant the seeds of Fascism and Nazism in the minds of young Black Shirts and Storm Troopers. But we need not feel too disturbed—after all one can be conditioned to good ends and ideals as well as to evil ones.

The essential point however is that the human mind, and especially the immature and only partially developed mind, can be treated rather like a gramophone record and certain patterns or grooves can be etched into it. Professor John Dewey has some particularly strong comments to make on this point. "The plasticity of the young presents a temptation to those having a greater experience and hence greater power which they rarely resist. It seems to be putty to be moulded according to current designs The inert, stupid quality of current customs perverts learning into a willingness to follow where others point the way into conformity, constriction, surrender of skepticism and experiment Education becomes the art of taking advantage of the helplessness of the young; the forming of habits becomes a guarantee for the maintenance of hedges of custom."⁵

Early indoctrination with a creed, idea, pattern of thinking, or behavior sticks deep. Pastor Niemoller has been quoted as saying that young Nazis now between the ages of 21 and 30 are "hopeless," and from the point of view of reforming them must be regarded as a lost generation. This same appreciation of the malleability of the young mind is reflected in our courts of justice. Special efforts are made to separate juvenile delinquents from older and more hardened characters.

There are, in brief, very definite and specific reasons why the "traditional" military mind once "set" should continue to think only along traditional lines. "Psychological conditioning accounts for a larger part of the variation in behavior in a population. All living organisms, from the lowest to the highest are modified by the experience through which they pass. This modifiability is one of the intrinsic qualities of living proto-

⁴John Dewey, *Human Nature and Conduct* (Holt, 1945), p. 96.

⁵*Human Nature and Conduct*, p. 64.

plasm . . . conditioning becomes a paramount factor in determining behavior."⁶

IT now seems possible to postulate three general propositions:

(1) *The human mind, especially the adolescent mind, is very much open to influence and direction, and a traditional doctrine, once firmly implanted, has an enduring quality.*

(2) *The concept of tradition is a source of strength, particularly in military terms, because of its idealistic, and in terms of the group, cohesive and geometric characteristics.*

(3) *Notwithstanding (2) there is something incompatible between the etching of a groove and the full, fine flowering of the mind in all its power and strength.*

We should next consider whether or not the tendencies towards patternized thinking, inherent in "traditional" training, are either modified or given added potency through their association with other basic motives affecting human conduct. This is important. Should they run in harness, mutually reinforcing each other, then the motive power acting along traditional lines will be overwhelming. On the other hand, if we should discover that the "pull" acts in reverse directions, then we could take a much more optimistic view of the potential purity of thought processes.

Perhaps the most important of these basic motives has been called by psychologists the *Urge for Recognition*, which also implies the *Quest for Power*. If a soldier is brought up in the cavalry tradition we have noted that he will seek the recognition which has real value for him from amongst his professional colleagues. The recognition and prestige accorded him will be in direct proportion to his skill and prowess in the exercise of his profession. The element of power will be reflected in rank and seniority won in the teeth of intense competition and will be a measure of assessments by senior officers of his professional competence as a cavalry man (not, be it noted, as a proponent of the battleship school, or the strategic bombing school, or any school other than the cavalry school).

The same ideas apply with equal force to the regimental officer, the submarine officer, the bomber pilot, to the Engineer

⁶Kinsey, Pomeroy, and Martin, *Sexual Behavior in the Human Male* (W. B. Saunders, 1948), p. 204.

and the Meteorologist. For good or ill, a vested interest is established in the maintenance of the existing pattern, since the elimination or reduction in status of that pattern leaves a vacuum and there is no guarantee that the man who has achieved recognition in the cavalry tradition will have either the inclination or capacity to achieve a comparable degree of recognition in, say, the Tank Corps. "It is the essence of routine to insist upon its own continuation. Breach of it is a violation of right. Deviation from it is transgression."

There is an overlap between the thoughts expressed in the preceding paragraph and the *Search for Security*. To those whom it accords recognition, society also accords a measure of security. Security involves one's standard of living, the sort of hat (and how many) one can buy one's wife, the type of education one gives one's children, etc. All these things are vitally important in normal human terms and if alien forces threaten the "tradition" there is a strong motivation, unconscious perhaps, to resist the change or alteration in emphasis which threatens security.

The weight of tradition, man's gregarious instincts, economic, social, career and prestige considerations, and inertia all lean heavily in the direction of supporting the existing order of things.

Dr. Ben Bloom of the University of Chicago has stated that there are only two basic requirements for sound thinking: A sincere desire to arrive at a sound solution, and an ability to discipline the mind.

HEMMED in by all the weighty factors which we have considered, is it reasonable to expect that the average military mind will be wholly unbiased in considering a possible solution to a problem which runs counter to a deeply entrenched tradition when the advocacy of that solution may carry with it the most serious social, economic, and career implications?

These thoughts are not put forward for the occasional Billy Mitchell. Such exceptional characters will find their own highly individual answer to this problem anyway, but the average, conscientious, sincere officer will be under hidden compulsions to rationalize solutions which do not run counter to a profes-

⁷John Dewey, *Op. cit.*, p. 76.

sional way of life in which he has an abiding interest. This connotes a tendency to suppress or restrict the new and unorthodox and maintain the status quo. Such an officer will certainly be sincere in his desire to arrive at a sound solution provided that it supports and enhances his traditional background. His ability to discipline his mind is open to question, since he will already be "disciplined" within the confines of his particular groove, that groove which nestles snugly at the foot of the twin walls of tradition and security.

Since there is no smoke without fire, it is possible that here and there real-life Colonel Blimps do exist. The accepted thing is to smile at such individuals (so unlike ourselves!), but few question the conscientiousness or sincerity of this type of officer. Perhaps we now have a clearer conception of the forces which shape them.

World War II demonstrated that the battleship school would not recognize the limitations of battleships until the evidence was overwhelming. The elemental reaction, as opposed to one based on pure reason, was to build bigger and better battleships and gather round them aircraft carriers in an attempt to ward off the new and deadly foe.

In *The Army: Air Forces in World War II*, Vol. I, the story of the growth of the Air Corps between World War I and World War II is described as being one of constant struggle for recognition of the capabilities of Air Power, and for autonomy from the War Department, whose General Staff was regarded as the "stronghold of bureaucratic conservatism." In the light of our examination we can only regard this situation as normal.

Again, Arthur E. Morgan states: "The system [West Point] is, I believe, an essential part of battlefield psychology, but is very detrimental in all the phases of war which deal with invention, development and supply in general. . . . Its regimentation and arbitrary subordination to authority has been deadly to alert, creative inquiry. . . . Alexander Sachs, who was directly effective in bringing the atomic bomb project to the attention of the President, states that both the Army and Navy were initially uninterested and for a considerable period remained indifferent. The most powerful of all military forces, therefore, like so many other concepts requiring ranging imagination, would have been lost if the West Point and Annapolis judgments had not been over-ruled by the imaginative President. . . . Rocket Ships and Atomic bombs make it neces-

sary that we have as many resilient, imaginative minds as possible if we are to avoid chaos. West Point straitjackets the minds of its own."⁸

This is, perhaps, an unnecessarily severe criticism and is used merely to illustrate the far-reaching importance of the problem with which we are dealing. However, we should now expect rather than feel surprise at the blocking tactics which form the underlying theme of these illustrations. Confronted with the possibility of fundamental change, a conflict of elemental character arises between the ideal of dispassionate, objective thinking on the one hand, and all those forces which we conveniently label "service background" on the other.

IN the past "We have depended upon the clash of war, the stress of revolution, the emergence of heroic individuals, the impact of migration generated by war and famine, the incoming of barbarians, to change established institutions. Instead of constantly utilizing unused impulse to effect continuous reconstruction, we have waited till an accumulation of stress suddenly breaks through the dykes of custom."⁹ We can no longer rely on this method of laissez-faire followed by upheaval.

It is now possible to summarize these thoughts in a fourth general proposition: *The military mind is subject to the restrictions of traditional thought patterns, strongly reinforced by basic motivation pressures of an elemental character, which make it more difficult to arrive at detached, objective solutions to certain problems than is desirable. In brief, background and the requirement for objective thinking are frequently in conflict.*

Than is desirable! These are mild words indeed, but there is a general awareness of the fact that whereas the pace of development in previous eras was comparatively slow, giving mankind a reasonable period of time in which to adjust to new weapons, that now "the pace of technological growth has quickened until the penalties for failure to comprehend such acceleration, and its significance in the struggle for national survival, will be fatal."¹⁰

⁸"Conscription and the West Point Mind," *American Mercury*, (Feb. 1946), p. 56.

⁹John Dewey, *Op. cit.*, p. 101.

¹⁰Lt. Col. John P. Healy, "Air Power and Foreign Policy," *The AIR UNIVERSITY QUARTERLY REVIEW*, Vol. II, No. 2, p. 17.

Germany hitched her Air Force, not to the stars, but to her traditional source of military power—the Army. This proved a vital factor in paving the way for the crushing defeat which followed some five years of hostilities. In our day of absolute weapons a nation which sticks too long to an old slant, or goes off on a wrong slant, may well be defeated overnight.

Since formidable hurdles are interposed between the military man and objective thinking, it is essential that positive steps be taken to release at the very minimum commanders and higher staff thinkers from the mental and motivation pressures to which they are subject. Clearly such steps would neutralize, or at least modify, the impact of psychological conditioning and basic motivation pressures.

To take positive action and not merely recognize the problem is the crux of the whole matter. To date the services have contented themselves with a series of edicts about cooperation, coordination, unification, etc.—all very pleasant and helpful but *not* fundamental.

Emphasis should be placed on increasing the awareness of officers of the nature of the forces which tend to restrict the freedom of their thinking. We have remarked on the malleability of the human mind; fortunately this malleability is not something which withers and dies on the twenty-first birthday, although the law of diminishing returns does tend to operate with increasing years. There is no reason at all why at any rate the staff planners should not be given a special course aimed at achieving at least partial “de-conditioning” before taking up appointments which are of critical concern to the well-being and safety of the nation.

SCHOOLS such as the Air War College already make a positive effort to re-orient students towards a freer, less restricted style of thinking. The fact that this College has attracted so much attention is, in itself, a happy indication of the extent to which it has been able to divest itself of the normal stereotyped military approach. In this connection it is interesting to note that the Air War College has found it necessary to reduce certain of the usual military pressures, e.g., there is no “rank” element amongst students attending the College, although this is implied rather than specifically stated by the College authorities. Similarly, pressure on the career element is relieved by not subjecting students to the usual

tests, ending with a set position on a roster which, once recorded in the archives, hangs around the student's neck like the dead albatross around the neck of Coleridge's "Ancient Mariner," for the rest of his military career.

Service colleges and schools can certainly instill and foster the idea that in this critical atomic age an officer who places a matter out of focus in relation to a narrow service loyalty is guilty of something amounting to treachery. The officer's ultimate loyalty is to truth, and through truth to the nation.

With the passage of time it is increasingly unlikely that allocation of funds to the services will continue on an approximate one-third each basis. The relative sizes of the three services will alter considerably and a situation may develop in which an expanding service will experience shortages of officer personnel whilst the contracting services have surpluses of first-class individuals. Under such conditions the question of inter-service transfers will arise. Then our military schools will be called upon to undertake a delicate, if essential and interesting, de-conditioning and re-orienting program!

Outside the academic sphere the idea has been canvassed in connection with unification that promising young officers should be given a two to four year tour in other than their primary service, and then be brought back as a joint group. Planners would be drawn from the group and held on a "Common List." No doubt traditional service thinking has prevented the full maturing of this idea but its mere discussion is suggestive of uneasiness in regard to the present situation in which no special provision is made for de-conditioning. Fortunately, in the case of joint groups, we may derive some satisfaction from the fact that their work takes place in a sympathetic environment—sympathetic, that is, to the development of larger loyalties in terms of national security rather than the interests of any particular service. Unfortunately, the work of joint groups represents only a small fraction of the total military planning which takes place within the confines of individual services.

More difficult (but more fundamentally important than academic or organizational measures) will be to secure the acceptance of measures designed to relieve staff thinkers of basic motivation pressures (economic, social, career, prestige, etc.) which remain discreetly in the background so long as the officer concerned conforms to the traditional doctrines of his own service, but become menacing ogres if he dares to trespass

too far from the accepted party line. Such measures would naturally be designed to fit into unification plans and programs. The terms of appointment of a British judge are deliberately designed to relieve him from normal economic and career pressures. He cannot be deposed, save in the most exceptional circumstances, and his income is calculated to place him beyond the bounds of avarice. We might think in similar terms about our top echelon staff planners. These officers will be handpicked and it should be possible to arrange that certain posts would carry a guarantee of six to ten years additional service; or, if retired, pension in at least one higher grade of pay than the rank currently held, together with an assurance that separation, if other than voluntary, would at the officer's request be made the subject of a Secretary of Defense committee inquiry, the committee to be staffed entirely by civilians. Unorthodox? Yes! But remember that the guarantees must be sufficiently strong to overcome heavy pressures and they must be weighed in relation to the *penalties of error* implicit in the present world situation.

There is a problem and we have attempted to define it; traditional training provides invaluable dividends in terms of battlefield psychology but its very virtues contain the sterile seeds of restricted thinking; possibilities of fertilization and development in other fields are further curtailed by thick and tenacious mental weeds, heretofore more politely referred to as "basic motivation pressures of an elemental character." The times are too dangerous to permit evolutionary changes to take their leisurely course; we know that to achieve improvement recognition is not enough—positive action is required.

