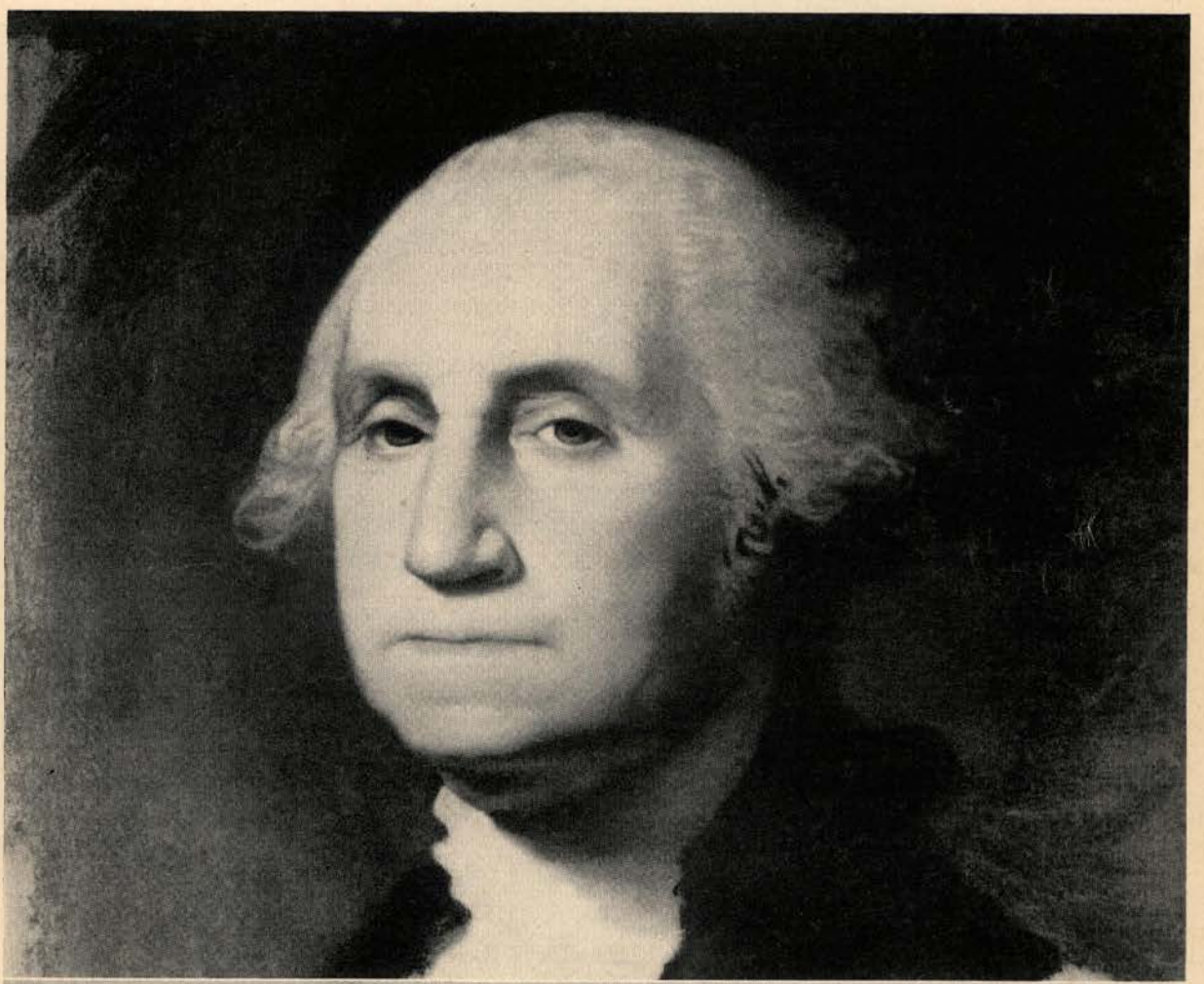
ARMORED CAVALRY JOURNAL

THE FIELD FORCES TEAM



"To be prepared for war is one of the most effectual means of preserving peace."

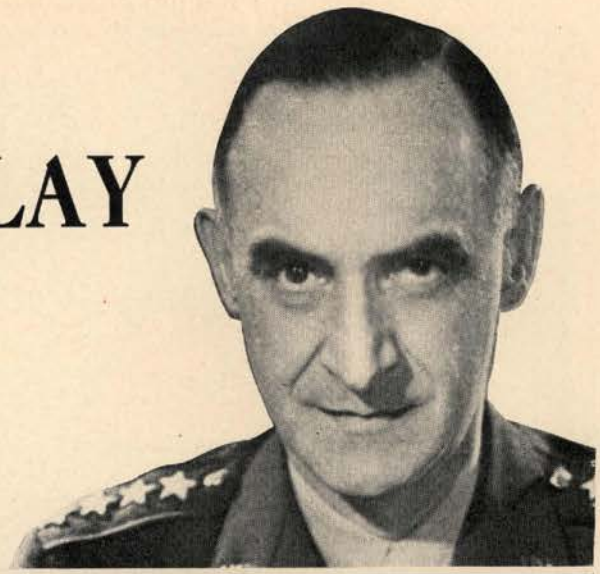
JANUARY 8, 1790

JANUARY-FEBRUARY, 1950 — VOL. LIX NO. 1

The man who commanded the Berlin airlift

Gen. LUCIUS D. CLAY

tells his own story of four crucial years that set the course of future world history.



DECISION IN GERMANY is General Clay's own account of the four crucial years that followed the surrender of the German High Command in 1945. His book opens secret files and goes behind the locked doors of international conferences in Moscow, London, Paris, and Washington. It is a dynamic revelation, written in perspective and completed by expert analysis.

The *full* story of the Russian blockade of Berlin and of the remarkable Allied airlift that broke the impasse is told for the first time in this informative, provocative and sometimes frightening report from the hottest sector of the Cold War. Here, too, you will see, through the eyes of the American Military Governor, every phase of the Allied occupation of defeated Germany—the problems of getting along with the Russians *(and* the French!), our dealings with the Nazis, our attempts to teach democracy, feeding the conquered peoples, our efforts to build a living structure on the physical and psychological ruins. Though this story involves many controversial issues (*e.g.,* the elimination of the Nazis, Communism, the Nürnberg trials, the reduction of Ilse Koch's sentence), General Clay sidesteps none of them.

Truly, this is an unforgettable book by a dedicated soldier and statesman of great courage and singleness of purpose, who is here making his personal report to the American people. He discusses fully the economic, political, sociological, strategic and judicial phases of his job during the crucial years of the Cold War, never hesitating to name names or to place the blame where he feels it belongs. Sure to be hotly debated the world over, DECISION IN GERMANY is vital, stimulating reading for every American interested in the world today and in the shape of things to come.

So much that could not be made public at the time, now revealed by the man who made the decisions:

DECISIONS on Soviet military aggression—was war "improbable" or "possible"?

DECISIONS at private talks with Marshals Zhukov and Sokolovsky.

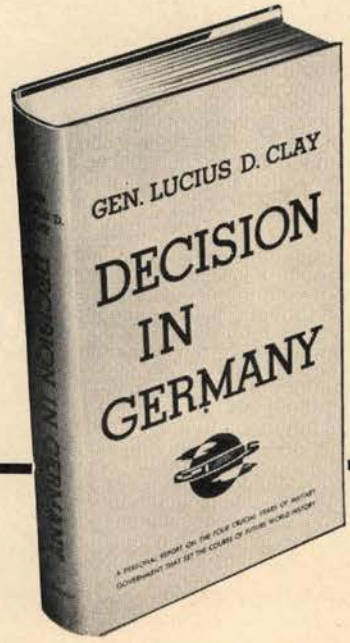
DECISIONS made via teleconferences between Washington and Berlin.

DECISIONS at the Council of Foreign Ministers—in New York, Moscow, London.

DECISIONS on merging the zones and establishing a government for Western Germany.

DECISIONS on the death sentences of 299 Germans.

DECISIONS that had to be made sometimes without the sanction of policymakers back home.



Decision in Germany

By GENERAL LUCIUS D. CLAY. *512 pages, illustrated with maps and 16 pages of photographs.*

Published February 9th, $4.50

A background book on one of the key problems of our day

USE THE ORDER FORM ON PAGE 64

The U. S. Armored Cavalry Association

Formerly
The United States
Cavalry Association
(Established 1885)

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Armored Cavalry Journal

Published Bimonthly by The U. S. Armored Cavalry Association

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CONTENTS

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THE postman had to put a bit of extra exertion into the job of packing your last issue of The Journal to you. Added to the usual 24-ounce weight was another 15 staggering ounces wrapped around a roster embracing some four thousand names of Cavalry officers on active duty.

We've had a flood of letters on the list. Most of them were complimentary, and many of them expressed the desire that it be made an annual custom. Others caught us in some mistakes—which we knew must creep in even before we undertook a task of such proportion. There were some typographical errors, we promoted one Captain to Major, and a column got reversed on us; we feel we can skip over these things with a normal degree of repentance. But . . . there was one serious omission, and we would be remiss if we did not correct it in this issue. The names of those officers whose records were not available in the Cavalry Branch had to be omitted due to the time element. Most of them are on detail to some other branch of the service, and since the detail branch has their files, it was not possible to secure their addresses in time for publication. Their names appear on pages 55 and 56 of this issue along with other omissions.

THE idea of publishing a roster is not new to The Journal. A listing of all Regular officers in Cavalry was an annual thing up to 1940. It has not been done since, and it never included the Reserve and Guard officers on active duty, which, in view of the fact that today the ratio of active non-Regular to Regular in Cavalry is 3 to 2, will give some idea of the magnitude of the job of compiling the roster.

The Chief of the Cavalry Section, Career Management Group, Personnel and Administration, GSUSA, which is the office of record of all Cavalry officers, had the information we needed in his files, and offered to supervise the tremendous task of preparing the list. The work was done by personnel from The Journal staff. The names were extracted from the "manning tables"—a kardex type of file that was arranged by organization and theater. In many cases the address could be taken from this file, but in many more it was necessary to search the 201 files. This information was typed on a small card—one to an officer. Every attempt was made to reduce the amount of information to that essential for proper delivery of mail. Any more would have made the list (and the printing bill) larger, and any less would have defeated the purpose of the list.

WHILE this work was going on—it took three weeks—a number of printing methods were investigated, and bids received. The offset method was the most practicable, and a local Washington firm made the best bid.

Meanwhile, as the cards were completed they were checked and alphabetized. To meet deadlines and reduce clerical operations, the cards themselves were sent to the printer. Every evening the day's output of completed cards was rushed to the printer, ready for the work crew for the next day. There the lists were typed from the cards on large forms in large type. They were then reduced in the photographic process, and plates were made from the negatives. With all plates prepared, the job was run, and the folding and stitching completed. The already completed Journal was champing at the bit as the Second Section was delivered to our printer at Richmond for the mating, insertion and mailing. At that moment, as you may well imagine, we heaved a big sigh of relief.

THE comment on this roster has been active and appreciative. We are glad to know that it made such a hit, and we do plan to make it an annual affair, circumstances permitting. This is a service which we feel is a part of the responsibility of our branch Journal and Association. To this may we add our apologies for the errors and omissions, and our thanks for your comment.

The Editors

Report of the Annual Meeting of the U. S. Armored Cavalry Association

PROCEEDINGS

Lieutenant General Willis D. Crittenberger was elected president of the United States Armored Cavalry Association at its 61st Annual Meeting, held at the Army-Navy Club in Washington, D. C., on Monday evening, January 16th.