It may be concluded that the problem of freeing military thinking in the higher echelons from the restrictions of traditional thought patterns should be made the subject of a research project, a joint effort by a panel of service officers and civilian educationists, administrators, sociologists, and psychologists. Such a study, carrying with it the necessary weight of authoritative opinion and aimed at determining exactly what impediments lie between the so-called military mind and frank, unbiased appraisal of a situation, will provide the firm basis and necessary momentum for launching the academic, organizational, and career measures which must be taken to secure an improvement in the present position.

ALASKA AND NATIONAL POLICY

Oron P. South

IF the predictions that the next war will be fought over the Arctic are correct, it is time for an evaluation of our position in Alaska with respect to the part it will play in any future armed struggle. Some decision should be made either to abandon our half-hearted efforts of the past and get out, or else make intelligent use of the potential which Alaska offers.

Since 1941 our last frontier has loomed large in military planning and has assumed increased strategic importance in global air routes. The exact attention focused on this area (including the Aleutian Islands) has fluctuated from time to time depending upon the imminency of invasion by an Eastern power.

The problem of how much should be done in Alaska to make provisions for polar war would seem to be related to the overall concept of how Air Power will be used. If our strategy is similar to that which won the last war—instead of Major Alexander P. de Seversky's which visualizes a global striking force based in the United States—it could follow that our best bet is to concentrate on Alaska, which we presumably could supply, and learn enough to move to other portions of the Arctic when the proper time comes.

From bases in Alaska we can strike with B-29s, B-50s, and B-36s at most of the vital areas that belong to major powers. With refueling techniques possibly all vital areas could be reached. Aside from Alaska there are other areas in the Arctic which could be used advantageously for attack or defense. Alaska is the only territory, however, which we own and in which we can experiment to our heart's content. There we must gain the cold weather know-how to fight in other places.

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.

To make Alaska usable to any large force, either air or ground, certain steps must be taken to prepare the territory for the effort. Some of these will be quite far-reaching in importance not only from the military point of view but from the viewpoint of Alaskans and certain vested interests in the United States.

In the past few years the Department of the Interior has drawn up a blueprint for the long-range development of Alaska's economic resources. In some cases portions of the blueprint fit into the plan for desirable military developments, but often there has been little correlation or coordination between the two interested agencies. As in so many instances in the past, the military may be hoping to exploit an artificial economic situation in a country without attempting to bolster civilian economy at the same time.

An excellent example of the manner in which this works is furnished by the Alaska Railroad. Both the Air Force and the Army are interested in rehabilitating the antiquated roadbed and rolling stock of the line. Over \$50 million have been appropriated by Congress for the task. Yet no adequate effort is being made to gear civilian economy to the newly developed potential of the railroad. Without sufficient cargo to make the line worth operating, it will relapse into obsolescence as soon as the military forces are reduced for a few years. If the territory becomes "hot" again, the job will have to be done over.

An alternative to this system would be the development of a plan for the economic, social, and educational advancement of Alaska, predicated on the grounds that a larger population would be an asset during time of war. The presence of large numbers of workers and adequate civilian housing would be a decided advantage during the initial stages of any struggle, particularly if operations started during the winter. The existence of already functioning supply lines would be of inestimable value.

To augment the population of Alaska to any considerable extent many ills that now beset the territory would have to be eradicated or alleviated. With outside stimulus these problems may be solved in a comparatively short time. Without such help progress may be slow or virtually non-existent.

THE biggest problem in Alaska, as in any Arctic area, is that of logistics. In the case of our largest air bases,

supply depends upon three approaches—the Alaska Railroad, the Glenn and Richardson Highways, and the Alcan Highway. None of these three constitutes any great potential for supplying large forces and each would have to be improved in case of war. All facilities except the Alcan Highway are dependent upon west coast shipping which is peculiarly unsatisfactory at the present time.

Comparatively few lines are engaged in transporting supplies to Alaska by water. Since their ships come back relatively empty, freight rates for cargo going north are extremely high. Canadian ships are prevented from engaging in coastwise trade because of the Jones Act of 1920, which many residents of Alaska feel puts the ships operating out of Seattle in a monopolistic position.

As long as this condition exists the population of Alaska cannot increase materially. To rectify the situation steps would have to be taken to (1) develop industry in Alaska so that the return trips would have cargo, and (2) either remove the restrictions imposed by the Jones Act and allow Canadian carriers to participate in coastwise trade, or subsidize American carriers more liberally so that freight rates could be cut during the interim period. The use of Canadian carriers which would normally operate from Prince Rupert, British Columbia, would result in a 700 mile shorter haul.

Although such steps would help materially in the Panhandle and Anchorage regions, it would be only a beginning so far as the interior is concerned. Continued efforts would have to be exerted to foster improvement of the Alaska Railroad and to make the highway chain more serviceable. To increase carrying capacity and make the roads serviceable the year round, hard surfacing should be provided for all main roads and feeder systems. Similarly, the Alcan Highway should be hard-surfaced and provisions made to keep it open all year.

To augment further the transportation potential, serious consideration should be given to the construction of a railroad from Prince Rupert or Dawson Creek to Fairbanks. If the Canadian northwest could be developed at the same time, the railroad would provide low cost transportation which would be extremely helpful for both areas.

Products to be shipped over both land and sea routes from Alaska to the United States will probably come initially from government sponsored projects. An effort is being made at

present to develop a paper-pulp industry in southeastern Alaska. Progress in the past has been hindered by red tape and the difficulty of determining aboriginal claims. Encouragement of the Department of the Interior to settle the claims without further delay would probably lead to numerous projects being started in Alaska which would mean the investment of millions of dollars in the territory.

Other steps to increase production would entail more extensive surveying of Alaskan mineral resources; the establishment of agricultural experiment stations to increase production; assistance in developing resort areas; and development of hydroelectric sites. All of these, however, are dependent first upon transportation, the great basic need.

FINALLY, Alaska should be assisted in reaching statehood. Attainment of this objective would not necessarily mean a solution to all problems, but it certainly would be a step in the right direction. Senators in Congress who could trade votes with other Senators would undoubtedly mean more prompt recognition of Alaska's needs. Benefits which accrue to other states, such as Federal appropriations for roads, would be available. The state legislature could attempt to find more adequate solutions to the problems of territorial finance and taxation. Absentee ownership and exploitation could be more easily controlled and stopped. And Congress might be inclined to consider Alaska's application more seriously—if the military requirements could become better appreciated.

Since the USAF is the armed service most vitally interested in Alaska, that organization has a unique opportunity to promulgate and execute a well-planned program for both civilian and military development. Instead of building in a vacuum, why not build something lasting, an economic structure that will endure after the immediate need for the military forces has disappeared?

The awful weapons man has created are now forever with us; we shall walk henceforth with their shadow across the sun.

—Hanson W. Baldwin
The Price of Power (1948)

ELECTRONICS IN AIR WAR

Colonel Wendell W. Bowman

OUR national objectives and the military strategy stemming from them are a matter of speculation for those outside the inner circle. One important point, however, appears to be fairly well settled and generally, though reluctantly, conceded—Air Power has emerged as the decisive weapon in modern war.

It is logical to assume that in conceding to Air Power the dominant role in future wars, its maximum potential capabilities are envisaged. The Air Power of a nation is composed of a multiplicity of factors, culminating in military air operations, the cutting edge. Military and political officials who think and talk of Air Power as the decisive weapon in future wars are undoubtedly measuring it in terms of potential firepower. To deliver firepower by air, or to exploit the air space for the purpose of waging war, requires air operations, which in turn involves the employment of aircraft in flight.

For the foreseeable future piloted aircraft will continue to be the basic unit of military Air Power. Obviously, to be effective aircraft must fly. An airplane on the ground is an expensive, vulnerable, and totally useless object. Successful and sustained operations are dependent upon the ability to fly when and where required and to accomplish the assigned mission at a tolerable cost.

There is little question but that we must defeat the weather before we can defeat the enemy. To be effective an air force must first attain all-weather operating capability. Adverse weather conditions, particularly poor visibility, constitute the greatest of all limitations upon effective air operations. Range, speed, and service ceiling are inherent characteristics of air-

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craft designed for specific functions and can be attained to a satisfactory degree. However, these most necessary characteristics do not within themselves insure the end result—application of firepower against the vitals of the enemy war potential. An effective air force must be able to take off, navigate to the target area, penetrate defenses, identify and accurately bomb the objective, and return to base and land, regardless of weather conditions. In fact, it may be desirable to use weather and darkness as a cover to reduce combat losses. Defensive air operations must be on an all-weather basis, since the enemy has the initiative and can select the time and place and conditions most favorable to his attack. The USAF has made great strides in all-weather operations but some problems remain only partially solved. Technology can produce the ancillary devices required to insure accurate and certain delivery of these weapons to the industrial heartland of any future enemy.

Electronics is the tool for the job; modern science has suggested no alternate. The principal limitations imposed by weather, high altitude, and darkness are occasioned by the inability of the human eye to see under such conditions. Electronics, specifically radar, is a fairly efficient substitute for human vision. During the last war the need to compensate for human limitations became apparent and resulted in frantic efforts to develop equipment for the purpose. Only partial success was achieved, but it was sufficient to give us some measure of qualitative superiority over our enemies and to permit air operations under conditions previously thought impractical. Without exception these developments were in the field of electronics.

IN general the functions and types of missions the Air Force will be expected to perform in the next war are: strategic bombardment, air defense, tactical air support, air transport, and troop carrier. The priority of these missions and the relative emphasis that will be given to each in the initial and subsequent phases of the war are irrelevant to this discussion. In order to gain an understanding of the factors involved in the execution of the various types of air missions, each will be analyzed in some detail with particular attention focused upon the role of electronics.

Strategic air operations form the substance of modern military Air Power. They will be the most decisive, difficult,

and costly, yet our national security turns upon their success. In order to analyze realistically the strategic mission, it is necessary to assume a reasonable hypothesis: the U. S. is opposing an industrially powerful enemy; the strategic target system is the enemy industrial heartland; initial air operations will be conducted from present bases.

Strategic Air Power is a term that has caused considerable talk, and some thinking, both in and out of military circles. It is held in some quarters that our ability to bring strategic Air Power to bear upon potential aggressors constitutes the principal, if not the sole deterrent to war. We hear and read such statements as those about "immediate retaliatory air attacks of such devastating effect that no aggressor nation will dare to attack." People who think in such terms are imagining the end result, that is, delivering mass destruction firepower on key targets, without considering all the means to that end. The problem of destroying a selected target system is composed of many elements, each of which must be satisfactorily solved if the mission is to succeed.

First there is the aircraft itself. We must have strategic bombers designed in terms of range, speed, and pay load for the job operating from available bases. It appears that we have such aircraft, along with highly trained crews to man them. The problem that remains is to employ these aircraft effectively and economically on operational missions. A mission consists of taking off, possibly refueling in the air, navigating to the target area, penetrating enemy defenses, identifying the specific target, bombing with extreme accuracy, returning to base, and landing. The above functions must be performed accurately irrespective of weather conditions. Can we do these things today? The answer is, we can, with varying degrees of efficiency, due primarily to modern electronic devices. In this technological age electronics has emerged as an indispensable element in the effective employment of military aircraft. To illustrate this point, a somewhat detailed analysis of the part played by electronics in a long-range strategic air mission is in order.

The take-off and climb to initial cruising altitude require no particular assistance from electronic devices other than normal two-way radio phone communications. Assembly into desired formations, however, is facilitated by radar, especially at night and during bad weather conditions. The problem of

navigating to the target area, either directly or circuitously, over great stretches of water, arctic wastelands, or inadequately charted enemy territory is primarily solved by the use of ground-installed and airborne navigational devices. The usefulness of celestial navigation, both manual and automatic, should not be discounted. However, it must be actively borne in mind that the ability to see celestial bodies is a prerequisite to its use. Positive assurance that such ability will prevail throughout the flight, from take-off to bomb release point, cannot be given unless we elect to conduct all missions at maximum altitude. In the interest of precise and accurate delivery of mass destruction weapons, lower level penetration and bombing runs may be required. At present and for the foreseeable future electronics provides the only positive and reliable means of navigating to the assigned target under all circumstances.

As for air refueling, the rendezvous between the tanker and bomb carrier is rendered possible by air-to-air homing, radar, or automatic direction finding. The final positioning for transfer operations under conditions of restricted visibility or at night may be made possible by the use of radar.

THE penetration of enemy defenses, assuming they are formidable, will require our greatest efforts. The absolute necessity for delivering a very large percentage of our mass destruction weapons adds emphasis to this problem and impetus to its solution. Air defenses are designed to shoot down attacking aircraft by fire from the ground or from fighter aircraft. In either case success depends upon highly effective electronic fire control systems. In turn, successful penetration depends to a high degree upon effectively neutralizing these control systems by airborne jamming devices. Electronic counter-measures can be developed and employed to jam enemy fire control systems, ground controlled intercept radar, air intercept radar, and radar sighting. The value of conventional defensive armament against high-speed fighters at high altitudes, at night or in the clouds, is questionable. Any success achieved will be dependent upon electronic detection and sighting devices.

The identification and bombing of the assigned target is the pay-off. If we cannot accurately bomb the specific target the mission is a failure. If we lack that capability we lack true Air

Power and thus the ability to effectively wage modern war. Optical bombsights have an obvious and definite limitation inherent in all optical instruments including the human eye; one must see the target, and the use of electronics in the form of radar bombing equipment provides the only means. The present radar bombing equipment and techniques are not completely satisfactory, but they can and will be improved.

Navigation back to the base is substantially the same as on the base to target flight. However, there is considerable difference between being twenty or thirty thousand feet over the home air base and being on the runway. Thick overcast and low or zero ceiling conditions, coupled with high traffic density, constitute a problem in traffic control and landing that awaits an adequate solution. Complications arise if the reserve fuel supply is low, as it well may be after a strategic mission from present bases. The traffic control and landing system must handle traffic safely and expeditiously under all weather conditions. The only factor limiting the landing rate that can be tolerated is the acceptance rate of the runway. Without going into the functions of the system components it can be stated categorically that they are one hundred per cent electronic. The system can be established using existing and immediately procurable equipment plus a few items now in the final stages of development.

In strategic air operations the role of electronics clearly spells the difference between success and failure. If Air Power is to be our decisive weapon, then there can be no failure in the strategic air effort.

If we give the initiative to the enemy it must be assumed that he will strike only after carefully weighing his relative capabilities. Logically the first blow will be aimed at our most vital industrial facilities and strategic striking forces. This blow must be blocked, or at least reduced in force.

AIR defense cannot win a war but lack of it can certainly lose one. Truly effective air defense against a capable and determined enemy appears, at the moment, to be an almost hopeless task when measured in terms of our current and projected capabilities and economic capacity. Be that as it may, and assuming that we will have an air defense system of a sort, let us examine the part played by electronics and communications.

Current thinking on the problem points toward an early-warning radar screen with the maximum depth and coverage economically obtainable. The individual early-warning radar stations must be tied into a net, which in turn will be connected by instantaneous and reliable radio communications links to filter and control centers. Interceptor aircraft will of necessity come under ground controlled intercept radar during a large portion of their intercept mission, at least until they come into range of air intercept radar. Then to effect a kill, using guns or rocket missiles, at high altitudes or during low visibility conditions, gun laying must be by radar. The safe return to base is accomplished by electronic navigation traffic control and landing devices. This latter problem is particularly difficult for fighters during darkness and adverse weather conditions. The enemy can be expected to exploit any deficiencies in our all-weather fighter operating capabilities. The electronic devices and communications network incorporated in an air defense system do not within themselves constitute air defense. However, they are the means by which air defense is achieved and are indispensable to its effectiveness.

In an active air defense system the problem of positive identification is most difficult. Automatic electronic transpondors appear to be the only possible solution. A completely satisfactory IFF system is yet to be developed; however, research and development should produce a simple and secure electronic device in the near future.

Tactical air operations, including cooperation with ground forces, are probably more dependent for success upon strict control and coordination than any of the other types of air missions. Even in good weather and visibility the pilot of a low-flying, high-speed aircraft is generally not able to visually detect and identify specific targets successfully without assistance from ground control. As the visibility decreases this dependence increases rapidly to a point where complete electronic control is necessary. Tactical control radar, with the associated communications net and control centers, plus airborne radar and electronic sighting devices, comprise the means for successful and sustained tactical air operations. In other words, electronics assure effective all-weather tactical operations, including safe and expeditious landing. The Battle of the Bulge is a classic example of impotency when all-weather operating capability is lacking.

The air transport problem, though somewhat simpler and generally less vital than combat operations, remains only partially solved. The best of our commercial airlines are able to maintain schedules only to a degree. In all fairness, however, it should be understood that safety considerations and regulations are primarily responsible for this. In the interest of obtaining maximum utilization of our *inadequate* transport fleet it is necessary to assume that transport operations will be on a strict schedule basis. Only weather conditions, such as turbulence and icing, which the aircraft cannot structurally surmount should be allowed to limit the maintenance of schedules. The specific problems involved are navigation, traffic control (both en route and terminal area), and expeditious landing. Existing or procurable electronic navigational aids, ground installed and airborne, provide a satisfactory solution to the navigation problem. The terminal area traffic control and landing problem is only partially solved using existing electronics systems. Current developments in the field of electronics promise to provide the solution in the very near future. No alternate system based upon other principles is envisaged or appears likely to emerge from present technological trends.

TROOP carrier operations can be divided into two fairly distinct categories in so far as electronics is concerned: first, airborne or parachute troops with limited initial equipment; and second, air transportable units of the ground force with full organizational equipment. This latter operation is quite similar to scheduled air transport in that relatively fixed air routes are used, including permanent or semi-permanent installations of navigational and communications facilities. The one important difference is the necessity for moving extremely large tonnages of men and equipment in the shortest possible time. This requirement is not always present, however, although situations will no doubt arise where it is. We must be prepared to handle large fleets of transport aircraft in terminal areas and do it safely and rapidly. Assuming situations where ground troops must be air transported even though terminal area weather conditions are extremely unfavorable, a premium is placed on the electronic traffic control and landing system. A fully automatic electronic system is required because a manual control system is quickly saturated and falls apart in confusion.

To air drop troops, or land them by gliders, imposes some peculiar problems that can be solved only by electronic devices. Designated drop areas are invariably critical in terms of their boundaries. Troops and equipment scattered over the countryside, or dropped in the wrong area, are usually ineffective and are largely sacrificed. The problem is to drop them at the right place at the proper time. To achieve security and surprise will generally require that drops be accomplished at night and perhaps during bad weather. To pin-point selected areas, positive and accurate navigational aids are required. Airborne radar used in conjunction with droppable radar beacons is a possible method. Improved methods may be worked out and equipment developed to implement them, but within the bounds of present technology, the electronics principle will be employed.

A strategic air war using atomic bombs or other weapons of mass destruction will require centralized control from the top echelon to insure maximum coordination of effort and effectiveness. Combat missions conducted from our available bases in coordinated simultaneous strikes, or on predetermined schedules, will be possible only to the extent that rapid and reliable command communications channels permit. The exact command structure and the degree of operational control that will be exercised is not known, nor is it particularly relevant to this study. Suffice it to say that radio communications will provide the means. Air Force Headquarters, the Strategic Air Command, operational Air Forces and their echelons, and intermediate and forward bases will of necessity be linked by a command communications net. This net must be the exclusive tool of the Air Force Chief of Staff. In addition there must be a global system of powerful air-ground radio stations to insure instant and reliable contact with aircraft in flight any place within the Northern Hemisphere. The systematic destruction of the enemy war potential, coupled with the doctrine of scarcity in utilizing special weapons, demands strict command control of the entire strategic air effort.

THE above discussion of the role to be played by electronics in air war is intended to bring into proper focus one of the several elements of the complete military airplane. In the past, and to some extent today, the greatest emphasis, and an incredible percentage of Air Force resources, has gone into the development and procurement of airframes and engines.

These are not complete airplanes when measured in terms of their capabilities to perform combat missions in a future war. Speed, range, and service ceiling mean nothing within themselves. Only when they are combined with ancillary devices that insure certain and precise delivery of firepower on selected targets, irrespective of geographical factors and weather conditions, do they begin to pay off. There have been some recent indications, primarily in the Strategic Air Command, of a better understanding of what constitutes a complete airplane. These are isolated cases and have not yet reached epidemic proportions throughout the Air Force. One can only hope that our design and development specialists, along with the balance of our operations people, will gain an early and comprehensive understanding of all the essential elements of a complete airplane and then proceed to develop and procure them concurrently. If we can accept the proposition that the overall potential of the Air Force is measured by the destructive firepower delivered upon the enemy, it follows that all the means contributing to such delivery must be developed and intelligently employed.

The role of electronics and communications in military air operations is a most vital one. The effective employment of Air Power is dependent upon adequate exploitation of the principles of electronics and their application to air warfare. It can be concluded that electronics and communications, though not weapons themselves, are indispensable to the employment of weapons and in the final analysis spell the difference between victory and defeat in an air war.

*U*ntil World War II, naturally occurring epidemic diseases were always more to be feared by armies than the bullets of the enemy. In recent years, improvement of high explosive weapons, even without the atomic bomb, and major advances in both prevention and treatment of disease have combined to make war more destructive than germs. BW threatens to reverse this trend.

—Theodor Rosebury
Peace or Pestilence (1949)

THE NEED FOR AN AIR ACADEMY

Major Ralph W. Keller

HOW to provide a continuing supply of competent young air officers is a critical problem for the Air Force and the American people. The protection of a nation is a serious business, and the men entrusted with this responsibility must be the most capable and exacting the human resources of that nation can produce. Nothing less will do. Allowed sufficient time it must be assumed that adequate technological weapons will be developed by every potential American enemy. The materials necessary to wage war being mutually available, the capacity of men may very well spell the difference between survival and annihilation.

The part Air Power will play in a future war is obvious to those who have studied the factual accounts of the terrifying holocausts at Hiroshima and Nagasaki. Our Air Force, in the eyes of would-be enemies, must constitute the most effective single armed force now existing. If this can be accomplished, peace may possibly be ensured. If not, peace will be contingent upon the will and intentions of those who feel competent to prosecute a war against us.

There is little question that America has both the physical and human resources with which to create such an Air Force. Recognition has been given by the Congress to both the materiel and personnel requirements of the air arm, and American scientific ingenuity and industry have proved that the materiel requirements can be satisfied. There remains only the proper training and education of the men who make up this organization.

To say that the Air Force should be manned and led by capable and efficient men is synonymous with saying they

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.

must be intelligent, well educated, and well trained. Since its establishment Air Force leaders have examined critically the prospect of its future effectiveness in terms of the quality of its personnel. There is evidence that an intelligent force has been assembled. However, when compared educationally with the personnel of the Army and the Navy, its officer corps as a whole is found to lack the formal education important in accomplishing most effectively many of the key assignments.

This condition arose quite naturally. Prior to the recent war the Army Air Corps was a relatively small organization. During the war the nature of its mission required the utilization of a great number of very young men, many of whom interrupted their education to serve. In view of their experience and high intelligence it was later considered desirable to integrate large numbers of them as Regulars. Since that time some of them have completed their education in civilian institutions. And while others of this group are qualified by experience to perform the duties required of them at the rank they now hold, they are not educationally qualified to most effectively assume many of the positions of leadership which will be vacated by officers who retire or exit for other reasons.

IN analysis of this situation reveals that from June 1946 to December 1947 a total of 25,667 wartime officers were integrated into the Regular Army and Air Force. This number was selected from a total of approximately 140,000 applicants. Of these, the Air Force accepted 14,345, a mere 29 per cent of whom are college graduates. On the other hand, 57 per cent of those integrated by the Army had completed their undergraduate education.

Present estimates indicate that approximately 63 per cent of all the officers of the Regular Army hold baccalaureate degrees, as do 74 per cent of the Navy's Regular officers. The Air Force ranks a low third with only 37 per cent of its Regular officers having completed college. An analysis of the present sources of officer replacements reveals several other significant facts.

It is estimated that only five per cent of the reserve officers on extended active duty who have applied for Regular commissions are college graduates. The Aviation Cadet program, which has been the major source of young officers, promises to furnish a negligible number of college educated men. Dur-

ing 1948 less than two per cent of these trainees had completed college, and the same figure applies to those now awaiting cadet training.

The Officer Candidate Schools, conducted by the Air Force as an additional source of officer replacements, are operated primarily for the purpose of training enlisted personnel who have shown high intelligence and a capacity for leadership. These men have made excellent officers. However, it never has been expected that many men with college backgrounds would be found in this group.

The Chief of Staff, USAF, has recently contacted the presidents of the country's colleges and universities in an attempt to secure the services of college educated men. While it is too early to determine the results of this program, it is highly probable the Air Force may meet with the same trouble it experienced a year ago when it undertook a similar campaign. It was found then that a career as an officer apparently lacked the appeal it once held among college men. It should also be remembered that both the Army and the Navy must seek to secure the largest portion of their officer replacements from this same source.

Paradoxically, the United States Military and Naval Academies represent the only reliable sources of college trained officers available to the Air Force. As an interim measure Army authorities have agreed to release to the Air Force 40 per cent of each class graduating at West Point. This number will amount to approximately 200 officers a year. The Navy has offered to release seven per cent of the Annapolis graduates, which will provide about 45 additional officers. Representatives of both the Army and Navy, however, have stated that this is offered only as a temporary stop-gap until the Air Force can establish its own source of officers. These services, being urgently in need of officers to meet their own expanded replacement requirements, cannot continue to release officers who have been especially trained for Army and Navy duties.

At very best it is not expected that these sources collectively will yield more than 500 officer replacements each year. Present indications are that, of these, an inadequate number will be college educated. Based upon present attrition rates, it has been estimated that 1000 new officers will be needed each year to replace those who leave the Regular Air Force. Securing

1000 replacements does not constitute a problem; finding 1000 men who are adequately qualified is, however, quite another matter!

IT has been suggested that the problem be resolved by expanding the existing academies. An examination of this proposal reveals that it is not physically possible to expand them sufficiently to accommodate the additional 2500 students who would have to be enrolled in order to graduate each year the 500 officers needed to complete the total yearly requirement of 1000 air officers. As early as 1946 it was obvious that West Point could adequately train only a small portion of the officers required for the expanded postwar Regular Army. At that time the Army Chief of Staff directed the Superintendent of the Military Academy to investigate the possibility of expanding existing facilities. The Superintendent made a study of the situation and recommended that an additional academy be constructed since it was not considered economically or otherwise feasible to enlarge the present school.