Over forty members of the Association attended the meeting, among whom were eight General Officers. Some seven hundred additional members were represented by proxy.

General Crittenberger is a veteran of World Wars I and II. He became associated with mechanization in its early stages of development, at Fort Knox, Kentucky, in 1934, as a member of the 1st Cavalry (Mechanized).

In August, 1941, he was assigned to command the 2nd Armored Brigade of the 2nd Armored Division, at Fort Benning, Georgia. He assumed command of the division in July, 1942, and was designated Commanding General of the II Armored Corps.

General Crittenberger was named Commanding General of the IV Corps in the Italian Campaign in March, 1944, and in April, 1945, received the unconditional surrender of the German Ligurian Army.

Following a tour as Commander-in-Chief of the Caribbean Defense Command, General Crittenberger was assigned to the Office of the United States Joint Chiefs of Staff. Based in that office, his assignment today, of a three-way nature, is that of United States Army Representative on the United Nations Military Staff Committee, and Chairman of the U. S. Military Delegation of the U. S. Mission to the UN; Chairman of the Inter-American Defense Board; and Deputy Representative for the U. S. on the Military Committee to the North Atlantic Treaty Military Organization.

Major General Guy V. Henry was elected Honorary President of the Armored Cavalry Association, succeeding General Jonathan M. Wainwright, who held the position in 1949. General Henry is Chairman of the U. S. Section of the Permanent Joint Board on Defense.

Major General Clovis E. Byers was elected to the position of vice president. General Byers is Deputy Director of the Personnel and Administration Division, Office of the Chief of Staff, Department of the Army.

Heading up the Executive Council of nine members is Major General William G. Livesay, Commanding General of The Armored Center and Commandant of The Armored School.

Reelected to the Executive Council was Major General Donald W. McGowan, Commanding General of the 50th Armored Division (NG), who represents the Guard on the governing body.

Colonel William J. Bradley, who served an interim term in late 1949, was elected to the Council for 1950. He is Chief of the Cavalry Branch, Career Management Group, Personnel and Administration Division, Department of the Army.

Colonel John T. Cole, also with a several month interim period on the '49 Council, was returned for the current year. Colonel Cole commands the Military District of Washington.

Colonel Herbert H. Frost was reelected to the Council. He represents the Reserve component on the governing body of the Association. He is in private business in Washington.

Colonel Hamilton H. Howze remained on the Council after a brief interim period in '49. He is assigned to the Intelligence Division, Office of the Chief of Staff, Department of the Army.

Colonel L. K. Ladue, a Council member in 1949, carries on for another term. He is assigned to the Office of the Joint Chiefs of Staff in Washington.

Colonel John C. Macdonald also was reelected as a member of the Council. He is Chief of Staff of The Armored Center at Fort Knox, Kentucky.

Lieutenant Colonel Paul M. Morrill is a new member. He is Executive Officer of the Cavalry Branch, Career Management Group, P & A.

FINANCIAL STATEMENT

of

THE UNITED STATES ARMORED CAVALRY JOURNAL

for the year ending
31 DECEMBER 1949
Cash Statement

Department	*Receipts*	*Expenditures*
ARMORED CAVALRY JOURNAL	$12,545.71	$11,689.46
Book Department	4,288.57	2,548.53
Rent and Rental Expense	900.00	1,844.22
Eleventh Armored Division Association	2,400.44	245.00
Income from Securities	162.50	
Security Transaction	208.00	262.05
Miscellaneous	14.00	421.84
Insurance	2.58	50.42
Salaries		2,092.85
Taxes		
Social Security		50.85
Withholding		286.75
D. C. Sales		1.20
D. C. Personal Property		41.81
Stationery and Postage		806.61
Office Supplies		286.32
Telephone and Telegraph		259.09
Janitor Service		60.00
	$20,521.80	$20,947.00
Bank Balance as of 1 January 1949	1,516.62	
Bank Balance as of 31 December 1949		1,091.42
BALANCE	$22,038.42	$22,038.42
Total Assets		$12,332.93
Total Liabilities		4,735.59
Net Value of the Association, 31 December 1949		$ 7,597.34

1900-1950

A Half-Century of WAR

By LIEUTENANT COLONEL PAUL M. MORRILL and CAPTAIN WILLIAM GARDNER BELL

In undertaking a coverage of war in the first half of the Twentieth Century it was evident that the treatment must be limited for the most part to the military aspects, without going into the political and economic angles, which would bring the subject to full life. From the abundance of hot war, including history's two greatest conflicts, it was obvious that many of the lesser skirmishes must be overlooked. It would have been impossible to point up innumerable revolutions and civil wars. It was difficult also to bring in the personality angle. In consideration of great soldiers, there soon intruded the prospect of listing soldiers of many classifications, all of whom had had a singular impact upon war in the half-century; for there were not only soldiers, but soldier-statesmen, soldier-diplomats, soldiers of fortune, soldier-dictators, and outright aggressors. This feature, therefore, touches upon some of the high points in fifty years of war—so brief a period in history, so full a period in the evolution of methods and means of waging war. It is hoped that the reader will derive as much enjoyment from this article as did the authors from its preparation.

AS THE nineteenth century drew to a close, it seemed that civilization had real reason to congratulate itself. Not since the Napoleonic Wars had a general conflict raged. The statesmen at Vienna in 1815 had fashioned well. So delicately were the world powers balanced against each other that conflicts were confined to the contesting powers and general peace was maintained for nearly a hundred years. Alfred Nobel, inventor of dynamite, had recently died and his will provided for a substantial prize each year to the individual contributing most to world peace.

Queen Victoria ruled the far-flung British Empire and Wilhelm II of Germany had recently "dropped the pilot" —Bismarck—who had steered the Prussian state toward a "place in the sun." Franz-Joseph ruled the dual monarchy of Austria-Hungary and Nicholas II sat on the throne of Muscovy. Victoria's grandson was soon to lead his empire in a mighty conflict that would topple two of these crowns and the third was to fall before a revolutionary creed scarcely heard of by most people.

America, the young giant, was feeling its strength for the first time. Having recently stretched its muscles in a short war with Spain, it shook itself from adolescence and prepared to take an ever-increasing role in the affairs of the world. In New York a grateful people erected a triumphal arch in the Roman tradition to the hero of Manila—Admiral George Dewey, and truculent Teddy Roosevelt was rough-riding on the political scene.

Yes, the portents looked good as the old century faded. Mankind looked forward to a peaceful and prosperous age. The skies were blue and only birds could be seen where a few short years would bring airplanes in great fleets whose wings were to blot out the sun—blot it out forever in some places.

In spite of the hopes and expectations of mankind, the Twentieth Century entered upon the scene to the sound of martial trumpets. In South Africa the British Empire was trying to subdue the Boers, who with the tenacity of their Dutch forebears, fought against submission. Before this war was over the world was to read with interest of the capture and escape of a war correspondent—late subaltern of Her Majesty's Cavalry—Winston Churchill. Before this war was over the forces of the Empire, from Canada to Australia, were brought into action.

In China a jingoistic society called the *Boxers* were out to make trouble with the slogan "China for the Chinese." After the murder of a German Diplomat the entire foreign diplomatic group, as well as many other foreigners were besieged in the British Legation in Peking. It took an international legion (with American troops playing a prominent part) to fight their way to the rescue.

Insurrection broke out in the Philippines and was put down only after a bloody and lengthy effort. The Moro proved to be a mighty tough enemy, his guerrilla tactics difficult to overcome. This was the period when the caliber .45 service pistol was adopted and the old Krag rifle

International

SPANISH-AMERICAN WAR—USS *Maine* and San Juan Hill (1898) were still fresh in many minds at the turn of the century. In New York crowds turned out for a parade under the Dewey Arch on Fifth Avenue, honoring the hero of Manila.

International

BOER WAR—In South Africa, differences between British and Dutch (Boer) administrations flared into war (1899-1902). Initial Boer successes such as Battle of Colenso *(above)* gave way before British reinforcement and eventual British victory.

U. S. Army (National Archives)

BOXER REBELLION—Meanwhile, Chinese Boxers, hostile to foreign encroachment, besieged foreign legations at Pekin (1900). Two troops of US Cavalry, one battery of FA joined international force which took field to relieve the legations.

U. S. Army (National Archives)

PHILIPPINE INSURRECTION—Displeased with terms of peace between US and Spain, Filipinos under Aguinaldo revolted (1899) embroiling 60,000 US troops in three years of war. Capt. Pershing took part in advance on Fort Bacolod.

finally junked. Names in the news were Captain John J. Pershing, Cavalry, and General Arthur MacArthur, whose son would liberate the islands all over again a few years later.

In the east the rising sun of Japan humbled the decaying empire of the Czars. The war of 1904-05 was primarily a naval conflict although the Nipponese displayed considerable land forces in the capture of Port Arthur. Defeating the Russian fleet in detail, the Japanese showed that they had caught up with the western world, at least in military science. From this time on the Japanese grew steadily more ambitious.

The Mediterranean area, long seething with fierce na-

1898-1902 Philippine Insurrection

• • •

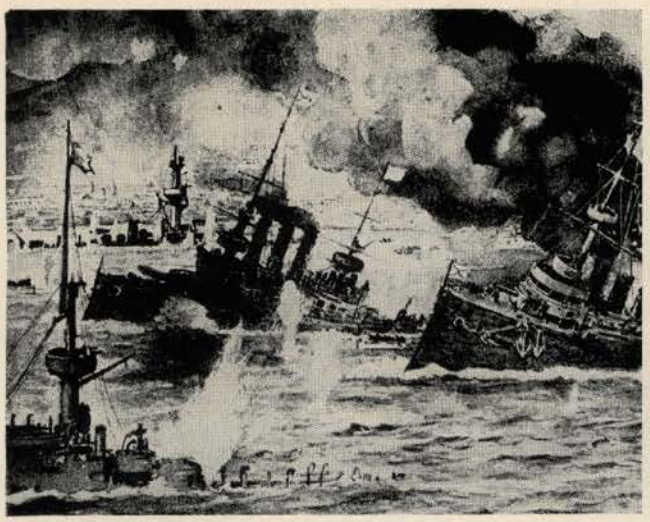
1899-1902 Boer War

• • •

1900 Boxer Rebellion

• • •

1903 Panamanian Revolt

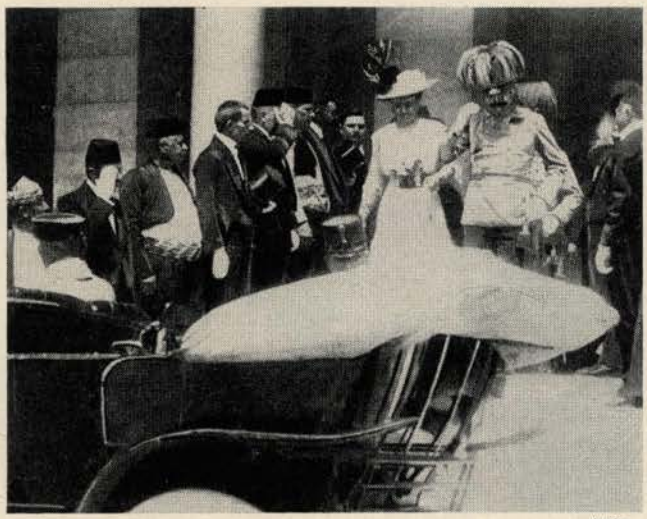


Acme

RUSSO-JAPANESE WAR—Russian occupation of Manchuria after Boxer Rebellion among other things led Japan to seek agreement over Far East area. Negotiations ended in hostilities, annihilation of Russian Fleet at Tsushima (1905).