In December 1948 the possibility of expanding both West Point and Annapolis was studied by Brigadier General James B. Newman, Jr., the former Corps of Engineer construction expert. General Newman reiterated the previous findings regarding West Point by reporting that the expansion presently contemplated in order to meet increased Army requirements alone "would result in the utilization of about every square foot of land suitable and available as building area. Material further expansion is definitely undesirable."

Regarding a similarly planned expansion of facilities at Annapolis to meet presently foreseen Navy requirements, General Newman said, "At the United States Naval Academy the planned expansion could be accomplished only after the completion of extensive dredging operations necessary to provide the required additional area. Any further expansion beyond that now planned would be economically unsound and would result in lowered operational efficiency." The "dredging operations" refer to the fact that in order to secure additional land at the Naval Academy it would be necessary to fill in a portion of the Severn River.

General Newman concluded by stating that "The United States Military Academy and the United States Naval Academy cannot feasibly be increased in capacity to the extent required

to produce more graduates than will be required by their respective services. A third academy must be provided if the officer requirements of the United States Air Force are to be met."

Anticipating this almost inevitable conclusion, Air Force officials in August 1948 directed the Commanding General of The Air University to prepare a plan for the establishment of an Air Force Academy. Immediately, an Air Force Academy Planning Board was formed to study the problems involved in the establishment of such an institution. This board, in cooperation with a group of America's foremost civilian educators, has developed a detailed plan which considers among other things such factors as enabling legislation, organization, administration, Air Cadet and faculty selection, curricula, construction, criteria for site selection, equipment, budget requirements, manning tables, a preparatory school, and provisions for an interim academy which would operate until a permanent plant could be made available.

A continual requirement exists for adequately educated Regular Air Force officer replacements. This fact has been recognized by the Secretary of National Defense, as evidenced by recent public announcements from his office relating to the undergraduate training of Air Force officers. Several bills proposing the authorization of such a school, including one drafted by the Air Force, are now pending in Congress. If enabling legislation is enacted, the Air Force has ready a comprehensive and intelligent plan for the establishment of the needed Air Academy.

The proper balance of our forces depends upon the circumstances that face us. A military force is not properly balanced against itself. It should be weighted against the enemy. It should be designed and proportioned to evade an enemy's strength and to exploit his weakness.

—Gen. Hoyt S. Vandenberg
Chief of Staff, USAF
Speech, 1 May 1949

EDITORIAL

BY BRIG. GEN. JULIUS K. LACEY

THE United States in World Wars I and II was a mighty giant, impressive to its friends and allies, feared by its enemies. The singleness of purpose of the American people during both wars has been almost unbelievable. It is questionable whether any nation, totalitarian or otherwise, ever achieved such unity. Our people backed the government to the limit and gave unqualified support to our Armed Forces. Service men and women were superbly treated—nothing was too good for them.

In the recent conflict we in the military service and on the production line had but one aim—to win the war. We wished to get it over with and return home, where our families wanted us. We wanted to return to our normal way of life as quickly as possible. We had made the world “safe for democracy” and we hoped to enjoy the fruits of our labors.

It did not take us long, however, to discover that the world had not been made as safe for democracy as we had supposed. Nor is the world today as safe as we would like it to be. Probably it never will be, for the world, imperfect as it is, does not preserve treasures left unguarded. Liberty for mankind has never been universal and peace has seldom been the normal state. History shows that peace is not obtained simply by winning a war. Peace cannot be achieved merely because one great nation or group of nations passionately desire it. We are just beginning to realize that peace must be fought for, planned for, and then carefully guarded.

After World War I—erroneously labeled the “war to end all wars”—we naively expected the rest of the world to agree that we had accomplished what we had set out to do. And we steadfastly refused to review the world situation realistically until we were plunged into a second world war. Thus we found ourselves shocked and bewildered by the turn of events which engulfed us in World War II, a conflict in which we endeavored to extend the four freedoms.

We won that war, too. But how prevalent are these freedoms even in the United States? If we do not have complete freedom of speech and religion and freedom from want and fear, we have not finished our job. Let us see then how well prepared we are to finish it.

V-J Day fell on August 12, 1945. The following day our Armed Forces began to fall apart. The disintegration accelerated until it almost reached the state of mob exodus. Who was to finish the postwar job that was left undone? We were not sure, but we were willing to let someone—anyone but ourselves—do it.

Scientists who had been all-engrossed in searching for and developing implements of war turned their attention to peaceful pursuits. The bulk of them wanted to get back to universities and industrial laboratories to continue careers which had been interrupted by the war.

Newspapers which had wholeheartedly supported the Armed Forces during the war opened up with big guns of criticism of the handling of the job of separation, a job which was made all but impossible because of the Army's attempt to meet the public demand and yet be fair to all men being discharged. Even many of those handling separation hurried to be separated themselves. Only a handful of officers and men elected to remain in uniform and bear the brunt of the task.

Executives who had given their services in important positions for a dollar a year resigned to return to their businesses. Others left high government posts to accept positions with industry at considerably higher salaries.

We cannot criticize these men for what they did. American tradition and practice has been to encourage men to achieve as much material success as they can honestly and honorably manage. Our philosophy might be summed up as follows: "During war, serve your country. During peace, serve yourself." It would be pleasant if the state of national and international affairs permitted us to retain this philosophy. Unfortunately, however, such is not the case and again we must face unpleasant facts.

We—the American people—must serve our country during peace as in war. We cannot assume that Uncle Sam will do everything for us, including keeping the peace of the world. We must not leave these tasks to others. Every American must pitch in and help.

The Government of the United States is the largest and most complex business in the world. Even if the President and members of Congress were all supermen, they would need the patience of Job and the wisdom of a thousand Solomons to solve infallibly all the national and international problems which now confront them. They need our help. They need the help of all the able men in this country.

How are we to recruit the many able and informed men needed in government service today? One thing is certain: we will not entice

capable new men by publicly whipping those already on duty who have served their country loyally. We will get them only when the American people realize that the best men and women available are needed throughout the federal service. From such realization will follow the schools, training, salaries, and prestige needed to attract and prepare the people who can accomplish the job that must be done. If we the people give proper emphasis and prestige to serving our government in peacetime as in wartime, world leaders will be found among us.

First, however, we must ask ourselves this question: Is there time to educate our people to the need, establish and operate the machinery to produce the men, and then get on with the job? Only the future can give the answer. But it should be obvious to anyone that time is preciously short.

Today we are confronted with world-wide economic, political, sociological, and military problems. Possibly we are better qualified to deal with these questions on the military than on economic, political, and sociological levels. If this is true it is because military men, in an effort to determine the strengths and weaknesses of foreign nations and hence their military potential, have been accustomed to studying these other vital elements of government.

Military preparedness is not enough. We must become ready in all fields if we are to meet our responsibilities and succeed in the position of world leadership which has been thrust upon us.

By now, after two world wars, in a postwar era of disturbance and disillusionment, we must surely have learned that the winning of a war does not necessarily assure peace; that the mere desire for peace does not effect it. Peace must be sought after and sacrifices made to achieve it. It must, for the present at least, be honorably enforced by a world power willing to assume leadership and guided by capable and intelligent citizens who have the enthusiastic support of their nation and their countrymen.

We have been beaten and eliminated, we have nothing more to say. But it will be interesting to watch the development of the Great Powers and the battle of wits. Will it be as it always has been, that they all, every one of them, will not learn from the past and will continue to make the old mistakes again and again?

—Gen. Koller
Chief of Staff, German Air Force
Defeat (Hqs., AAF, 1946)

AIR ANTHOLOGY

CHARACTERISTICS OF AIR POWER*

SPEED of locomotion is the predominant characteristic of air power.

Armies on the ground move two and a half miles an hour by marching, and about twenty miles an hour on railroad trains. A column of troops on one road, twelve to fifteen miles long (which is the depth of an ordinary tactical division of infantry troops), requires about six hours or more to deploy on a front, that is, to prepare to fight. Navies move at a maximum rate of about twenty miles an hour, and increase this speed about thirty per cent when going into action.

Airplanes move in large bodies at the rate of one hundred miles an hour or over. They fight at speeds around one hundred and fifty miles an hour, while the fastest ones are approaching the two hundred-mile rate. The range of view is almost infinite as compared with troops on the ground or a navy on the water. At a height of fifteen thousand feet, a radius of view of fifty miles is possible; in other words, a circle whose diameter is one hundred miles, and one can see much further if the weather is clear. The time of development for battle by airplanes, that is, getting from their traveling formations into their fighting formations is negligible, because they move in closely packed bodies, communicate with each other by radio telegraph, telephone or visual signals, both of which have the speed of light, and therefore can change from what might be termed a column of route to a formation for battle in one or two minutes.

Their routes through the air are in a straight line—mountains, rivers, deserts and oceans are not obstacles. The State has no air frontiers comparable to borders protected by deserts, coastlines, mountain ranges or deep rivers on the ground. The

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air permeates the whole world homogeneously, the only change being in its temperature and density. From the standpoint of speed, we may say an air force moves from five to eight times as fast as an army per hour, and from three to six times as fast as a navy. The Atlantic Ocean has been crossed in sixteen hours, while the Continent of North America has been traversed in twenty-five hours' flying time. The size of the air force that may be employed is unlimited, because it has the whole air in which to operate, as distinguished from roads or railroads on the ground, or even an ocean, with its limitations of a single dimension, distance and coastlines. Compared to armies, an air force is not tied down by roads. It can move to any place entirely unhindered. Compared to navies, its speed, power of vision, and maneuverability, are unlimited. The perfection of the means of communication for an air force is an added element in its superiority. From its speed alone, an air force has the power of taking the offensive against either a navy or an army, and engaging these forces under its own conditions. Providing an air force has gained control of the air, it can completely conceal its own movements, or the movements of an army on the ground or a navy on the water by preventing hostile reconnaissance. It can pick up and follow a ship, or a column of troops and report their exact position during every minute that it is there. It can communicate back to bring up Attack and Bombardment Aviation, and direct these to the objects, or attack them as it sees fit. Consequently, the only defense against an air force is another air force, and as an indispensable prelude to any engagement, whether it be on the water or on the land, there must be an air battle to determine which side shall control this area above the earth and the water.

Our doctrine of aviation, therefore, should be to find out where the hostile air force is, to concentrate on that point with our Pursuit, Attack, and Bombardment Aviation, to obtain a decision over the hostile air force, and then to attack the enemy's armies on land or navies on the water, and obtain a decision over them. Our policy should be to maintain as strong an aviation as is necessary to defend ourselves against the combined attack of our probable adversaries. Our method for carrying this into effect should be to have the necessary air forces always ready at the outbreak of war, because this is the first of our arms that will enter into combat and it is upon a

favorable air decision that the whole fate of a war may depend. We should have an air force behind our East Coast that is sufficient for its local protection. We should have an air force behind our Pacific Coast that is sufficient for its local protection; and we should have in the country at large an air force so organized that it could reinforce either coast and insure our defense in the air. In a space which is practically limitless like the air, it is just as impossible to stop entirely the use of a few airplanes or very fast individual enemy ships, as it is impossible for an artillery to entirely silence an enemy's artillery, no matter how great their fire may be. With the proper employment of air units, these isolated enemy patrols have to be so careful in their work, are so harried by the defense, and are exposed to such great danger, that their actual accomplishments are very small in the total. In air work, however, a vigorous attack against any point of the enemy's country which makes it imperative that he defend it with his air force, requires him to concentrate for its defense. This gives a chance to the Air Commander to concentrate immediately against him and to seek a decision with his main air force.

In our operations at Château Thierry, where we were greatly outnumbered by the German aviation and where spreading out or disseminating our air force in small detachments spelled entire defeat for us, we concentrated all the Allied Bombardment Aviation that we could collect, bombarded the town of Fère-en-Tardenois (which was a very important place for the Germans) to such an extent that they had to concentrate their Pursuit Aviation for the defense of this place. We then brought a concentrated attack against their Pursuit Aviation at that place with our Pursuit Aviation, which in the end resulted not only in drawing the German Pursuit Aviation away from the vicinity of our ground troops so that it gave our Observation Aviation an opportunity to work, but also caused a very heavy loss to the enemy, and ended in balancing the air power where the Germans before had entirely dominated. Again, in the Argonne Battle of the First Army, where the congestion of transportation and men behind the center of our front was so great that a well-directed German air attack against our transport trains, which did not move for many hours, would have held up the operation of the whole army, we bombarded German centers of concentration, such as Romagne, Grand Pré, and other places absolutely essential

to the Germans for the supply and upkeep of their forces, so that they had to concentrate their Pursuit Aviation for the defense of these places. We had great air battles over these localities between the main force of the German, American, and Allied Pursuit Aviation, because the Germans had to defend these places with their air forces or compromise their whole ground operations. After a series of air battles, we gradually obtained the decision, and it ended by our men shooting down a ratio of eight or ten of their airplanes to a loss of one on our side.

By the first of November, we had obtained mastery of the air in our sector, after a month of heavy fighting for it. The Germans used every art known to aeronautical strategy and tactics to maintain their position, with a constantly decreasing number of effectives. It was indeed an heroic struggle for them, and had they been pitted against a force that was not entirely familiar with their tactics and methods, they would have been successful. Their anti-aircraft defense from the ground was excellent and well co-ordinated with their air force, but this, of course, is merely an auxiliary of the air force itself. It acts as their sentinel and is a means of signaling to the airplanes by the projectiles shot out by the guns, in addition to its positive value of fire attack against aircraft. It has no decisive effect on an air battle. As our predominance over the German air force became greater, just so much more were our airplanes used against the retreating German columns on the ground, their motor trains, marching columns, railroads and military works of all sorts. These ground columns and formations were subjected to concentrated attack, where previously all airplanes had to be used for fighting their aviation.

The air decision gave us the opportunity of entirely concealing our movements, while we knew exactly what the enemy was doing. All the airplanes were used directly in combination with assisting the ground troops to destroy the enemy's forces of all kinds. The decision in the air resulted in giving our forces the complete power of initiative over the Germans—we could attack where, when and how we wanted to.

FOREIGN HORIZONS

GENOCIDE—A NEW CRIME?

By

Lt. Col. John A. Hutchins, M. B. E.

From the *Canadian Army Journal*, January 1949.

THE "Convention on the Prevention and Punishment of the Crime of Genocide," drafted in its final form by Committee and adopted unanimously in December 1948 by the United Nations Assembly at Paris, is a portentous document, the terms of which are well on the way to becoming not only the law as between nations in respect of this "new" crime, Genocide, but an integral part of the written national law of the majority of existing states as well.

This Convention, or Treaty, is one from which great consequences may flow, affecting in a very real way every citizen in the world; moreover, I conceive that there are implications, which will flow from implementation in which military men might well take special interest. We have only to recall the history-making War Crimes Trials which followed World War II, (in which more than fifty military men were tried, convicted and sentenced), to realize that henceforth the methods of conducting wars will be scrutinized and judged by the strictest standards, and that War Crimes, including Genocide, will be punishable, whether committed by principals or accomplices, whether these are private individuals, public officers (including military), or statesmen.

It is essential that we should inform ourselves as to the definition of Genocide. What does the word mean, and what related acts or crimes are equally punishable under this new "Convention"?

Genocide means any of the following acts committed with intent to destroy, in whole or in part, a national, ethnical, religious, or racial group, as such, namely:

- (1) Killing members of the group.
- (2) Causing serious bodily or mental harm to members of the group.
- (3) Deliberately inflicting on the group conditions of life

calculated to bring about its physical destruction in whole or in part.

(4) Imposing measures intended to prevent births within the group.

(5) Forcibly transferring children of the group to another group.

Punishable equally with Genocide are the following related acts:

(1) Conspiracy to commit Genocide.

(2) Direct and public incitement to Genocide.

(3) Attempts to commit Genocide.

(4) Complicity in Genocide.

Stated in less legalistic style, Genocide is the denial of the right of existence of entire human groups in the same sense that homicide is a denial of the right to live of individual human beings. It emerges clearly from the definition set out in the previous paragraph that Genocide is a composite of different acts of persecution and destruction.

The prevention and punishment of Genocide concerns us in peace as well as in war. In peace the safeguarding of minorities is a prime aim of the Genocide Code. The stamping out of this crime in peace will be facilitated and brought nearer realization when its repression is based upon the written criminal law of individual states. In time of war Genocide is effected by means of a planned and concerted assault on different aspects of the life of captive peoples. To date we have been unsuccessful in efforts to control or prevent the crime in war. This aspect of the problem is dealt with at greater length in a later portion of this paper.

The word Genocide is the brain-child of the noted jurist, Raphael Lemkin, who coined it to denote an old practice in its modern development. The word is derived from the Greek "genos," meaning race or tribe, and the Latin "cide," meaning killing. Another word conveying much the same idea, having the same sort of derivation, is ethnocide. Genocide does not necessarily mean the immediate destruction of a nation, although the term would certainly apply in the case of a mass killing of the whole or part of a national population. The word is intended to signify a co-ordinated plan of various actions designed to destroy the essential foundations of the life of national groups, the ultimate aim being annihilation.

Genocide has as its objectives the disintegration of the po-

litical, social, cultural, religious, and economic institutions of national groups, as well as the denial of personal security, liberty, dignity, health, and even life, of the individuals of such groups. Genocide has two main phases:

(1) The destruction of the national pattern of the oppressed group; and

(2) The imposition of the national pattern of the oppressor. This imposition may be made upon:

(a) The oppressed population which is allowed to remain; or

(b) Upon the territory alone after removal of the population and colonization by the oppressor's own nationals.

The Nazi Germans developed an elaborate system of Genocide techniques never formerly achieved by any state. These techniques were extended to, and practiced in widely divergent fields by the Germans; the most important of these are:

(1) *Political*—Local self-government was destroyed and the German administrative system substituted. All reminders of the former national character were obliterated and national unity was disrupted.

(2) *Social*—In this sphere disruption of the former national structure was achieved in part by the abolition of local laws and courts, and the imposition of German as the official language.

(3) *Cultural*—The captive population was forbidden to use its own language in schools or in print (Luxembourg 1940); rigid control was exercised over all cultural activities by means of licensing.

(4) *Economic*—The foundations of economic existence were destroyed (Jews were denied the means of existence); participation in business was made dependent upon collaboration.

(5) *Biological*—Depopulation by means of a variety of birth-rate controls was carried out.

(6) *Physical*—Annihilation of national, racial and religious groups was carried out, mainly by mass killings, discrimination in feeding, and deprivation of essential clothing, fuel and medicines.

(7) *Religious*—Religious influence was vigorously attacked, among other means, by pillaging church property and persecution of the clergy.

(8) *Moral*—An atmosphere of moral debasement was encouraged, directing mental energy from moral to immoral

thinking. Pornographic publications and cinema shows were made available to the exclusion of all others; gambling and the excessive consumption of strong liquors were encouraged.

The reader will by now have remarked to himself that "Genocide" is in fact not a new crime; he will be quite correct in a sense, although, as already stated, the term is of recent origin and is supposed to denote the modern development of an ancient, if hardly a venerable practice. Histories of the past contain many accounts of wars of savage butchery and extermination. The actions of the Assyrians in the destruction of Damascus, 732 B.C.; Samaris, 722 B.C.; Babylon, 689 B.C.; and Sidon, 677 B.C., when entire communities were destroyed and whole populations either killed or taken captive, may rightly be considered notable examples of Genocide. The terrible deeds of Tamburlaine, between the years 1383 and 1400 A.D., bear the stamp of Genocide, as indeed do the massacres of Jenghis Khan. Could there be a better known case of total destruction, for instance, than that of Carthage in 146 B.C.? The preamble to the U.N. Convention outlawing Genocide takes account of the antiquity of man's genocidal tendencies by stating therein that the contracting parties recognize that in all periods of history genocide has inflicted great losses upon humanity and that liberation from the odious scourge requires international co-operation.

The Rousseau-Portalis Doctrine (implicit in the Hague Regulations) that war is directed against sovereigns and armies and not against subjects and civilians has been disregarded by belligerents since wars began, the excessively horrible examples of the flagrant flouting of this principle seen in World War II are unfortunately, or should we say fortunately, fresh within the memory of each of us. Genocide is the antithesis of the rule that war is conducted against states and armies and not against populations. It would seem to the writer that in this age of "total" wars, the commission of the crime of Genocide by major participants will for the future be well-nigh unavoidable. The modern concept of total war conceives of civilian population centres, and base industries of all types, warlike and otherwise, as being strategic targets of prime importance—scarcely less important than military establishments. Genocide is an aberration which threatens to become the norm unless we, the peoples of the world, enact and enforce a rule which outlaws it. The new convention is but the com-

mencement of this task. To wage a major total war, in this atomic era, certainly an aggressive total war, is, so it would seem, to be automatically guilty of Genocide and thus to be punishable under international law. Will the realization of this fact, coupled with the memory of the Post World War II War Crimes Trials, and their implications for the future, help to deter the would-be modern aggressor? It is the fervent belief and hope of the framers of the Genocide Convention that these considerations will in fact deter aggressors.

To give real effect to the Genocide Convention much remains to be done. The requirements which must be met may be divided into two categories, namely, those which are immediate, and those which may be termed secondary, though these latter are scarcely less important than those in the first category. Insofar as Canada is concerned, the immediate requirement is the enactment, by the Dominion Parliament, of legislation having the dual purposes of, firstly, ratifying the Convention Outlawing Genocide, and, secondly, incorporating the terms of the Convention into our Canadian Criminal Code. It is anticipated that two separate and distinct Acts of Parliament may be adopted to achieve these purposes. In any event, the act of ratification implies the intention to effect the indicated changes in our Criminal Code; ratification without subsequent or simultaneous amendment to the Criminal Code would, in fact, amount to a nullity, since implementation of the Convention can only result upon the completion of both operations. For the future, the main requirement is a system of international controls, operating in conjunction with an international court of justice having criminal jurisdiction, enforcing what amounts to these beginnings of a written international Criminal Code.

It must be our avowed aim to prevent Genocide during future wars involving occupation; this will necessitate the prior setting up of a controlling organization or agency (or the use of an existing one such as the United Nations) vested with the power to visit, inspect, and enquire into the methods of treating captive populations, etc. At present we have no means of determining the plight of peoples under occupation or of alleviating their sufferings. Liberation is the only effectual treatment, and, as we well know, this event all too often comes too late for remedies to be possible. Neither liberation nor reparation can restore an already forfeited life.

Airman's Reading

The Second World War, by Maj. Gen. J. F. C. Fuller (Duell, Sloan & Pearce, \$5).

Reviewed by
Lt. Col. John J. Driscoll

IT is unfortunate that the historian of today, as an individual, is so seriously hampered in his analysis of modern warfare. This handicap is imposed not only because of the world-wide scope of such a study, but to even a greater degree by the increasing complexity of modern weapons. British General Fuller recognizes, in his preface, that a "full dress history" is not a practical undertaking because of the "limited data as yet available." It appears probable, further, in the light of his book, *The Second World War*, that perhaps a "strategical and tactical" history might also have similar inherent limitations. The problems of such studies are further amplified by the public unavailability of the evolutionary picture of the limitations and capabilities of aerial bombing techniques. Nevertheless, in spite of such restraints, General Fuller's book presents an excellent chronological review of the war, and his conclusions deserve careful analytical treatment from the airman's viewpoint.

General Fuller might well be called the "Billy Mitchell" of the tank, having early gained recognition as one of the world's leading tank enthusiasts, as well as being an original advocate of mechanized ground warfare. In 1928 he recommended the aeroplane, as well as the tank, for employment in battleline action. Today, General Fuller remains one of the foremost proponents of Air Power in the *tactical support role* which limits Air Power to the obsolete two-dimensional pattern. He still contends that landing craft and transport aircraft should have been given priority over construction of a strategic bomber force, contrary to Churchill's wartime decision. It is easy to understand how such opinions were seriously considered up to

the early part of the last war. But it is difficult to understand adherence to this viewpoint in the light of the "A" bomb and of current international recognition of the strategic air potential. Apparently little cognizance is given to such analyses of strategic air as this one by Dwight D. Eisenhower, Supreme Commander, Allied Expeditionary Force: "The overwhelming Allied superiority in the air was indeed essential to our victory. It at once undermined the basis of the enemy's strength and enabled us to prepare and execute our own ground operations in complete security."

Nevertheless, despite such authoritative statements, General Fuller quotes a war correspondent to prove that the strategic bomber was inaccurate, as well as being generally ineffective. He gives a news reporter's story of seeing "one great salvo fall five or six miles within our own lines." This reviewer, due to normal combat hazards, fell along with a salvo of bombs (and some fragments of a heavy bomber) within Allied lines. Unfortunately, such incidents, beyond crew control, add to the difficulties of the ground observer's appraisal of bombing accuracy. General Fuller further makes the flat statement that "in broad daylight errors of a mile are to be expected" in bombing. This questionable assumption is based upon the fact that the *tactical bomb line* was placed six thousand yards from the Allied troops.

In support of his thesis on the ineffectiveness of strategic bombing, General Fuller endeavors to show that German industrial production continued to rise despite Allied bombing. Unfortunately, the two U.S. Strategic Bombing Survey charts used by Fuller are of such a nature that when removed from context they tend to give an erroneous impression. This same thesis and identical supporting data are used by Fuller's compatriot, scientist P. M. S. Blackett in his *Fear, War, and the Bomb*. The first USSBS chart, "German Aircraft Production" (page 225), was prepared by the Planning Office of the Speer Ministry, and the figures are an example of the type of optimistic presentation which delayed Hitler's gaining the true perspective. That these Speer figures are unreliable is backed by enemy testimony, and recorded in the USSBS report. Among other devices used for padding, repaired aircraft were counted as new production. The second USSBS chart used by Fuller (page 227) includes literally *all* combat munitions and

as such is incapable of giving a true index of any major target system.

For a true picture it is obvious that we must isolate *one distinct phase* of production; one which was *actually a bomber target*; and one for which we have *reliable* figures. We may then examine the case on its own merits in an effort to see what effect, if any, was made by the strategic bombing effort. There is sufficient reliable data in the same USSBS report to make a sound analysis of the strategic attack on oil: "Virtually complete records of the German oil industry were taken by the Survey. In addition, major plants that were subject to attack and their records were studied in detail."

The U.S. Strategic Bombing Survey agrees with General Bradley that the strategic bombing campaign against oil paid off "handsomely" in the closing months of the war. General Fuller, nevertheless, criticizes even this oil campaign in view of the postwar USSBS findings on the one operative ethyl fluid plant which "though highly vulnerable" was not hit. Our intelligence, unfortunately, failed to reveal this fact during the course of the war. This intelligence inadequacy, which led both air and ground officers to select an overabundance of less vital targets, was given full recognition in the conclusions of the USSBS in view of its limitations to Air Power.