Wide World

BALKAN WARS—Period 1911 to 1914 saw Tripolitan War between Italy and Turkey, and First and Second Balkan Wars, embroiling Greece, Bulgaria, Serbia, Montenegro with Turkey, and accompanied by maneuvering on part of big powers.



Acme

WORLD WAR I—At Sarajevo, Austria's Archduke Ferdinand, shown leaving Senate House, was assassinated by young Bosnian revolutionary, member of a group agitating against Austria for Serbian aspirations. World War I was on.

U. S. Marine Corps

VERA CRUZ—In another part of the world, overt acts, by Huerta government in Mexico which US refused to recognize, brought US Marines and Army troops to Vera Cruz (1914). War was narrowly averted. Internal disorder continued.

tionalism, broke into flames in 1911. Italy defeated the Ottoman Empire and seized Tripoli and Cyrenaica. Heartened by this, several Balkan countries fought the First Balkan War to secure their complete freedom from Turkish control. After winning their objective they fought among themselves over the disposal of the loot.

During this same period Sun Yat Sen toppled the Manchus from the throne of China, lighting the spark which still consumes the Chinese. American troops "pacified" Cuba and the Marines landed in Nicaragua and at Vera Cruz. More trouble with Mexico led to the mobilization of the National Guard and Brigadier General Pershing led a punitive expedition against Villa.

Meanwhile trouble broke out again in the Balkans. The heir to the throne of Austria-Hungary was assassinated in Serbia. Austria declared war on Serbia, Russia mobilized to help the Serbs, Germany came in with Austria, France and England declared war, and World War I was on. It spread quickly to most of the civilized world. Germany made use of the submarine to counter the naval might of England, and the spread of undersea warfare saw the sinking of the *Lusitania*. Further unrestricted submarine attacks brought the United States in on the Allied side.

Another new development was in the air. The airplane started as a reconnaissance instrument and ended as a

Acme

GERMAN MILITARISM—In the Bismarck tradition, Prussian generals Paul von Hindenburg *(left)* and Erich von Ludendorff *(right)*, sparked German militarism in World War I under the titular leadership of Kaiser Wilhelm *(center)*.

"All the News That's Fit to Print"

The New York Times. EXTRA 8:30 A.M.

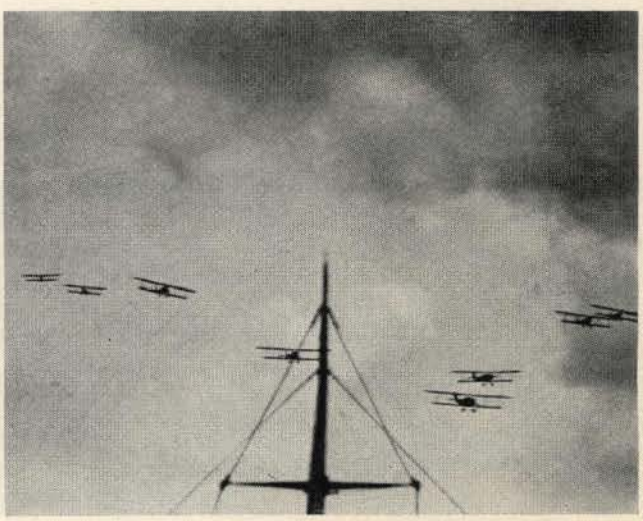
LUSITANIA SUNK BY A SUBMARINE, PROBABLY 1,260 DEAD; TWICE TORPEDOED OFF IRISH COAST; SINKS IN 15 MINUTES; CAPT. TURNER SAVED, FROHMAN AND VANDERBILT MISSING; WASHINGTON BELIEVES THAT A GRAVE CRISIS IS AT HAND

N. Y. Times

SUBMARINE WARFARE—Germany launched underseas campaign to destroy source of English food supply. British developed convoy, depth bomb, air countermeasures. Sinking of *Lusitania* (1915) brought Germany, US to verge of war.

Wide World

PUNITIVE EXPEDITION—In mid-1914, civil war broke out in Mexico between Carranza and his lieutenant, Villa. Recognition of Carranza by US inspired Villa to raid Columbus, N. M. US dispatched Pershing punitive expedition into Mexico.



U. S. Army

AIR WARFARE—First of two great wars of the half-century saw development of air power. World War I bombing formations were forerunner of things to come. Impact would extend beyond the battlefield to civilian and industrial areas.

potent weapon, forecasting the day when control of the air would be an essential prelude to victory. On the ground the war stagnated into trench warfare. Artillery preparations became longer and more dense. The tank came into being to neutralize the machine gun and restore mobility to the battlefield. Although the Allies emerged victorious, the war ended with both sides exhausted.

The "war to end wars" becomes a gruesome joke when viewed in retrospect. The last shot of the war had not been fired before the Russians were at each other's throats. Bitter warfare between the "Whites" and the "Reds" brought foreign troops to Russian soil to protect muni-

1904-1905	Russo-Japanese War
1906-1909	Pacification of Cuba
1909-1910	Intervention in Nicaragua
1911	Italo-Turkish War
1912-1913	First Balkan War
1912	Chinese Revolution
1913	Second Balkan War
1914-1918	World War I
1916	Punitive Expedition

Sovfoto

RUSSIAN REVOLUTION—Most significant internal war of the half-century, taking place against backdrop of World War I, was Russian Revolution, bringing Bolsheviks to power (1917.) First attempt at Petrograd in July was premature.

U. S. Army

GREAT CIVIL WAR—Outgrowth of Russian Revolution was civil war (1918-1920) between Reds and Whites. Americans *(above)*, British, French, intervened in north, where fighting took place against Bolsheviks. Vologda Railway Front.

U. S. Marines

NICARAGUA—In Central America, US Marines, for the second time in the century (1912-1927), landed in Nicaragua, this time to effect armistice between Liberal and Conservative elements following insurrection of General Agustino Sandino.

Wide World

MEXICAN REVOLUTION—The Calles Government (1924-28), initiating terms of Mexico's 1917 constitution, aggravated political and religious discontent, leading to internal strife. Federal troops *(above)* are ready for Escobar men at Naco.

tions dispatched to the anti-Bolsheviks. With a bloody victory the Reds won, and established the "Dictatorship of the Proletariat."

The countries formed from postwar idealism soon were fighting among themselves. Esthonia fought Latvia and Czechoslovakia fought Poland. Greece and Turkey fought a bloody war which ended Turkish control of all her former European holdings except a small area. Russian Bolsheviks advanced to the gates of Warsaw but were finally defeated. France and Belgium occupied the Ruhr. In Albania a mountain bandit seized the throne and ruled as King Zog the First (and last).

Latin-America was almost constantly in the news. During this period there were fourteen revolutions, and Bolivia and Paraguay had a full-dress war over the Gran Chaco swamps. The U.S. landed marines in Nicaragua in 1927 and kept them there for six years. In Africa, the modern legions of the Sawdust Caesar earned undying glory by defeating the barefoot Ethiopians–assisted by bombers and mustard gas.

Japan, which had never really ceased to annoy the Chinese, now stepped up her timetable of conquest. She overran Manchuria and seized Shanghai. Since the Railway Incident in 1931, war in some form or other has plagued the Chinese.

Revolution in Spain established a republic which was

Acme

SINO-JAPANESE WAR—Alleging Chinese guerrillas had blown up a section of Jap-owned railway near Mukden, Japan made the incident pretext for invasion of Manchuria (1931) by army massed in Korea. War continued to 1945.

International

ITALO-ETHIOPIAN WAR—Clash of Italian and Ethiopian troops at Ualual on disputed Ethiopian-Somaliland frontier was Mussolini excuse for conquest of Ethiopia (1935). Against superior forces, equipment, Ethiopia's defeat was inevitable.

Wide World

SPANISH CIVIL WAR—Revolt of army chiefs in Spanish Morocco (1936) spread to Spain, war between government and insurgents. Spain became battleground of ideologies, proving ground for W. W. II. Tanks roll up for Madrid attack.

Wide World

RUSSO-FINNISH WAR—In 1939, Finland rejected Red demands for bases on her soil. Red armies attacked Finland on three fronts. Finns stopped Red 44th Division short of Suomussalmi *(above)*, fought losing fight against superior strength.

overthrown in a bloody civil war. It became the testing ground for modern weapons as foreign countries sent men and materials to both factions. After several bloody years the insurgent troops of General Franco established a stable government and the war was over.

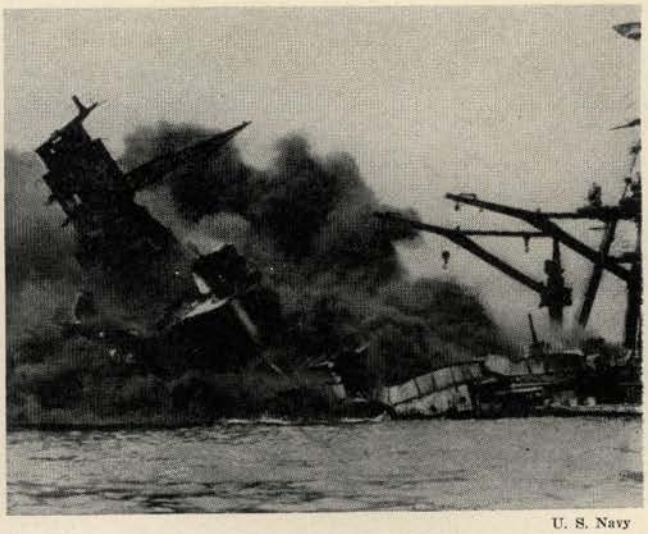
As the period ended, doughty little Finland proved that the Russian Army needed reorganization—lost the war, won the admiration of the world.

In 1939 Hitler—grown confident after the Rhineland, Munich, Czechoslovakia and Austria—began the blitzkrieg against Poland. True to their agreement, Britain and France declared war and the greatest conflict in history began. Quickly overrunning all of western Europe,

1917	Russian Revolution
1919-1922	Greek-Turkish War
1920-1921	Russo-Polish War
1923	Ruhr Occupation
1924	Albanian Revolution
1927-1933	Intervention in Nicaragua
1931-1945	Sino-Japanese War
1933-1935	Gran Chaco War
1935	Italo-Ethiopian War
1936-1939	Spanish Civil War
1939-1940	Russo-Finnish War
1939-1945	World War II

U. S. Army (Mis.)

WORLD WAR II—Following successful political moves in Austria and Czechoslovakia, Germany launched her military invasion of Poland (1939), exploding history's Second World War. Armor, paired with air, lashed out in Blitzkrieg warfare.

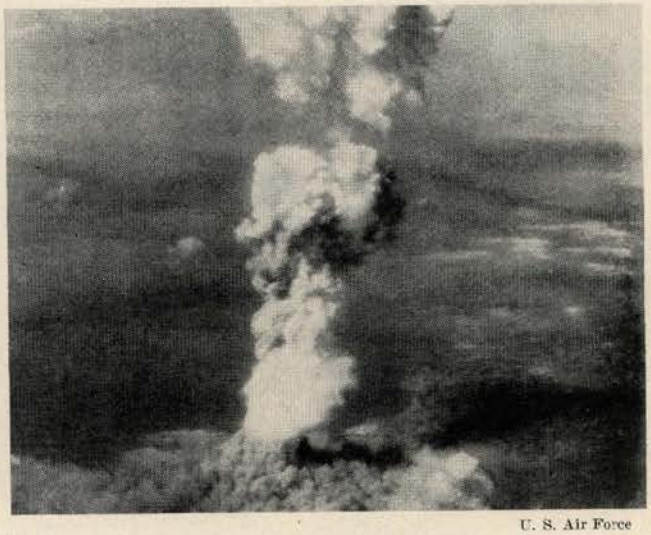


U. S. Navy

PEARL HARBOR—For the second time within half-century, US watched as war spread across the world. Attack on Pearl Harbor (1941) plunged her into history's greatest war. Four years later Japanese had answered for a "day of infamy."