Likewise, until the final phase of the war, there was still much to learn about target selection, and much room for improvement in bombing technique. This revolutionary three-dimensional weapon had not yet reached adolescence—and our intelligence had not yet located the "Achilles' heel." It was inevitable that the airmen who survived the World War II embryonic period have learned much about air tactics and strategy, including selection of targets. Air Power has finally bloomed into full adolescence. We must be careful to avoid giving undue weight to early experiments in extrapolating future trends.

Prior to the war's end, Franklin D. Roosevelt approved the establishment of the United States Strategic Bombing Survey. This impartial group of distinguished civilians, ably headed by Franklin D'Olier, had at their disposal *all* the available technical data plus the services of teams of expert analysts. After a thorough analysis there were published, for the American people, detailed reports which constitute a sound basis

for evaluating Air Power as an instrument of future military strategy. The serious military student must read and analyze for himself the *complete* reports of the U.S. Strategic Bombing Surveys. Only thus can the true potential of strategic bombing be appreciated.

Paths to the Present, by Arthur M. Schlesinger (Macmillan, \$4).

Reviewed by
Robert W. Schmidt

HISTORIAN Schlesinger's *Paths to the Present* consists of a series of essays dealing primarily with the origin and development of certain social and political institutions in the United States. The essays are arranged under the following headings: (1) National Traits (2) Government of the People (3) War and Peace and (4) Ampersand.

In the first group the author points out some of the ways in which the American people differ from their European counterparts. Industriousness, individualism, inventiveness, idealism, optimism, and restlessness are some of the characteristics which were developed in the new land. Voluntary associations, such as volunteer fire-fighting companies, library associations, scientific societies, etc., were also formed as a means of solving problems and meeting needs which had formerly been taken care of, as a matter of course, by society or government. These organizations first served local purposes; later the use of voluntary associations expanded until they became local, regional, and national in scope. The author points out that as people continued to come to the United States, they rapidly adjusted themselves to their new environment and became fused into the new culture, enriching it with their contributions.

In the second group of essays the author describes briefly some of the political institutions that developed, and the factors which were responsible for their specific characteristics. In connection with his discussion of political parties, he describes the shifts from conservatism to liberalism in our na-

tional political picture, and shows how these shifts were largely due to practical considerations, and not to fundamental ideological changes.

The chapter on the Presidents of the United States contains an evaluation of the different chief executives by "fifty-five students of American history and government throughout the United States." Mr. Schlesinger discusses the classification, and some of its implications. He shows, for instance, that the "great" Presidents, according to this classification, were the ones who clashed with the Supreme Court, and who were opposed by the press.

Equally stereotyped was the journalistic antipathy to these Presidents when seeking office, the only real exception being Washington's two elections, which were uncontested On the other hand, the press backed the election of all but one of the subaverage executives, including the incompetents, Grant and Harding.

Two chapters are devoted to a consideration of problems regarding the presidential office.

In the third section the author discusses the relations of the United States with other nations. After a long period of isolationism, there appears a growing recognition of responsibility toward the remainder of the world. Even the isolationism has been rather ephemeral, for we have been drawn into every world conflict since the first settlers reached these shores.

Such involvement is not strange, the author contends, for this country has been affected by every movement that influenced Europe. Both have felt the impact of such movements as democracy, nationalism, industrialism, imperialism, and humanism.

Our people came from many lands and have diverse loyalties. Thus it is only natural that they should have reacted to conflicts abroad, and continued some of their loyalties even though these loyalties conflicted with their obligations as citizens. Except in wartime, however, authorities have been much more concerned with sectional conflicts, but only once did sectional differences seem too great to be compromised.

In the fourth section the author discusses several, more or less unrelated, topics. The influence of urbanism upon institutions is the first topic to be considered. He shows how the process has tended to modify many of the characteristics that

grew out of contact with the frontier. With the disappearance of the frontier, greater changes can be expected, but the nature of the urban community is also changing. The tendency is toward greater dispersion with more small, relatively independent centers, rather than the older type cities, with their unusually high concentrations of people in small areas.

The second topic deals with food. The amplitude of food, the author states, has never received adequate attention in American histories. Hunger has been one of the impelling factors in causing people to leave their homes, and a plentiful food supply has made the United States a nation of robust, forthright, and healthful people.

In the final chapter, Mr. Schlesinger reviews some of the predictions regarding the future of the nation.

A very extensive bibliography is available for those who wish to pursue further any of the separate topics discussed. The evaluations of the materials are particularly helpful.

Paths to the Present is highly recommended to the serious student of United States history and institutions. He will find much that is both interesting and challenging. The volume is not intended for the demagogue, nor for those citizens who wish "merely to live off the unearned increment of ancestral reputations."



Hitler and His Admirals, by Anthony Martienssen (E. P. Dutton, \$4).

Reviewed by
Colonel Ramsay D. Potts

OF the vast number of military histories and commentaries that have been published since the close of the Second World War there are only a very few that can be termed both lively in account and objective in the manner of their presentation. This work, by Anthony Martienssen, is on both these scores a most admirable and skillfully constructed book, a fascinating story on the one hand to the lay reader and on the other a source of accurate and superbly culled information for the student of history. Martienssen chiefly relies

for his information on the 60,000 files of the German naval archives, containing practically all of the data relating to the German Navy from 1868 to April 1945. These files were captured at Schloss Tambach near Coburg, and Martienssen gained his initial intimate and first-hand knowledge of the contents of these papers when he was selected by the British Admiralty to edit the *Fuehrer Conferences on Naval Affairs*, the most important of the captured documents. Relying principally on the Fuehrer Naval Conferences, but by no means neglecting the remaining mass of historical material, Martienssen has written a compact and engrossing account of the German Navy at war, with particular emphasis on the planning of German strategy and the Navy's part in putting such plans into effect.

The title of the basic source documents, *The Fuehrer Conferences on Naval Affairs*, suggests a significant fact about the command organization that Hitler created to carry on the war. Each of the commanders of the military services, Raeder for the Navy, Goering for the Air Force, and von Brauchitsch for the Army, had direct access to Hitler and was allowed to advise, suggest, and on occasion to persuade. But rarely did all three sit down together to deliberate a problem. Hitler kept them separate and suppliant, and he alone made the decisions on which strategic plans were based. The OKW (*Oberkommando der Wehrmacht*) was nominally a supreme command, but Keitel, who was its chief, was junior to all three service heads and regarded by them as merely Hitler's "nodding donkey."

One aspect of these interservice command relationships that is of primary and perhaps of principal interest to the military reader is the demand of the German Navy, repeated on many occasions prior to and during the war, for its own air arm. Goering resisted all these demands and the Navy had to be content with such aviation as was organized into specially trained, and incidentally highly effective, squadrons attached from the *Luftwaffe*. Martienssen wisely refrains from editorializing about this, and leaves the reader to determine whether this organization of the German Air Force under one command was a weakness, or whether such defects as appeared were due to the concepts of the German leaders as to how it should be employed.

Of the three leading personalities of the book, Hitler, Grand

Admiral Raeder, and Admiral Doenitz, Martienssen shows a decided and understandable preference for Raeder, who is characterized as a first-rate organizer and naval strategist, and as a firm believer in the doctrine that foreign policy to be successful must be wedded to naval strength. Such mistakes as were seemingly made in plans for naval construction are clearly laid to Hitler's faulty evaluation of the timing of his war with England, which he promised Raeder would not be launched until 1944 or 1945.

Doenitz, however, is not accorded such sympathetic treatment. Raeder characterized Doenitz as "rather conceited and tactless," and Martienssen appears in full agreement with that judgment. The evidence presented does not fully support such a view since Doenitz operated with persuasive effect in the intrigue-laden atmosphere of Hitler's headquarters, whereas Raeder had been at loggerheads with several of Hitler's court, and especially with Goering, whom he called "avaricious and extravagant—an effeminate and unsoldierly character." True it is that Doenitz was ambitious, and his concept of a proper naval strategy for Germany was narrower than Raeder's. But who can say that Doenitz' single-minded emphasis on submarine warfare was not a far more effective and realizable tactic for a country in Germany's position vis-a-vis England than was Raeder's balanced force concept?

Woven into this general theme of high-level planning are dramatic accounts, as viewed from the German side, of many episodes and events which had not hitherto been presented to the public. Lt. Gunther Prien's log of the U-47, the submarine which penetrated Scapa Flow and sank the *Royal Oak*; the scuttling of the *Graf Spee* off Montevideo; a report of the chase and sinking of the *Bismarck* by a survivor from the ship; the plot against and attempt on Hitler's life in July 1944, and the subsequent extermination of 4980 Germans suspected of being implicated in the plot; all these and many other details lend vivid and graphic excitement to the history.

These deftly selected accounts fit harmoniously into the story and cover, without being irrelevant to the theme of grand strategy, the whole period of the war. Martienssen has produced a book of lasting historical importance.

Science at War, by J. G. Crowther and R. Whiddington (Philosophical Library, \$6).

Reviewed by
Charles M. Thomas

JAMES Phinney Baxter, III, acknowledges in *Scientists Against Time* that the British gave to us more than they received in the scientific interchange during the early years of the war. *Science at War* is the account of the part played by British scientists. It is fortunate that the Scientific Advisory Committee to the British Cabinet obtained the approval of the Government for the publication of this work. Here, more clearly than anywhere else, the discerning reader can see the genesis of those scientific developments that have revolutionized warfare in this generation.

Scientists would not say that the recent war was won by scientists, but military leaders and statesmen do not hesitate to say that a future war can be lost by the nations that fall behind in research and scientific development. The United States was not in the forefront in 1939, and there is evidence that today we still have much to learn. The British have been very successful in providing a national environment in which basic research has flourished and an environment in which the armed services and the scientists can cooperate to the greatest mutual benefit.

The United States has trained the most and the best engineers of any nation. The British soon corrected their earlier mistake of making first-class scientists into second-class engineers. In the division of labor among the Allies, development engineering was turned over to the United States. In one instance we were able to put 1,500 engineers to work on the rapid development of a fuze, when the British could provide no more than fifty persons trained for such work. The United States performed a prodigious task in the development and production of scientific materiel for war. But relatively little basic research was produced during the war years, either here or abroad. The real secrets of science were learned in 1890 and 1905 and 1920. Fortunately the earliest decisions of the Allies in World War II were for developments in directions that proved sound and produced effective weapons before the end of the war. These decisions were the results of knowledge and experience gained in basic scientific research, in which the

British excelled. Once an erroneous decision is made on research and development during war, no nation is likely to have the resources, the time, and the ability to correct the mistake. It was Germany who made those mistakes in World War II. A single mistake of this type may be fatal. The several mistakes which Germany made stand out in these chapters in contrast with the more successful course of scientific developments in the allied nations.

The fate of Germany provides a pointed lesson in the problems encountered in utilizing scientists in war and in preparation for war. In this generation the Germans have had many of the best scientists; perhaps they even have surpassed the British; definitely the Germans have surpassed all the world in certain significant fields of pure and applied science. Germany was also well-supplied with trained engineers and with production facilities. German production engineering during the years of World War II even rivaled that of the United States. Two factors deprived Germany of this composite advantage. First, the Nazi political system did not provide an environment conducive to the orderly pursual of basic research by scientists, and eventually it even forced many leading scientists to flee from the country. Still Germany retained many of the best scientists, perhaps enough to have given her pre-eminence in certain fields. The second and fatal factor was the failure of Germany to secure adequate cooperation between her scientists and the armed services. There is evidence that both groups wished to work to mutual advantage. Only in English society was the gap between the two groups sufficiently bridged to permit full or at least adequate understanding of one another, and the fullest realization of the national aims. England has retained this advantage in the postwar or inter-war period.

Science at War when read parallel with *Scientists Against Time* provides numerous illustrations of the problems of scientific interchange. There are detailed analyses of the genesis of radiolocation and the British development of this technique in face of the Nazi alarm; proper utilization of operational research techniques; submarine detection; the development of magnetic and acoustic mines (1914-1918 by the British), the neglect of these devices by the British Admiralty between the wars, and the development of counter-measures in World War II; national contributions to the international development of

nuclear physics, the emigration from Germany, Italy, and occupied France, and the concentration of atomic bomb development in America; national contrasts in solutions to the problem of Selective Service for Scientists in time of war; and the importance of leadership in making use of science. Perhaps, however, the value of this book lies not so much in the significance of individual developments presented, but more in the opportunity it offers for a penetrating analysis of the utilization of scientists by various nations. The lessons found here are only for those who seek to learn. For, with their usual courtesy, the authors avoid blunt or invidious comparisons between British activities and the procedures followed by an ally.



Coral and Brass, by Holland M. Smith, Gen., USMC (Ret.) and Percy Finch (Scribner's, \$3).

Reviewed by
Lt. Col. John F. Splain

DURING the recent war a Marine general, affectionately known as "Howlin' Mad" Smith, received considerable publicity when, during the battle for Saipan, he relieved from command of the 27th Army Division one of his subordinates, Army Major General Ralph Smith. The "inter-service" aspect of the incident and the fact that both gentlemen were named Smith probably magnified the headlines and discussions that ensued. Actually, Marine General Holland McTyeire Smith merits attention more for his long, devoted, and successful military career than for his part in that one fairly routine incident, so characteristic of the tensions of command in war, with which he is usually associated. In his own right Smith was a pioneer in the cause of modern amphibious warfare and, for anyone who is interested, his memoirs provide a valuable summary of the evolution of the technique of amphibious assault and its successful exploitation in the war against Japan.

Autobiographical in form, the book has the tone and unpolished edges one would expect to find in the career of a vigorous, forthright fighting man. It is a tribute to Percy Finch, Smith's war correspondent collaborator, that the book

reads as if it were entirely the work of the picturesque Marine.

After touching rather lightly on his Alabama beginnings and early tours as a young Marine officer in the Philippines, Nicaragua, Panama, and Santo Domingo, he tarries to tell of his World War I service with the AEF in France, where he reached the rank of major and became one of the few Marine officers to be detailed to the Army General Staff.

It was at the Naval War College in Newport, Rhode Island, where he was stationed as a student in 1920, that Smith was first able to give specific attention to an idea which had long been taking shape in his mind—the concept of the employment of Marines as trained specialists in the amphibious form of warfare. From this point his life appears to have taken on the character of a crusade, a crusade for the unfettered development of the amphibious technique, a crusade to see that his beloved Marines were “treated with the decency and respect due them.” Yet he was as objectively cool and calculating in advancing the amphibious cause as he appears to have been sensitive and sentimental in his quest to acquire credit for his corps. This sensitivity is only natural on the part of a body of men which has brought so many victories to American arms and yet is still sometimes referred to as “the Service within a Service.”

Before Smith went to work on the amphibious problem, he found that naval thinkers had failed to grasp the lessons of the amphibious fiasco executed by the Royal Navy at Gallipoli in 1916. Not a single craft in the Naval Service was equipped for beaching, discharging troops, and retracting under its own power. Navy doctrine, he states, failed to perceive that an enemy might resist and fire back on ships' boats advancing shoreward, because a naval demonstration accompanied by a few shells thrown on the beach from warships was supposed to overawe and inactivate a defending enemy. Smith's suggestion that amphibious assaults be made a Marine specialty was initially brushed off at Newport with the concession that Marines would be employed for landings “chosen as the progress of operations dictated, but only when commanded by a Naval Officer and reinforced by bluejackets.”

The volume then carries the reader through Howlin' Mad's version of how the Marines acquired the mission, and trained to develop the skills required to introduce successfully masses of troops over heavily defended enemy beaches. These skills

include not only new techniques of combat unit maneuver, but also new and complicated logistic and communications doctrines, and command methods for the deployment of boats and units and for coordination among assault forces, and naval and air support forces. Smith tells how he contributed to the steady, but not unimpeded, progress made by the Marines from his student days at the Naval War College to the high point of his career, when, as a three-starred Commanding General Fleet Marine Force, Pacific, he commanded "a Marine field army which went into action independently against the Japanese." His account of the battles for Tarawa, Saipan, and Iwo Jima are some of the most candid high-level descriptions to come out of World War II. He shows good taste and unexpected restraint in his documented explanation of the Saipan occurrence involving Army General Smith. But he makes his telling interesting and makes his views seem right.

Restraint he does not use, however, when dealing with certain individuals and organizations which he recognized as either temporary or permanent impediments to his crusade. The Bureau of Ships of the Navy, for allegedly stymying Smith's and Andrew Higgins' efforts to develop proper landing craft; General MacArthur, for his failure to make due mention of Marine operations in his communiques; and many a Navy admiral, for his views and actions concerning landing beach selection, naval bombardment, or Navy-Marine command arrangements—all these receive full measure of Howlin' Mad's written ire. From such scattered tributes the meaning of his title becomes clear. He clinches it with his remark, "Coral was a great ally of the American forces in the Pacific. I would hesitate to place in the same useful category a lot of our brass"



Le Droit Aérien, by Eugene Pepin (Librairie du Recueil Sirey, Paris).

Reviewed by
Major Van H. Tanner

A series of lectures sponsored by the Carnegie Foundation and presented in 1947 by Dr. Eugene Pepin, Chief of the Legal Secretariat of ICAO (International Civil Aviation Organization) and Secretary of the Committee on Law

for that organization, before the Academy of International Law in Paris, have finally appeared in print. They make eight chapters of excellent reading and these are a well selected bibliography. As important as the book itself is the fact that Dr. Pepin, one of the most qualified exponents of international understanding in many fields, is both lecturing and writing on the subjects with which he is so familiar. That he does so well, both in writing and lecturing, makes his contributions particularly palatable.

The author begins with a consideration of the conditions under which Air Law must be formulated; the first efforts which were made to establish international Air Law and the development of rules for international aerial navigation. Next is discussed the Convention of Paris (1919) and within its framework the activities of ICAN (International Commission for Aerial Navigation). There is a fair and impartial report of the work of CITEJA (Comité International Technique d'Experts Juridiques Aériens), on the promotion of international private law. The two years of provisional undertakings of the interim PICAQ following the Chicago Convention (1944) are ably set forth by a leading participant.

The volume continues with a discussion of the sources of Air Law and the principles generally recognized by international civil aviation. Regulations applicable to all aircraft are submitted, including those concerning identification and the determination of nationality and those tending to assure the security of territory, the safety of aeronautical equipment and airmen, and the benefits of aviation. The regulation of international navigation and transportation between nations by air is re-examined not only from a technical, but also from the economic and administrative point of view. The regulations which affect the payment of damages occasioned in international aerial navigation and transportation by air are analyzed. In this respect the Rome Convention (1933), the Additional Protocol of Brussels and the Warsaw Convention (1929) are reported authoritatively.

Multilateral and bilateral agreements which have been negotiated to further international aerial services are reviewed and miscellaneous matters of import to international civil aviation are treated. The presentation is concluded with the problems connected with the actual projects under study in international Air Law.

The American Soldier. Vol. I, Adjustment During Army Life. Vol. II, Combat And Its Aftermath, by Samuel A. Stouffer and others (Princeton Univ., \$13.50).

Reviewed by
Oron P. South

DURING the war the Research Branch of the Information and Education Division of the Army undertook a task unique to the armed forces, that of determining the attitudes and reactions of the citizen-soldier to various situations. Under the direction of Major General Frederick H. Osborn social scientists surveyed soldiers (both officers and enlisted men) to provide facts for backing opinions in the formulation of policy. Although such an idea was to a certain extent revolutionary in both industry and academic life, General George Marshall saw the potentialities of the program and gave it his blessing.

Established in 1941, the first survey made by the research branch was on the day after Pearl Harbor. Members of an infantry division were polled to determine the opinions of privates about noncoms, opinions about training among regulars and selectees, reaction to authoritarian Army regime, and reaction of draftees toward wearing the uniform off duty. Before the war was over the Research Branch administered more than 200 tests and made more than 300 reports on a variety of subjects.

Initially the surveys were made by a small group which had its headquarters in Washington. As success attended the efforts of the workers, the demands for more such units came from different organizations and theaters. Elmo Roper convinced General Eisenhower of the value of such work and the General cabled Washington for a team. By the middle of 1944 each theater had its own research group which was responsible to the theater commander. This command organization at times made it impossible to administer the same test simultaneously to all theaters. Theater commanders could, and did, refuse requests for cooperative action when the situation made compliance impossible. With this limitation, however, it was possible to gain from soldiers all over the world their ideas on a point system for discharge, and to make a very close estimate of how many soldiers would participate in the postwar educational program under the G. I. Bill.

Even with the full and unqualified approval of General Marshall many ranking officers were skeptical of the program. To them it smacked of asking the soldier what he wanted instead of telling him. Others thought that the Research Branch was overstepping its functions by inquiring into matters that did not directly concern the Information and Education Division. One method used to circumvent such criticism was to have other divisions or commands initiate requests wherever possible. For example, the Quartermaster might ask that studies be made of what packaged rations men liked best, or what type of clothing men preferred for duty in Alaska.

After a topic was selected, approved, and pretested—often among troops around Washington—the survey was taken to the field. Every effort was made to select a statistically valid sample and findings were evaluated on the basis of local conditions at the time of the test. Some of the results were printed in *What The Soldier Thinks* which supposedly received army-wide distribution. Others had only limited distribution in the form of staff studies which were submitted to the agency requesting the study initially.

All of the surveys which have been declassified were turned over to the Social Science Research Council after the war. With funds made available by the Carnegie Corporation of New York a group of social scientists has gone through the material and produced these two volumes. They do not advance any claim that the Research Branch won the war through surveying, but they do assert that a significant tool has been provided for obtaining factual information on which to base administrative and policy decisions, as well as providing a basis for defense of these decisions to Congress and the press.

Many of the findings of survey teams will not be news to former officers and enlisted men or to people who read the daily newspapers. The data presented here, however, represent the opinions of a greater number of men from different units than the average individual soldier came in contact with. In the field of leadership it was found that the Army had extensive experience in instructing officers how to teach military courtesy and dismounted drill. The Army could teach the young officer to command but not to lead. Moreover, Officer Candidate Schools decreased the ability of individuals completing the course to understand the problems and views of enlisted men. In general most officers tended to believe that enlisted

men held favorable views of the Army when often such was not the case.

A similar tendency toward overrating is evidenced by the divergence of opinions between whites and Negroes over the place of the Negro in the Army and society. In one test which called for free comments four out of five Negroes indicated that they did not think the war concerned them equally with other citizens because of the status accorded colored people in general. Yet, when white soldiers were asked this question, "Do you think that most Negroes in this country are pretty well satisfied or do you think most of them are dissatisfied?", only one-tenth of the Southerners and one-seventh of the Northerners stated that "most are dissatisfied." It is interesting to note, however, that in complaining about the Army many of the remarks made by whites and Negroes were identical. White soldiers blamed poor conditions on the Army, whereas the Negroes blamed them on discrimination.

Of particular interest to USAF officers will be the two chapters in Volume II dealing with morale attitudes among combat flyers. Surveys indicated that members of combat crews, particularly fighter pilots, were the most highly motivated men in the Army. Since air crews enjoyed a preferred status the men in other branches were inclined to regard all Air Corps personnel as having plushy jobs. This in turn tended to raise the morale of AAF men who served as members of ground crews and in administrative positions.

With the large numbers of highly educated airmen now in the Air Force the significant differences of attitude displayed by the better educated men in the Army should be of considerable interest to USAF officers. These surveys show that in many lines — such as attitude toward leadership and instruction, relations between officers and enlisted men, identification with war effort, orientation, and health—responses varied directly as education increased.

The contents of both volumes will be immensely valuable for anyone who expects to exercise command, or who expects to be involved in personnel management. The entire work is refreshingly free from the jargon which often accompanies a study made by sociologists and psychologists. For the first time in military history we have a thoroughly documented work to substitute for diaries and personal accounts in determining "What The Soldier Thinks."

Stalin & Co., by Walter Duranty (William Sloane Associates, \$3).

Reviewed by
Major Max Van Rossum Daum

THE wall of silence, the self-imposed cloistered life, and the stringent censorship surrounding members of the Politburo make an appraisal of this influential group of men most difficult. *Stalin & Co.* tells the story of the Politburo's members as a unit and as individuals as seen through the understanding eyes of Walter Duranty, *New York Times* correspondent during the birth and most of the life of the U.S.S.R.

That changes have been made in this uppermost Soviet group since the writing of the book does not take away its value as background material. Most of the characters are well described either through personal contacts and observations, or from official Soviet documents and secondary sources. One would wish that some of the younger full members, such as Laurenti Beria, whose influence may bear considerable weight in the near future, would have had more documentation. Beria's star has been rising constantly, and recent public approval bestowed on him shows that he is holding a position of importance far greater than when he was directly in charge of the secret police.

The most complete chapters are those dealing with Stalin and Molotov, and the most significant is the one on Stalinism. With international communism presently suffering a decline in every part of the globe, except perhaps in the Far East, Marxist students will find in this chapter that even a favorably inclined observer of the Soviet Union, such as Duranty, must admit that Marxism was replaced by Leninism, which in turn was superseded by Stalinism. The latter doctrine, of which Stalin is the sole interpreter and the worshipped high priest, is described as a form of nationalism diverging from the international world revolution policy sponsored by Trotsky and his "Western Exiles."

The author emphatically states that Stalin exerts ninety per cent of the political power through the Politburo, which may be considered to share with him the remaining ten per cent. Duranty therefore feels that President Truman was misinformed, or had made the wrong deductions, when in June 1948 he stated that Stalin is "the prisoner of the Politburo."

This opinion is reconsidered by the author in a later chapter where a dispatch from Harold Stassen on the Cominform-Yugoslav dispute is quoted, in which Stassen stated: "the weight of the Politburo must have been so strong that Stalin himself could not well veto it. . . ." This leads to the admission that there might be a grain of truth in the persistent rumors of internal conflict and divergence of views in the Politburo.

In this same chapter Stalin's failing health is mentioned as is the ever-present question of his possible successor. The theory is advanced that, as in Turkey after Ataturk's death, Stalin's authority will be divided among his associates after his death. The constant speculation on Molotov as the most likely successor is not shared by Mr. Duranty. As this review is written other observers report that in a recent exhibition of Soviet paintings depicting the "October Revolution," Lenin is flanked by *both* Stalin and Molotov. Molotov is even pictured in scenes at which it is well known he was not present. This is a new bid for popularity for the man Duranty himself describes as the only one whom Stalin toasted personally at the great victory banquet in 1945, and whose retirement from the Foreign Ministry entrenches him more solidly than ever in the affairs of his home country.

The book traces the growth of the Politburo and, by the use of interesting thumbnail character sketches, makes its shadowy figures real human beings. We can thank Duranty for his reportorial skill in bringing a lively human slant to what might otherwise have been a collection of dull biographies. Although Mr. Duranty's humanitarian approach is sincere, this reviewer finds it difficult to go along with an analysis which leaves the impression that the members of the Politburo are a well-meaning group of men. It is not so easy to forget how the Soviet leaders achieved their power, nor can we overlook the millions who are suffering living death as slave laborers so that these modern czars and vice-czars may rule.