U. S. Army

INVASION—Greatest invasion in the history of war took place with Allied landings on Normandy Beaches of France (1944). Operation was compensation for one of the greatest evacuations of history, at Dunkirk exactly four years before.



U. S. Air Force

ATOMIC AGE—War's deadliest weapon took its place on the field of battle with the dropping of the first atomic bomb on Hiroshima, Japan, August 6, 1945. Within two days a second bomb shattered Nagasaki. World War II ended.

Germany turned on her erstwhile ally and invaded Russia. Meanwhile, Italy came into the war and Japan made ready for the Big League. Striking early one Sunday morning in 1941, she bombed Pearl Harbor and bought herself a big dose of ultimate humiliation.

After a year spent in marshalling strength, American troops went ashore in North Africa to help the British who had finally turned the tide at El Alamein. Victory in Tunisia was followed by the successful assault on Sicily. The landings in Italy put troops on the Continent, and the Allies began the move up the road to Festung Europa. One-third of the Axis dropped out, in late 1943, and Italy assumed the status of co-belligerent.

Meanwhile, the greatest amphibious assault in history was being prepared in England. In June of 1944 Allied troops stormed ashore in Normandy. Once ashore they broke out and the death of German hopes was assured. Coordinated with the Russian advance from the east, the Allied push in Italy and with more Allied troops landed in the south of France, the advance continued, with one setback in the Ardennes, to the defeat of the Nazi hordes.

In the Pacific the long road back was finally over and as the war drew to a close a new and deadly weapon—the atomic bomb—burst over Hiroshima and Nagasaki, putting the finishing touches to history's greatest.

Was peace achieved at last? Guerrilla warfare broke

Greek Photo

GREEK CIVIL WAR—With little or no interruption, war continued in Greece, with government forces in the field against the communist-inspired guerrillas. As the half-century closed, rebel activity had given way before Greek regulars.

Wide World

INDONESIA—Long under Dutch colonial rule, Indonesians seized opportunity offered by Jap capitulation to proclaim Indonesian Republic. Fighting flared (1947) with Dutch over interim control. Mid-century saw Dutch-Republican agreement.

out in Greece; in Palestine the Jews and Arabs fought. In the Far East, rebellion broke out in Indonesia and Indo-China, result of nationalistic tendencies awakened by the great war. In China the civil war, largely laid aside to fight the Japanese, flared anew and grew hotter and hotter.

Today, the United Nations carries the hopes of mankind for peace. Hot war continues between Nationalists and Communists in China. Something called the Cold War chills the world. Will the second half of the Twentieth Century be better than the first?

International

PALESTINE—In the Middle East, postwar unrest centered in Palestine, where fighting broke out between Jews and Arabs. The State of Israel was proclaimed (1948).

International

INDO-CHINA—With Vietnamese action occupying many troops, France returned Bao Dai to power, granted Commonwealth status (1949).

International

CHINA—As second half of century got under way China was the hot war, surrounded by currents of cold war. Reds held mainland, Nationalists Formosa.

. . . . from Designer . . . . . .

Few people comprehend the story behind the development of a tank. The steps in evolution are long and involved. Among other things they include research, experience, appropriations, design, tooling, testing, acceptance and production. It requires not weeks nor months, but years before the finished product is in the hands of troops.

by ***COLONEL JOSEPH M. COLBY***

THE mobility of fighting personnel and their weapons is a prime characteristic of a successful Army. Mobility is essential in all media of communication—in the air, on and under the water, and on land. A nation which could develop subsurface land mobility would have a powerful and bewildering capability.

Mobility in each medium is to a great degree dependent on effective mobility in the others. Ground troops move under great handicap without air superiority. Close air support proved the effectiveness of the air-tank team. Airplanes and ships must have land-held bases. The German V-1 and V-2 rocket bombardment of London continued unabated, in spite of mass bombing, until the launching sites were occupied by ground troops.

The only real defense against the atomic bomb and guided missiles is the capture of their production facilities and their launching sites. Ground troops and their weapons will again be transported by air and water through cooperative teamwork of the Army, Navy, and Air Force. This obviously means a balanced plan of operation involving Army, Navy, and Air Force teamwork.

Our Joint Chiefs of Staff have the difficult task of achieving this balanced teamwork in the face of noisy opposition, much of which does not have the capacity to rise above compartmented thinking.

Any such over-all plan must be based on the evaluation of potential hostile capabilities.

In repeated public announcements we are told that the present strength of organized forces (mostly armor) behind the Iron Curtain is such that under present comparative strength the nations of Western Europe could not expect to withstand an enemy onslaught for more than ninety days. In effect hostile forces would be given land bases and the manpower and material resources of these nations. With the loss of these bases, would go much of our mobility by air and some of our mobility by water. Costly relandings by amphibious assault would be required with a resultant increase in the manpower and material requirements of the Navy and Air Force in addition to the necessity of rebuilding our land forces.

Seldom mentioned in these discussions is the importance of the confidence of our world friends.

Under cover of the most successful diversionary attack of history—the Berlin crisis, the Communists have overrun China, our most important Asiatic ally. Fear of the B-36 and the atomic bomb did not prevent this. Can anyone believe that fear of the guided missile and the atomic bomb will bring China back to the family of democracies?

I have recently returned from a visit to Europe during which much time was spent with nonmilitants, many of whom were close friends. They all favored the principles of the Atlantic Pact and close alliance with America. The greatest deterrent to full support of these principles is the dread of quick occupation by communistic forces, confiscation of property, and extermination before reoccupation by friendly forces. The Communists were exploiting this human fear with the worst type of villainous propaganda.

We are familiar with the many postwar animosities of history that have lasted for generations. We could not afford to alienate for posterity our world friendships by bombing Paris, Rome, Rotterdam, Brussels, Zurich, Oslo, Copenhagen, and others, if these become resources to an enemy.

No people in the world is our enemy—but rather, in certain cases, gangster rule that has by trickery usurped power. It is this evil gangster rule which must be destroyed eventually and not the people who are its victims. Suppose that the F.B.I. had captured Dillinger by blowing up the theatre in which they located him instead of singling him out from the crowd.

Today the frontier of democracy lies in Europe. The United States Army-Navy-Air Force team is committed to join with the free peoples of Europe in holding this frontier.

The need for balanced forces in the defense team is recognized by all of our leaders. In order for the Army to accomplish its important mission as part of the team, there must be no quantitative or qualitative inferiority in our tank-automotive equipment. Mobilization, training, and transport of land forces will take months. Manpower of the friendly nations of

. . . . . to Fighter . . . .

Europe forms the potential of a powerful ground force if equipped and trained.

General Bradley has stated, "What the ship is to the Navy, what the airplane is to the Air Force, the tank is to the Army."

Politician scientists who thrill their readers with dream fantasies of tomorrow's battles would have us believe that the tank has met its stalemate in the land mine, bazooka, recoilless rifle, and the shaped charge. A properly developed mine field is as defensive in its concept as the Chinese and Hadrian Walls, or the Maginot Line. A breakthrough may be achieved at a designated point by local superiority of the battle team—superiority in the air, superiority of artillery, and the employment of one or more of the many mine detecting or eradicating devices. Careful technical and tactical planning can accomplish this breakthrough with minimum loss of life. The cited Russian method of using human mine exploders is not the approved American solution. The shaped charge fired from the bazooka or recoilless rifle may be defeated by some types and thicknesses of armor. Both are low velocity weapons fired at short ranges by unarmored personnel, who in turn may be effectively neutralized by the machine gun, infantry on foot, and artillery using the VT fuse. When the breakthrough is accomplished, the tank provides the mobility and power to exploit enemy confusion to prevent their early reorganization for defense. After the Saint Lo breakthrough in the summer of 1944, the Ninth, First, and Third Armies had penetrated the Siegfried Line where they were stopped, not by hostile opposition, but by the exhaustion of fuel supply. This gave the Germans time to organize the Battle of the Bulge and to delay Allied victory until the summer of 1945.

We have heard much talk of our quantitative and qualitative standing in Armor in the world today. From Detroit Arsenal—incubator of our fighting vehicles—comes some of the real background, under the authority of the Chief of the Development and Engineering Department.

COLONEL JOSEPH M. COLBY

Colonel Joseph M. Colby was born and reared at Lake Mills, Iowa; attended Virginia Military Institute and University of Iowa; graduated from West Point in 1929; served two years in Cavalry and then transferred to the Ordnance Department; received a master's degree from Massachusetts Institute of Technology in 1935; graduated from the Ordnance School in 1936, the Army Industrial College in 1937; and from the Army Command and General Staff School in 1940. Since 1932, his primary interest has been centered on Ordnance tank-automotive equipment, including design, development, proof tests, supply, and maintenance.

In 1940, he was placed in charge of the design of the Medium Tank M3 and was responsible for the design of the Medium Tank M4 in the Spring of 1941.

In May 1941, he was sent to Egypt as a military observer and later appointed Assistant Defense Aid Representative, handling the Ordnance end of Lend-Lease equipment sent to the Middle East, and made the preliminary survey for Lend-Lease installations in India, Iraq, Iran, and Egypt. In December, he served as Ordnance Officer with the United States Military North African Mission, during which time he was sent to the Union of South Africa for a six-weeks industrial survey of that country.

Many with mental inertia would have us think of the tank as descendant from the Battle Elephants of Pyrrhus, the armored knights of the Medieval Ages, and about ready to pass into limbo with its ancestors. The term "tank" is more appropriately applied to those land vehicles wherein the internal combustion engine is exploited to give land forces and their weapons mobility. Weapons may be based on new principles, armor may increase in thickness or almost disappear, the reciprocating engine may yield to other motive sources, configuration may change, but the "tank" will remain as long as men on the ground wish to move with their weapons.

Much has been written about the American tank of World War II, but little has been said. Even though we

Since his return from Africa, Colonel Colby has been responsible for development of the majority of tank-automotive equipment used by the U. S. Army in the recent war and at the present time. He had directive control over the tank-automotive procurement which was producing at the rate of approximately $400,000,000 a month. He was in charge of this activity on VJ-Day, was responsible for the termination of wartime contracts and disposition of termination inventories and machine tools.

As Chief of the Development and Engineering Department at the Detroit Arsenal, Colonel Colby plans, executes, and directs the execution of all research, development and production engineering on all tank-automotive vehicles and components thereof. Coordinates these research, development and production engineering activities with those of other departments and bureaus of the United States, including the Departments of the Navy and Air Force and with industrial agencies.

entered the war two years late, all American tanks at the time that they arrived on the battlefield had more firepower, more mobility, and more armor protection for their weight than any known enemy tank of equivalent weight. Factual contradiction is challenged. The amazing fact of World War II was that people should be surprised that a 35-ton, M4 Tank could not successfully engage in gladiator combat with a 45-ton Panther or a 70- to 76-ton Tiger. Why then did we not have bigger and better?

In the summer of 1942, the production of the Heavy Tank, M6, the heaviest and most powerful tank in the world at that time, was cancelled because no requirement existed for a heavy tank.

U. S. Army.

The production of the Heavy Tank, M6, was cancelled in the summer of 1942. At that time it was heaviest and most powerful tank in the world.

The Medium Tank, T20 (prototype of the M26) was released for production at Fisher Body, General Motors, on August 15, 1942. Production was cancelled as no requirement existed for a tank exceeding 30-ton of weight.

One of General Eisenhower's biographers wrote that the appearance of the German Panther and Tiger in Normandy caused the General to send his Armored Force Officer to the United States to expedite the development and production of a 90-mm Gun and Heavy Tank. What was not said was that this officer was given the embarrassing task of reopening a project he had been instrumental in cancelling. Fortunately, the development engineering on the Heavy Tank, M26 had continued unabated in face of bitter opposition. These tanks reached the 3rd and 9th Armored Divisions in token quantities for the crossing of the Roer River in February, 1945. They could have been available in quantities for the beachhead landings.

The Medium Tank, T23 released for production in November, 1942 was cancelled after the production of 250 units on the nebulous statement that the tank was not battleworthy. This was the first tank with the 76-mm Gun. It had one inch greater frontal armor, ½ inch more side armor than the M4 Tank, and an electric drive with unusual operational flexibility.

The Heavy Tank, M6A2E1 was a modification of the Heavy Tank, M6 to mount a high velocity 105mm Gun. This activity was cancelled as it never received necessary concurrence.

The Heavy Tank, T28 weighing 100 tons, carrying 12 inches of frontal armor and mounting the high velocity 105mm Gun was designed as a mobile fortress but was never proposed for production as the pilot was not completed until after the crossing of the Roer River.

The Heavy Tanks, T29 and T30 were actually released for production by General Staff directive in February 1945 in the face of statements that no requirement for a heavy tank existed. Because of the obvious end of war, this production was quickly limited to minimum test quantities only.

The production of a Light Airborne Tank, M22 weighing 8-ton was cancelled on the statement that no requirement existed.

It is not the intent of the above to question the wisdom of the decisions nor to establish requirements for these vehicles. Our forces had to land on foreign shores, usually on beaches where no dock facilities existed. Rail service, where it could be found, was usually limited to 20-ton loads. On the offensive two 30-ton tanks could go down two roads much faster on approximately the same quantity of gas than one 60-ton tank. After the breakthrough at Normandy our armored units were finally halted, not by hostile opposition, but by supply exhaustion. Had our tanks all been of the heavy type the movement across Europe would not have been as rapid and the increased problems of logistics would have resulted in earlier supply breakdown. However, this rationalization is of little consolation to those who frequently found themselves forced into unequal tank to tank combat. These were David and Goliath contests in which the Medium Tank, M4 usually was not as fortunate as the little Hebrew and his slingshot.

Supporting the theme of no change of tank requirements from the Medium Tank, M4, was a large school which advocated the general purpose tank. It was argued that one tank to accomplish all missions would meet all requirements, would increase organizational flexibility, and result in greatly simplified procedures of procurement, training, supply, and maintenance. This very fine logic fails in the premise that an all-purpose tank can be built to satisfactorily accomplish all missions. The postwar British theme of a Universal Tank is based on the early American All-Purpose Tank theme and the general over-all success in World War II of the Medium Tank, M4. However, the British have lately abandoned this theme as they also find that the tank on which the theme is based is mythical in spite of their great effort to make it a reality. A Universal Tank must be a heavy tank if it is to accomplish all missions. If it is a heavy tank it is not adept to the principal armor roles of exploitation of breakthrough and deep penetration. It cannot be used by airborne troops.

The organization of the Army be-

cause of its size and many functions is of necessity complex. This complexity means that any equipment program necessitates the coordination and cooperation of many agencies. For example any tank program involves:

U. S. Army General Staff (Organization, Intelligence, Training, Requirements and Supply)
Ordnance Department (Research, Development, Manufacture, Procurement, Training, Supply, and Maintenance)
Signal Corps (Communications)
Transportation Corps (Movement)
Engineer Corps (Roads and Bridges)
Medical Corps (Human Engineering)
Quartermaster Corps (Fuels and Lubricants)
Navy (Sea Movement)
Army Field Forces (Military Characteristics, Tactical Evaluation, Requirements, Organization, Training, and Employment)
Marine Corps (Also a User)
Air Forces (Air Transport)

The Ordnance Technical Committee, the mechanism set up to obtain this coordination, operates on what is believed to be a sound procedure. All agencies are brought into a project at its very beginning. Yet the committee has been severely criticized because it is here that delaying opposition has an opportunity to express itself. World War II developments often received non-concurrences because they violated Army Regulations 850-15. These regulations required that no tank weigh more than 30-ton or exceed 103 inches in width. Hitler's tanks violated Army Regulations 850-15.

Non-concurrences on tanks have been received because of special crusades such as, "Does not have 20 horsepower per ton." Yet no tank in the world except a few of our own light vehicles has been able to achieve such high horsepower to weight ratios.

"Does not have sufficiently low unit ground pressure." Yet, width dimensions to permit wide tracks are not allowable.

"Is not battleworthy." This was a catch-all phrase impossible of definition and usually applied by some gadgeteer who had never seen a tank engaged in combat.

Much of this difficulty during the war is understandable as some of our best soldier officers went to war with troops, often leaving less experienced personnel in the offices of the coordinating agencies. The return of successful and war-experienced personnel to the coordinating agencies provided a more realistic approach to the relative importance of many conflicting military characteristics, and a spirit of intelligent compromise when visionary ideals must be deferred to further research. The importance of continued placing in these offices of successful experienced personnel cannot be too strongly emphasized. Periodic review of the tank program by experienced personnel such as the Panel on Armor is recommended.

In 1945, a War Department Equipment Board fresh from the experiences of war outlined a basically sound postwar equipment policy. Those who wish to alter this policy radically should remember that the great deviations from the recommendations of the Caliber Board (Westervelt Board) after World War I became proven mistakes in World War II.

The implementation of the recommendations of the Equipment Board has had its difficulties. The yearly allocation of development money for the entire tank-automotive program is not as much as some of our larger automobile companies allow for styling alone.

Any extensive tank improvement would have to be preceded by radical component development. The development of new power plants, transmissions, guns, etc., takes longer than does their assembly in a new vehicle. Therefore, in 1946, it was unanimously agreed that the current postwar funds should be devoted to the development of new components which would make possible the design of new tanks of radically improved performance when the postwar world political trend had clarified, postwar military thinking had crystallized, and adequate funds had been made available.

The principal objectives of the component development program were as follows:

a. To achieve new functional objectives within lower bulk and weight limitations. This is consistent with the theme that the best tank in its weight class is the one with the most powerful combination of gun, mobility, and armor.

b. To achieve standardization of maintenance parts. The maintenance of any vehicle is the maintenance of its components.

c. To achieve reliability of performance in the extremes of climate and terrain with minimum use of kits.

d. To achieve simplicity of field maintenance.

e. To conserve materials. Contrary to general public opinion all materials in war become critical. The most important factor limiting production in World War II was the availability of materials, not only rubber, tungsten, nickel, and silk, and the like, but also steel, wood,

U. S. Army.

The Medium Tank, T20, prototype of the Heavy Tank, M26, was released for production August 15, 1942. Production was cancelled a few weeks later as no requirement could be established for a heavy tank.

cotton, and the other commonly abundant materials.

The following are a few examples of postwar component development:

Our World War II difficulties in obtaining an engine of approximately 500 horsepower for the medium tank is an excellent example of our military engine problem and the awful confusion, loss of time, inefficient utilization of management, manpower, facilities, and material occurring at a critical time. In order to power the medium tank we had to employ six improvised engines, build two new plants, completely tool four plants (one of them twice), and partially tool two plants. These engines came with 5,165 spare parts, 6 sets of tools, 6 sets of maintenance literature, and a constant flow of engineering changes and mass tests to make the improvisations suitable for tank use.

U. S. Army.

250 Medium Tanks, T23, were produced in 1943. This was the first tank with a high velocity 76mm gun. It had one inch more frontal, one-half inch more side armor than the M4 Tank, with comparable gross weight. Electric drive provided unusual operating characteristics.

The effect of this situation on training, supply, and maintenance is apparent. The fact that our tanks dominated all battlefields of this war is a tribute to those of the military and of American industry who had the responsibility of getting tanks into the hands of fighting soldiers. The confusion and waste is chargeable directly to the fact that our lack of vision as a nation resulted in insufficient appropriations to have an engine for military use developed, tested, and ready for the emergency.

In 1942, the Industry-Ordnance Engine Advisory Committee, with the above experiences fresh in their minds and after reviewing military requirements, recommended the development of a 12-cylinder air cooled engine for military use. This engine of 1,790 cubic inch displacement and developing 810 horsepower at 2,800 revolutions a minute, has completed its development tests—running 1,000 hours under conditions where we had difficulty obtaining 400 hours of engine operation during the war period.

This is not an aircraft engine but rather a compact, lightweight, heavy duty engine designed for military use where mobility and reliability under conditions of heat, cold, dust, salt water, fungi, and other extremes are essential characteristics.

Based on early successful tests, this program was expanded to provide a complete range of engines from 125 to 1,040 horsepower using only two basic cylinders with all high-mortality parts interchangeable.

The old, continuing, and insistent demand of ground fighting personnel for air cooled engines for their tactical vehicles has been questioned frequently by those who sincerely doubted the merit of air cooled engines.

In the summer of 1946, the Commanding General of Army Field Forces, in a request direct to the Society of Automotive Engineers asked that technical committees be sent to Task Force Frigid in Alaska, Task Force Williwaw in Adak, and Task Force Frost at Camp McCoy, Wisconsin, for the purpose of observing and studying the technical aspects of those winter maneuvers. The committees included engineers from six industrial facilities which are among the world's largest mass producers of water cooled engines.

Their report, transmitted direct to the Commanding General of Army Field Forces under cover letter dated October 17, 1947, is outstanding for its frankness, its sincerity, and its courage. I now quote extracts from the conclusions and recommendations of S.A.E. engineers who went through trying experiences making equipment run in temperatures of 62 degrees below zero at Fairbanks, ninety-mile-an-hour winds on Adak, and deep snow and cold at Camp McCoy:

"B 13—Water is at as great a premium as ethylene glycol and obtaining the two is an added problem in the operation of liquid cooled engines."

"D 5—In view of the difficulty of operating internal combustion engines of the liquid cooled type, it is recommended that consideration be given to the development of air cooled engines for military vehicles that are to operate in the arctic."

"D 7—In the interest of standardization of design and simplicity of the parts and maintenance problems for military operation, the observers believe that consideration should be given to the development and adoption of a unit cylinder, unit piston, unit ring, unit rod, unit bearings, etc., which can be used in any combination from a single cylinder engine to a 12 or 16 cylinder engine."

"D 9—Because of the great amount of gear shifting with attendant breakage and wearing out of parts, it is recommended that all engines, clutches, transmissions, etc., be overdesigned with the possible elimination of clutch and transmission in favor of torque converter type drive."

This report represents the observations and recommendations of the observers themselves and not the opinion of the S.A.E. since no members of the S.A.E. Technical Board were in a position to check on the observations.

The above again indicates that when sincere men are given similar conditions they normally arrive at similar conclusions.