*V*ictory smiles upon those who anticipate the changes in the character of war, not upon those who wait to adapt themselves after the changes occur.

—Gen. Giulio Douhet

The Command of the Air (1927)

BRIEFER COMMENT



If Russia Strikes, by George Fielding Eliot.

IN this concise volume some of the most vital military problems of our time are analyzed: Will this country have to fight soon? Will Russia attack the United States? What will the next war be like? Could Air Power defeat Russia? Mr. Eliot evaluates the potential strength of both the Western and Eastern nations, speculates on the type and location of the next war, and indicates the possible results. Believing that Russia is losing the "cold war," he feels she may "be forced" to initiate a "hot" one. Hence, the time factor--he questions whether we can afford to wait while the Soviets build an atomic arsenal--is all important.

Bobbs-Merrill \$2.75

Strategic Intelligence, by Sherman Kent.

THIS is a critical appraisal of the strategic intelligence requirements of the United States. It is a must book for specialists in the field and will be found highly informative by the general reader. Considered in three parts are the content of intelligence, the organization necessary to produce it, and the activities carried out by the required personnel. The book deals with high-level foreign positive intelligence primarily, and thus is not directly concerned with domestic or counter-intelligence. Experiences of the wartime Office of Strategic Services are

used to chart a path for the post-war Central Intelligence Agency.

Princeton Univ. \$3

On Power, by Bertrand de Jouvenel.

THE expansion of power in the hands of men of great place, regardless of political system, is the theme of this book. The author demonstrates that the power of the state has increased at the same ratio as the power of the human race for destruction. A vast amount of knowledge is presented with exceptional clarity and detachment, making this book a valuable contribution to the body of original political thought. The author argues that each new bid for expanded power on the part of the state should be carefully scrutinized. Fear is expressed that the democratic nations of the West may sacrifice individual liberty for economic and social security. The careful military student should derive great profit from this book.

Viking \$5

Foundations for World Order.

SEVEN qualified scholars, including Robert M. Hutchins, J. Robert Oppenheimer, and Edward Mead Earle, present here a group of essays which attempt to ferret from the maze of our present world confusion sound foundations on which to rebuild an orderly society. Writings on histori-

cal and political, economic, moral, scientific, and constitutional foundations for world order are included. Mr. Earle's chapter, "National Power and World Order," is of particular interest to military readers. A reading list of books on international relations is included as an appendix.

Univ. of Denver \$3

Eleven Generals, by Fletcher Pratt.

SUBTITLED *Studies in American Command*, this book consists of biographical sketches of eleven American generals from the Revolution through World War II. All of these studies have previously appeared as magazine articles, most of them in *The Infantry Journal*. An attempt is made to trace in these commanders the basic factors of American military tradition. The theory advanced is that America's outstanding contribution to the science of warfare is the use of infantry, armed with individual weapons designed for aimed fire, as the major element in offensive operations. The eleven commanders are Nathanael Greene, Anthony Wayne, Jacob Brown, Richard M. Johnson, John Buford, Philip H. Sheridan, George H. Thomas, James H. Wilson, Charles P. Summerall, A. A. Vandegrift and Omar Bradley. The professional military student will find this a valuable book.

Wm. Sloane \$5

Rocket Propulsion Elements, by George P. Sutton.

AN outgrowth of a course in rocket propulsion at the University of California at Los Angeles,

this book presents the basic elements and technical problems of rocketry. Well illustrated, the text covers thermodynamic relations, propellants, motors, feed systems, flight performance, and testing. Its value is enhanced by many performance graphs and tables. References for study are given at the end of each chapter. As an introduction to the engineering of rockets this should prove a valuable guide to those interested or engaged in this new science.

John Wiley \$4.50

General Cartography, by Erwin Raisz.

THIS is the second edition of a basic text devoted to treating the making of maps as a geographical science. The new edition brings the book up to date through World War II. Covered in detail are the history of maps; scales and projections; lettering, composition, and drafting of maps; surveying on the ground and from the air; official and professional maps; cartographic specialties, such as statistical maps and cartograms; and science maps. Separate chapters are included on Cartography in War, and Airplane Photo Interpretation, among 32 others.

McGraw-Hill \$6

Western Union, by Andrew and Frances Boyd.

A unified federation of European nations, able to pay its own way and strong enough to prevent individual states from becoming involved in war, has long been the dream and ideal of many men. This book reviews the forces

which have been, and are now, at work to achieve this goal. The authors study past proposals and efforts to secure European unity; then discuss present moves, e. g., the Marshall Plan; and in the final section take a look into Europe's future. An extensive appendix containing the texts of recent pertinent speeches, agreements, and treaties is included.

Public Affairs Press \$3

Foreign Governments, edited by Fritz Morstein Marx.

EIGHT specialists in comparative government have cooperated to produce this general survey of the current political structures of Western Europe, Central Europe, Russia, Latin America, and the Far East. The growth of constitutional government in Britain, France, and Italy, the origins of absolutism in Russia, and the postwar "reconstruction" governments of Asia are covered. The system of the book is to identify the national traditions and historical influences which shape a nation, then to describe the machinery of government, and finally to chart current trends. Revealed are the ideas and ideals, attitudes and assumptions, which form the ideological background of democracy and autocracy. The volume is unusually comprehensive in its field.

Prentice-Hall \$4.75

Russia's Race for Asia, by George Creel.

ACCORDING to the author United States policy toward China is, and has been in the past, vacillating and deplorable. We are

strengthening Europe at Asia's expense, and we have mistakenly refused to adequately support Chiang Kai-shek in his fight against the Chinese Communists. Calling the Yalta decisions regarding China a "betrayal," Mr. Creel also criticizes General Stilwell's Burma strategy, the U. S. attempt to force a coalition government upon the Generalissimo, and numerous individuals and agencies which have had a hand in shaping our Far East policy. In conclusion, he calls for vigorous and positive U. S. support of the Nationalist government.

Bobbs-Merrill \$2.75

North African Prelude: The First 7000 Years, by Galbraith Welch.

THIS study of North Africa is, according to Miss Welch, the first volume ever written which records the history of the regions surrounding the mighty Sahara from the Red Sea to the Atlantic and from the Mediterranean to the Niger. The Mena dynasty of ancient Egypt and Hamet of Tripoli, the Punic Wars and predatory Alexander the Great, the exotic queens Cleopatra and Pearl-Spray—these and scores of other extraordinary events and personages highlight the record of this mysterious continent. A short concluding chapter deals with North Africa's part in World War II. This is a scholarly work with a romantic flavor.

Wm. Morrow \$6

Cosmic Ray Physics, by D. J. X. Montgomery.

TO those with a knowledge of general physics, Dr. Montgomery's

book affords the opportunity to gain an overall view of the subject of cosmic rays, and to facilitate study of the literature. There is provided an excellent survey of work done up to the present, with some indication of promising lines of attack for the future. The text is primarily based upon lectures given by Marcel Schein of Princeton University, with special contributions by the late Shuichi Kusaka of Princeton, and Niels Arley of the Institute for Theoretical Physics at Copenhagen. Because of the uncertainty of theory in the regions of energy involved, the emphasis of the book is experimental. The various experimental techniques are discussed and explained with numerous illustrations.

Princeton Univ. \$5

The Power of Freedom, by Max Ascoli.

A "world civil war," in which the recent struggle and present turbulent situation represent only phases, has been seething for thirty years, according to this author, and will continue until the blessings and benefits of freedom are revealed to all peoples. Freedom is called a dynamic tonic, capable of halting communism's grab for the world; freedom is more powerful than we think. This book speaks strongly for democracy and presents an extremely optimistic picture of the world's future.

Farrar, Straus \$2.75

There's Freedom for the Brave, by Paul McGuire.

SURRENDER of personal free-

doms to the state and transgression of moral concepts that formerly bound men together in effective community have led the world to the brink of disaster. To counteract these malignant forces, this book calls for a re-birth of individual liberties; man must emerge from his apathies, his selfish and petty desires, and embrace a world community dedicated to the fostering of humanitarian interests and economic security. The trend toward increasing socialism, both here and abroad, must be reversed, for man cannot be free in a severely regulated society. The people in this country are well equipped for these tasks, we are told, because we have both the brains and the resources.

Wm. Morrow \$4

Mirror for Man: The Relation of Anthropology to Modern Life, by Clyde Kluckhohn.

PROFESSOR Kluckhohn of Harvard has written this book with the belief that "anthropology provides a scientific basis for dealing with the crucial dilemma of the world today." Because of its breadth this science can form the core around which other sciences must be fused to create a general science of mankind. The theory and practice of anthropology are explained for the layman. Then examples of this science applied, with predictions for the future, are given. The book is well and interestingly written and carries the conviction that: "Anthropology does not by any means have all the answers, but a public whose thinking has been clarified by anthropological knowledge will be somewhat better fitted to per-

ceive the proper directions for national policy."

Whittlesey House: McGraw-Hill
\$3.75

New Compass of the World, edited by H. W. Weigert, V. Stefansson, and R. E. Harrison.

THE purpose of this book is to provide a currently applicable symposium on political geography. It forms a sequel to *Compass of the World*, published in 1943. In twenty-three articles, by subject-matter specialists, it illuminates the rise of Russia and her place in the Heartland, the new movements into the Arctic and Antarctic, population trends, strategic bases, imperial lifelines, and many other items pertinent to the 1949 geopolitical situation. H. J. Mackinder's theories are freshly examined. The impact of atomic energy on geopolitics is not discussed.

Macmillan \$5.50

Research in Political Science, edited by Ernest S. Griffith.

IN early 1942 the second Research Committee in the history of the American Political Science Association was appointed. Out of the work of the Committee has come this volume. Leading political scientists were invited to examine their fields, and to formulate a strategy of research for the post-war years as a guide for the Association's membership, the Foundations, and public and private research institutions. The fields selected varied from the traditional, such as State and Local Government, and International Relations, to such emerging fields

as Military Government, Political Communications, and Political Science and War. The guideposts here set up along the horizons of these fields should prove valuable navigational aids for several years to come.

Univ. of North Carolina \$3

The Allied Occupation of Japan, by Edwin M. Martin.

OUR occupation policy in Japan is primarily based upon two documents: the Potsdam Declaration of July 1945, and the Presidential Policy Statement on Japan of September 1946. These directives are thoroughly discussed and excerpts from them preface the chapters which deal with disarmament, demilitarization, democratization, liquidating the war, and related subjects. No attempt is made to appraise the success or failure of the occupation; rather we are told what the objectives are, why they are necessary, and the procedures employed to effect them.

Stanford Univ. \$3

The Open Self, by Charles Morris.

CONSTRUCTION of a sound road leading toward a peaceful and abundant future is the thesis of this book. Dr. Morris believes the solution rests within ourselves and he painstakingly scrutinizes the average individual to determine the causes of his, and hence the world's, shortcomings. Studied are various patterns of living, our need for new understandings of responsibility and integrity, and the necessity for a revised standard of ideals. By a determined attempt to improve ourselves

mentally and morally we can better insure the salvation of modern civilization.

Prentice-Hall \$3

Political Handbook of the World, 1949, edited by Walter H. Mallory.

PUBLISHED annually for the Council on Foreign Relations, this 22nd and latest volume in the series presents a wealth of information about the political construction of the world's governments. Important data concerning the legislative bodies, political leaders, cabinets, party programs, and the press of each country are included. Persons wishing to keep abreast of world events today will find this an extremely valuable reference.

Harper \$3.50

Way of a Fighter, by Claire Lee Chennault, Maj. Gen., U. S. A. (Ret.)

THESE memoirs of the leader of the Flying Tigers begin with the statement, "The United States is losing the Pacific War." This sets the tone of a book which attempts to demonstrate to the American people what our China policy should be. Our first requirement is to establish a holding action in China; the longer we hesitate to do this, the higher the price will come. These conclusions are based on General Chennault's extensive experiences in China, descriptions of which comprise the bulk of the volume. Conscientious evaluations are made of Roosevelt, Churchill, Chiang Kai-shek, Generals Marshall, MacArthur, Arnold, and Stilwell, among many others. Many valuable analyses of the potentialities of Air Power, par-

ticularly in a "holding" situation, are provided. The book will be of special interest to those who served in the Pacific theater, and of general interest to all airmen.

G. P. Putnam's \$4.50

El Alamein to the River Sangro, by Field-Marshal The Viscount Montgomery.

FROM August 1942 until the end of 1943 Field-Marshal Montgomery and his British Eighth Army fought the enemy in North Africa, Sicily, and in Italy as far north as the Sangro River. This book contains Montgomery's personal account of these campaigns. The plans for each decisive move are set down; then the actual battles are described, followed by an analysis of each operation and a study of the lessons learned. Sixteen maps help the reader follow the moves of both Allied and Axis forces.

E. P. Dutton \$6.50

L'Aviation de Chasse Française en 1939-1940, by Lt. Col. Salesse.

FROM this volume, which is principally a day-to-day account of French pursuit aviation operations during the Battle of France, one receives an admonishing picture of the pitiful weakness of France's Air Power at that time. A scarcity of planes, a policy that committed her pursuit arm almost entirely to support of the ground forces, and an inefficient aircraft warning system — i. e., "The warning service was shown to be deficient: the arrival of the enemy was announced, usually, by his first bombs." — contributed to the nation's early capitulation.

Berger-Levrault, Paris 300 fr.

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