The reciprocating internal combustion engine has a relatively fixed relationship between revolutions per

minute and torque. Therefore, the effective utilization of available horsepower to provide maximum mobility over adverse terrain where torque demands constantly vary between wide limits depends largely on the functional design of the transmission. The conventional stepped gear transmission provides, for each of its ratios, only one speed respectively for maximum horsepower, maximum torque, or maximum efficiency.

The deficiencies of the stepped gear transmission in conventional vehicles have been greatly minimized by the construction of paved highways with minimum grades and by increasing horsepower to weight ratios in our stock model vehicles. However, heavily loaded tactical vehicles have relatively low horsepower to weight ratios and must perform over adverse terrain with widely fluctuating demands for torque at the driving wheels. Therefore, a transmission that would automatically provide required torque or horsepower to the driving sprockets within the limits of availability was essential.

The hydraulic torque converter was selected as the base of the transmission, because within limits, it automatically responds to torque demands and meets minimum bulk and weight limitations. To overcome what has been termed "high end inefficiencies," the principle of the overrunning reaction members was employed. This permits the unit to convert to a fluid flywheel after utilizing the range of highest efficiency of the converter.

The converter develops torque multiplication of 4.3 to 1. Therefore to obtain full torque speed range, two or three gear ranges, depending on the installation, are provided behind the converter. All shifts are made under operating torque loads.

The transmission and steering mechanism are combined in a package and placed transversely in the tank thus greatly conserving space. Where there is no forward motion of the tank it can be made to pivot on its vertical axis. When there is a linear motion the minimum radius of turn is a function of linear speed. Shifting and steering is accomplished by minimum effort joy stick control.

Each of the family of engines is mated with its corresponding member of the family of cross drive transmissions. A typical power train assembly is pictured showing that, in addition to new functional achievements, 62% more horsepower can be placed in six inches less longitudinal space. This means more mobility for any given weight of a tank.

The power train as a unit can be functionally tested on a simple field stand. The engine can be run against stall of the converter to determine power output. Thus, no field maintenance unit need bury the power plant in armor before being assured that the unit functions as intended.

The new batteries insure better cold weather performance, have a 29.1% to 53% increase in watt-hour capacity per unit weight, can be submerged without damage, can be more easily manhandled, and result in a material saving in lead.

Our tank guns have been the subject of popular debate. We have, and have had, a complete range of tank guns from 75mm to 155mm caliber. Each within its own weight class is more powerful than any other known gun of comparable weight in the world. Factual contradiction is challenged. All of these guns, at some stage of their development, have been mounted on tanks. But powerful guns take bigger tanks. Therefore, if we wish to compete in tank to tank combat with such tanks as the world war Tiger Royal, the weights of at least some of our vehicles must closely approach those they are intended to fight.

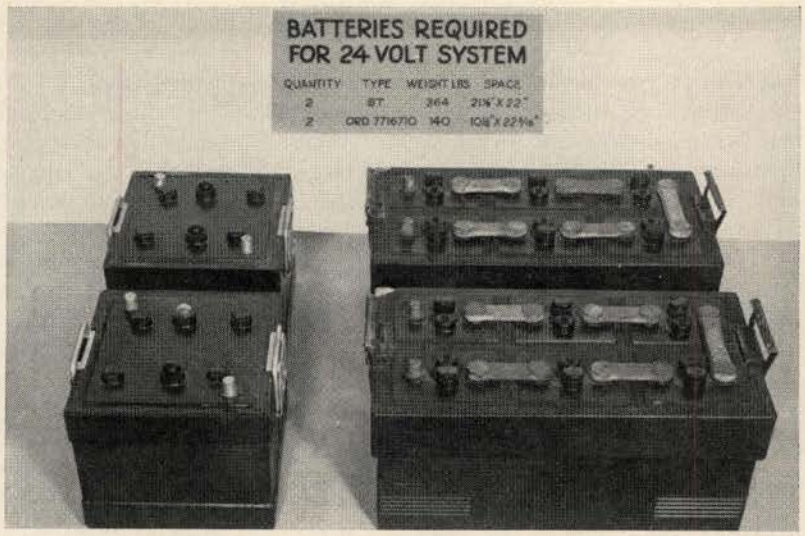
Similar review of component development since the war may be made to cover suspensions, tracks, bogie wheels, electrical equipment, hydraulic equipment, and gun pointing mechanisms. Improved performance has been obtained within lower bulk and weight limitations. All the above components are in advanced stages of development.

Progress has been slow, however, since lack of funds has limited laboratory work, correction of product found necessary as a result of test, and the environmental installation in vehicles operated by troops themselves. 80% of development can be done on the design board and in the laboratory but the 20% so essential to reliability of operation comes from experience through operation of vehicles at the proving grounds and in the hands of troops.

U. S. Army.

The Heavy Tank, T32, designed in 1944-1945, mounts a super velocity gun and has heavy armor protection.

Basic in the tank program are the conclusions and recommendations of a Panel on Armor which met during the Spring of 1949 under the Chairmanship of Major General Ernest N. Harmon, at the call of General Jacob L. Devers, then Chief of Army Field Forces. This panel was composed of specially selected representatives of those branches of the Army and Navy responsible for the many phases of a tank program. The experience and success of each in his field of war experience gained for him the confidence and the respect of the others. After much discussion, cross questioning, and evaluation of the testimony of others, an integrated plan involving tactics, organization, and equipment was evolved. This plan, based on the limits of existing know-how, outlines a well considered, co-



U. S. Army.

New batteries on the left have 29.1% to 53% increase in watt-hour capacity per unit weight; provide better cold operating characteristics; are easier to handle, conserve critical materials.

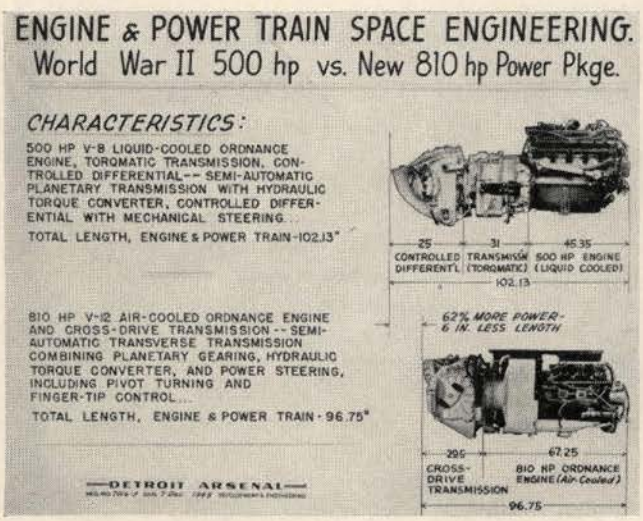
ordinated, and complete program for a family of tanks and derivative combat equipment.

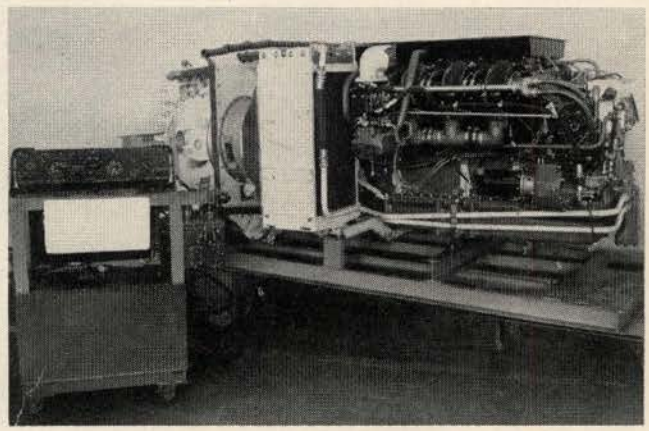
In outlining such a program tactical vision is as important as technical vision. Neither can be "Buck Rogers" nor too conservative in its approach. To be ahead of the enemy on the battlefield we must be at least one year ahead of him in production, two years ahead in development, and at least three years ahead in thinking and research. Too often during the war important developments were delayed with the statement, "We have canvassed the theatres and there is no requirement." When the requirement appears on the battlefield—it is too late. Likewise, many developments go wrong because of impossible specifications. Obviously any immediate development must be within the limits of existing knowledge and skill. Today's impossible specifications, however, may be met by tomorrow's research.

Studies of new tanks, using new components, conform to the requirements basically as established by the War Department Equipment Board and the Panel on Armor. Military characteristics obviously cannot be revealed at this time. Suffice it to say that based on all available intelligence no country in the world can now compete in power-for-weight tank design without going through an extended period of component research and development.

On our tanks, in teamwork with the Air Force and Navy, is based the freedom of our friends from hostile occupation and liquidation; denial to the enemy of the manpower, material resources, and production facilities of our world allies; the retention of our world air and naval land bases, together with Air Force and Navy effectiveness; and the possibility of quick occupation of hostile territory denying to them the production facilities of weapons designed for mass civilian murder.

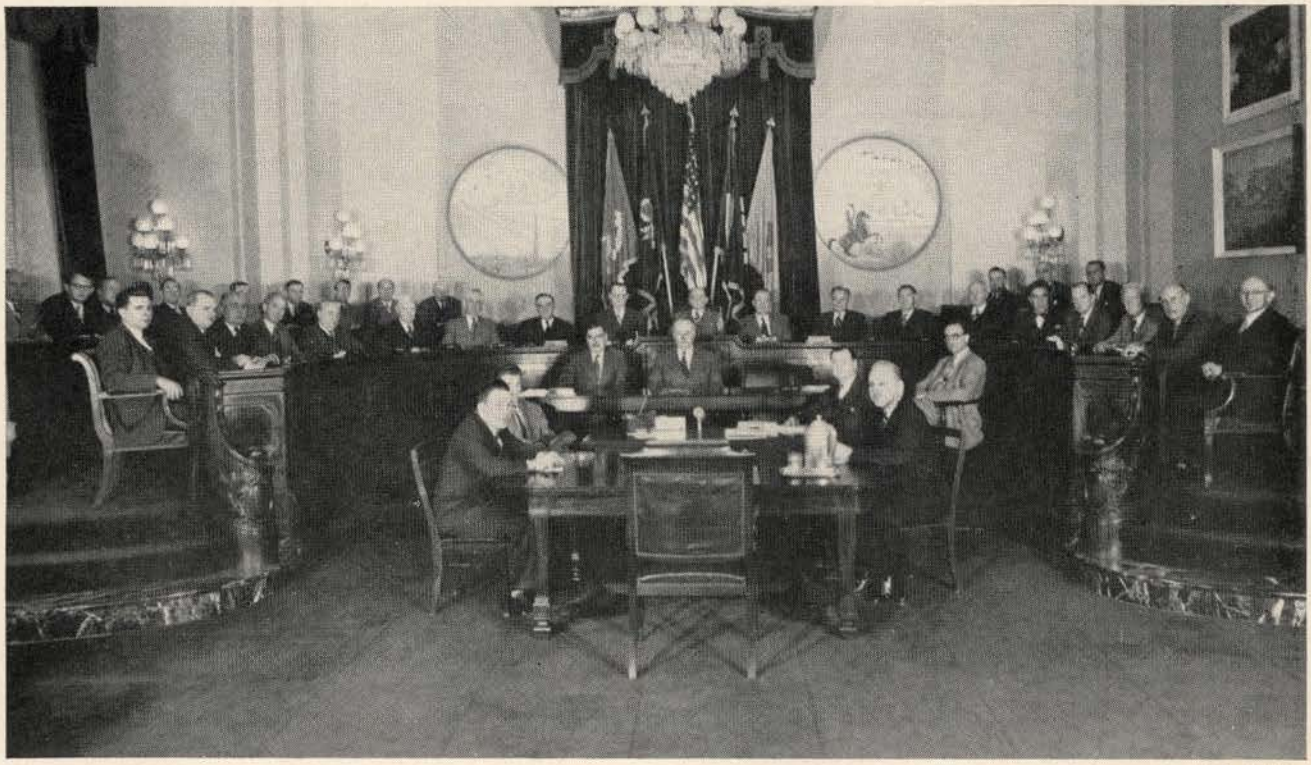
If the United States Army is to maintain its position of parity on the defense team, proven equipment must be placed in the hands of our troops.





U. S. Army.

The power train for the Patton Tank can be field tested prior to burying it beneath armor.



U. S. Army

The House Armed Services Committee

ONE of the nineteen standing committees of the House of Representatives, and important in our defense picture, is the House Armed Services Committee. Elected at the commencement of each Congress, and consisting of thirty-three members, normally divided between the two major parties, this is the committee to which is referred all proposed legislation, messages, petitions, memorials, and other matters relating to the following subjects:

1. Common defense generally.
2. The War Department and the Military Establishment generally.
3. The Navy Department and the Naval Establishment generally.
4. Soldiers' and sailors' homes.
5. Pay, promotion, retirement, and other benefits and privileges of members of the armed forces.
6. Selective service.
7. Size and composition of the Army and Navy [Air Force].
8. Forts, arsenals, military reservations, and navy yards.
9. Ammunition depots.
10. Conservation, development, and use of naval petroleum and oil shale reserves.
11. Strategic and critical materials necessary for the common defense.
12. Scientific research and development in support of the armed services.

In the photo above, the members seated in the rear left—from left to right, are: L. Gary Clemente, John R. Walsh, Edward deGraffenried, Clyde Doyle, William J. Green, Jr., Porter Hardy, Jr., O. C. Fisher, Melvin Price, Franck R. Havenner; the members seated in the right rear—from left to right are: *Harry L. Towe, Leon H. Gavin, Walter Norblad;* the members seated in the lower circle from left to right, are: Arthur Winstead, F. Edward Hebert, Philip J. Philbin, L. Mendel Rivers, James J. Heffernan, Lansdale G. Sasscer, Carl T. Durham, Paul J. Kilday, Overton Brooks, Carl Vinson, Chairman; *Leslie C. Arends, W. Sterling Cole, Leroy Johnson, George J. Bates, James E. Van Zandt, Paul W. Shafer, Charles H. Elston, Jack Z. Anderson, William W. Blackney.* Seated in the center down front—left to right, are: John R. Blandford, staff member; Samuel Friedman, committee reporter; E. L. Bartlett; Joseph R. Farrington; Robert B. Harper, chief clerk; Robert W. Smart, staff member; and Clinton B. D. Brown, staff member. Congressmen not present: A. Fernos-Isern and Dewey Short.

Republican names in italics.

Kids Love It!

Of baby carriages and tanks, baby sitters and National Defense –the segue from a rough week at the office to a smooth week end of training. The Watson Plan puts the finger on the secret to a successful Reserve Training Program.

by JOSEPH M. QUINN

THE Johnson family was finishing its Friday evening dinner when father George, who thought he was head of the household, announced:

"I've had a tough week; I don't think we'll go to MacArthur tomorrow."

There never was an explosion in Tunisia, where Lieutenant George Johnson got his baptism of fire with the 1st Armored Division, to match the pandemonium that followed.

"I won't stay home. You promised," bawled Peter, aged 5.

"We must go, Daddy. We're going to have a swimming party," pleaded Betty Ann, aged 8.

"We mustn't disappoint the children, George," the missus said with emphasis. "Besides, there's a home economist at the Club tomorrow afternoon whom I simply must hear."

U. S. Army

Brigadier General Leroy Watson, originator of the week-end tour plan.

And so it came to pass that the 13th Armored Division (ORC) had at least one more reserve officer out on the tank driving course that week end.

Stories like the foregoing delight Brigadier General Leroy H. Watson, father of a novel plan that combines the field training of civilian soldiers with a family holiday at Fort MacArthur, a sprawling, picturesque Army base overlooking the Pacific near Los Angeles, California.

The scheme has stimulated ORC activities in Southern California and

U. S. Army

Pop at work. The head of the family gets in some real training over the week end.

has won nation-wide attention. Several sections of the country—like Fort Totten near New York City and Fort Sheridan near Chicago—where there are large numbers of active reservists within easy commuting distance of a regular establishment are putting similar plans into effect.

Family ties, a major bugaboo of other reserve training programs, are the backbone of "The Watson Plan." Instead of taking Dad away from Mom and the kids, General Watson provides the whole family with two days of inexpensive fun together. Dad gets field training nearly comparable to that which readied him for combat in World War II. Mom and the kids get to play and romp in a recreational heaven beyond compare, with baby sitters to entertain and care for the small fry. The plan is simple. It gets results.

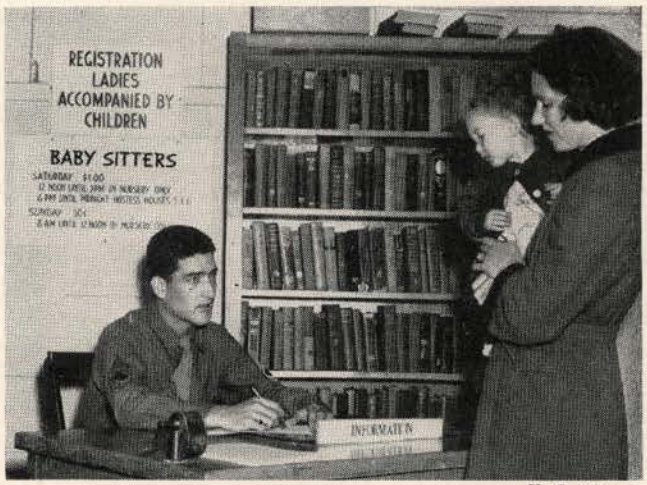
Over 300 ORC units now train at Fort MacArthur. Some 1000 reservists—men and women, enlisted and commissioned—and about 150 dependents check in each week end. Family participation being considered essential, entertainment of wives and children is as carefully planned as the training schedules.

General Watson, combat commander of the 3d Armored Division and the 79th Infantry Division during the war, was summoned from Germany by General Mark W. Clark, then commanding Sixth Army, when the reserve training program was under heavy fire from many sources, including President Truman. The distinguished soldier, noted for his administrative skill as well as his combat leadership, was placed in command of the Southern Military District, embracing Southern California, Nevada and Arizona. He arrived at Fort MacArthur in July, 1948.

On his first inspection of the post —rich in maneuver areas extending over acres of hills rolling to the sea, pitted with small-arms ranges, loaded with weapons and equipment stored in warehouses, landscaped with empty barracks—General Watson got the idea for his startling new attack on the lagging ORC program.

The largest reserve component on the West Coast, the Black Cat tankers, commanded by Brigadier General James T. Roberts of Beverly Hills, inaugurated the week-end field exercises in November, 1948. By August, 1949,

Mom and the Kids

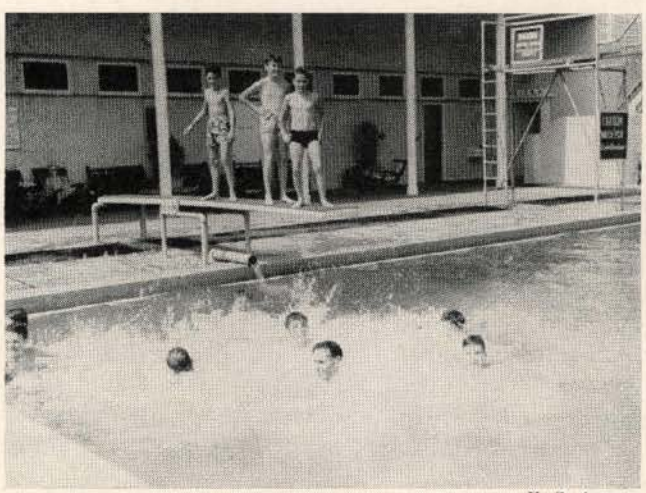


U. S. Army

On Saturday noon, Mom and the kids check in for the start of a swell week end.

U. S. Army

The kids get in a little combat practice and run their own obstacle courses.



U. S. Army

Older lads enjoy a fine pool while Mom just plain relaxes in the background.

when the 13th Armored moved to the Marine Barracks at Camp Pendleton for two weeks' summer training, its week ends at MacArthur paid off. Division Artillery and tank units fired field exercises with live ammunition the first day in camp!

"The Watson Plan" was a success from the beginning, but the general and his Chief of Staff, Colonel Frederick H. L. Ryder, have worked unceasingly to improve it month after month. Fort MacArthur's work week, geared to provide maximum support for the reserve units, extends from Thursday through Monday for most of the regular personnel. A Provisional Battalion of Quartermaster, Engineer, Ordnance, Signal, Medical, and Provost Marshal sections prepares training aids, readies equipment and areas, draws rations and bedding—double checks the dependents' living quarters, messing facilities and play schedules—on Thursday and Friday. Saturday morning the influx starts and, since some reservists work six days weekly, gets even heavier on Sunday. Monday is devoted to policing up.

Dependents are quartered in cabins used as hospital wards during the war, on the "lower post." They mess at the Officers' Club. A fully equipped nursery, with baby sitters, is provided. Playgrounds, swimming pools, tennis courts, a golf course, and even port cruises sponsored by naval reservists, are available. Socials are held every Saturday afternoon at the Officers' Club, and dances and parties are held each Saturday night at both the Officers' Club and the Noncommissioned Officers' Club.

WAC's are quartered with the dependents, but mess and train on the "upper post," where ORC activities are centered. Male reservists are quartered topside. Each reservist pays 50 cents for linen and blanket laundering and 35 cents for each meal taken at the regular mess. Each makes his own bed but all other housekeeping duties are performed by post personnel.

All training closely follows the program set by Army Field Forces. Units conduct their own instruction with supervision and assistance from Unit Instructors furnished by the Army. Practical exercises dominate all schedules. Tactical problems are solved on the ground. Classroom work is held to a minimum.

General Watson has obtained basic equipment for all the arms and services training under his command. Armored reservists drive and fire medium and light tanks. Engineers build Bailey Bridges. Amphibian tractor crews land assault infantrymen on the shores. Artillerymen have 105s and 155s. Antiaircraft units are equipped with self-propelled multiple 50s. Signalmen set up radio nets and phone systems, and practice with radar. Quartermaster troops operate field bakeries and laundries. Transportation Corps reservists man the port facilities.

The training cycle is not rigid, but the program has shaped up so that Coast Artillery and Adjutant General Department units share the first week end of each month with the 13th; other Coast Artillery, Field Artillery, Antiaircraft Artillery, Ordnance and Quartermaster reservists take the second week end; Infantry, Cavalry, Signal, Transportation and Medical units use the third week end; and Chemical, Engineer, Military Police and Military Intelligence units occupy the fourth week end.

Smaller units of Finance Disbursing, Military Government, Reception and Replacement Depots, and Logistical Training Divisions, are spread over the various week ends.

Many units last summer used MacArthur for their regular two-week training period. Attendance was greater than anticipated in every outfit. A heavier summer encampment program is planned for 1950.

Training areas are being improved steadily. More equipment is being received every week. Instructors are getting better. The work's getting more interesting. Attendance is greater each succeeding month.

Attractions for Mom and the kids expand as greater facilities are made available for Dad to enhance his combat effectiveness. In the view of General Watson, "The wading pool for small kids that we just finished is as important to the reserve training program as the millions of dollars worth of equipment available at Fort MacArthur."

Because Peter Johnson, aged 5, likes that pool, his father, Captain George Johnson, uses that expensive equipment—even if he has had "a tough week."

Army to Employ Television in Reserve Training Program

The Army will present a series of eight experimental television programs designed to test television as a training medium for its Reserve Components, beginning on February 9, it was announced recently by General Mark W. Clark, Chief, Army Field Forces, Fort Monroe, Virginia.

General Clark is in charge of the eight-week series which will be telecast over WOIC, Washington, D. C.; WCBS-TV, New York City, and possibly other Columbia Broadcasting System affiliates, from 10:00 to 11:00 P.M. each Thursday, February 9 through March 30. Time for the test programs has been donated by the Columbia Broadcasting System.

General Clark emphasized that these are test training programs, the results of which will be studied in determining the possibility of using television as a training medium.

This will be the first Armed Forces nighttime telecast of training programs on a network. Some of the Reservists and Guardsmen constituting the audience may witness the programs in their own homes while others may be assembled at convenient locations where television receivers are available. While designed primarily for the Army audience, the programs will be of interest to the general public.

Negotiations for the programs were conducted by the Department of the Army, General Staff, through the Department of Defense. The series will originate at the television studios of the Navy Special Devices Center, Port Washington, Long Island, New York. The use of this facility was obtained through the cooperation of the Navy. At this Center the Navy has conducted considerable pioneer work in this field.

Scripts were written by the faculty of the General Staff College, Fort Leavenworth, Kansas with technical assistance of the Army Branch Schools. Programming will be under the direction of the Office of the Chief Signal Officer, Department of the Army.

Training vehicle of the programs will be a map problem depicting the operation of an Infantry Division supported by the Air Force in realistic combat situation. Each program will develop a new phase of the map maneuver and will constitute a distinct lesson in organization or employment of the Division.

An Armored Replacement *Battalion!*

by SGT. CASILEAR MIDDLETON

Would a Replacement Battalion serve our needs better than the existing Company in the Armored Division? An experienced noncom thinks it would.

DESPITE the astonishing trends of modern warfare and the streamlining process in which the Army is presently engaged, we still adhere to a few techniques which date into antiquity. In many cases we often base our theory of the military science and tactics of the future upon personal and hearsay experience of World War II. Granted, the past war offered thousands of very useful tactical and strategical lessons, however, we must never blind ourselves to the fact that World War II is history. History repeats itself, but it can seldom be said that the methods and machinery remain unchanged when this phenomenon occurs. It is time to stride into the future with an honest intent to *foresee* rather than recall.

Changing Concepts

Warfare, in the future, will very probably alter a good deal from our present concept. Fixed lines will often give way to fluid tactical formations and deep salients established through penetration by flying columns of armor. These columns will operate as self-sufficient spearheads, independent of central command. General Patton proved the ability of an armored army to break out and ravage the enemy rear in modern warfare. General Sherman, in his "march to the sea" during the war between the states, was a proponent of this type of action.

It is essential that the armored units, operating in the role of exploitation, have a replacement unit as an organic element in order to facilitate the balance so necessary in the field.

Good balance in tactical subunit strength is a prerequisite in any armored operation. Reinforcing and replacing casualties in fighting elements, depleted through combat and sickness, is a vital factor in any army engaged in operations against an enemy.

Units must remain as units in order that the maximum efficiency of any force may be guaranteed to the Theater or Army commander. Such a commander, faced with the problem of weakened tactical strength in any arm, must necessarily face limitations and perhaps reversals in his scheme of operations. Such limitations may lose a battle and a war. No unit should be allowed to deteriorate and become capable only of holding or reserve roles. Reserve units must be able to relieve front-line troops in equal, if not superior, strength.

Many prominent armored exponents agree that replacement among armored units requires a specialized technique. It has always been maintained that a tank is never a basic fighting element until it is manned by well-trained armored personnel. Up to and including the present, the armored fighting vehicle and its crew have been replaced as separate elements. Tank *and* crew should arrive at the combat echelon of the division in peak condition and in fighting trim. The time required to train and prepare the crew, and the time that often must be taken to modify an armored vehicle, in order that it will conform to divisional policy, will be saved. Replacement should never be the cause of an undue break in the combat routine of any front-line unit. A worn out, partially replaced crew cannot efficiently "fight" a new vehicle, nor can a fresh eager crew give their best in a campaign-weary "clunker."

The Present Setup

At present the Replacement Company cadre of the armored division is made up of six officers, one warrant officer, and thirty-four enlisted men. They can, under normal conditions, process two hundred replacements at a time. These replacements should be held a minimum of three days. They will normally receive only administration, the lowest level of basic training, and divisional indoctrination. Under severe combat conditions, such a great number of replacements may be needed that the staff of the replacement company will be overtaxed beyond reason. To alleviate this condition, officers and men of the divisional combat echelon must be sent to the rear to assist in processing personnel forward. The Adjutant General's Section might also be required to send special teams forward in order to assist in such a situation.

A Battalion!

Can it be said, without reservation, that the system outlined above achieves the maximum of efficiency required by the *armored division?* Armor is a specialized branch and its replacement problem requires special consideration. Somehow, it would seem that a replacement *company* is not the proper replacement medium. Let us set about rectifying this obvious inadequacy. Let us establish an *Armored Replacement Battalion!* A mobile replacement pool of officers and men required by any of the armored elements among the fighting echelons of the armored division!

The Armored Replacement Battalion should consist of: (1) a headquarters, (2) a headquarters and service company, (3) a tank company including one heavy tank platoon, two medium tank platoons, and one reconnaissance platoon, (4) an armored infantry company, (5) an engineer company of one bridging platoon and one combat engineer platoon, and (6) a mixed battery of four 105mm and two 155mm self propelled howitzer sections. Each of these companies should be set up on a TO & E basis and administrated accordingly. This would seem to be the ideal establishment for replacement within

the armored division in time of war.

Overages in men and vehicles may accrue under certain circumstances and sometimes shortages may exist for a time. This can be rectified by careful planning and coordination between the combat elements of the division, the Armored Replacement Battalion, and rear area replacement installations. Liaison will be the mainstay of efficient operation. Granted, the primary argument *against* such an addition to the armored division is the *added personnel.* However, the readily available trained replacement crews and vehicles would facilitate manifold advantages which are presently uncommon within the armored division and the type field army.

Combat Implication

In certain situations, an army commander may find an appropriate opportunity to group his armored divisions under a corps or similar central command. Should this take place, the armored replacement battalions from each of the divisions could be brigaded together and continue operations as an armored replacement *group.* The massing of armored formations will often be essential to the success of many field operations against our most probable enemy. It makes possible the organization of a "steam-roller" armored force capable of crushing the enemy front-line elements, exploiting initial gains, overwhelming the enemy mobile reserve, and taking advantage of its mobility to achieve the maximum in the pursuit. *A fast moving replacement unit will assist in the maintenance of momentum upon which an armored corps or army depends.*

Under this type of operation "unit replacement" will be possible at long last. By "unit replacement" there is no implication that an entire company or platoon would *normally* replace a depleted company or platoon among the combat elements of the division. There may well be occasions where this might become expedient. Rather, the desire is to describe "unit replacement" as being a system in which usually the smallest fighting component of the division, the armored vehicle, is replaced in its entirety. A combat loss replaced by a new and modified or repaired armored vehicle, with a complete basic load of ammunition, rations, equipment, and a new or completely rehabilitated crew, fresh, rested, and ready for combat is the goal to achieve.

Unit Replacement

This may not seem of world shaking importance unless you have had the misfortune to be "knocked-out" in action. Then you can fully realize what I am endeavoring to show in its proper light. A tank and crew which have been subjected to long and arduous front-line duty or have been either damaged or partially destroyed by enemy anti-tank or tank vs. tank action are never quite the same unless the survivors are sent to the rear and rehabilitated. Merely replacing the lost crewmen and repairing or replacing the armored vehicle does not make for happy or efficient operation. It is believed everyone will agree that, in most cases, crews which have had the misfortune to be once bitten are thrice shy until they have rested properly, and have been properly re-equipped. Most "old-timers" like to have an opportunity to teach new replacement tankers all the latest tricks of the trade. We all know that "tricks" come hot and heavy. Techniques and "know-how" are revised overnight. A rehabilitation, training, repair and reissue period for weary vehicles and crews can, and should be, standard operating procedure.

The Armored Replacement Battalion should be able to institute a very useful training program between replacement personnel and officers and enlisted men of the combat elements within the division. Forward unit commanders could detail instructional teams to the Armored Replacement Battalion which would in turn send forward various personnel for firsthand instruction, experience, and association among the combat elements. By judicious handling of this practice, replacements should acquire valuable knowledge of front-line routine and thereby enable themselves to fit into the picture quickly when assigned to a fighting unit.

Organization

The estimated troop requirement, in accordance with the proposed TO & E of the Armored Replacement Battalion, is set down as follows:

	Officers	*Warrant Officers*	*Enlisted Men*
Battalion Hqs.	4	1	0
Hq, Hq & Sv Co. .	3	1	98
"A" Co (Tank and Rcn)	6	0	135
"B" Co (Armd Inf)	6	0	202
"C" Co (Engr) ...	4	0	106
"D" Btry (Armd FA)	7	0	101
Totals	27	2	642
Aggregate			671

The over-all total of personnel required by this type of unit equals only 1/25th of the personnel presently represented in TO & E of the armored division. When the advantages and capabilities are recognized in the addition of these troops, there is little doubt that this number will no longer be considered excessive. *Of the 671 troops listed above, it is estimated that roughly 500 will be available as replacements.*

The estimated vehicular requirement, in accordance with the proposed TO & E of The Armored Replacement Battalion, is set down as follows:

Hq., Hq. and Sv. Co.
- 6—Trucks, ¼ ton, 4x4.
- 1—Truck, ¾ ton, 4x4, w/c, w/WN.
- 12—Trucks, 2½ ton, 6x6, cargo.
- 3—Trucks, 2½ ton, 6x6, cargo, w/WN.
- 1—Truck, Wrecking, heavy.
- 1—Vehicle, tank recovery.
- 1—Trailer, 1 ton, 2W, Water Tank (250-gal).
- 6—Trailers, 1 ton, 2W, cargo.
- 4—Trailers, ¼ ton, 2W, cargo.

"A" Co. (Tank and Rcn)
- 5—Tanks, heavy (gun).
- 10—Tanks, medium, M-26E1.
- 2—Tanks, light, M-24.
- 10—Trucks, ¼ ton, 4x4.
- 4—Trucks, 2½ ton, 6x6.
- 2—Vehicles, utility, armored.
- 2—Trailers, ¼ ton, 2W, cargo.
- 2—Trailers, 1 ton, 2W, cargo.
- 1—Trailer, 1 ton, 2W, water tank (250-gal.).

"B" Co. (Armored Infantry)
- 3—Trucks, ¼ ton, 4x4.
- 3—Trucks, 2½ ton, 6x6, cargo.
- 20—Vehicles, utility, armored.
- 2—Trailers, ¼ ton, 2W, cargo.
- 3—Trailers, 1 ton, TW, cargo.
- 1—Trailer, 1 ton, 2W, water tank (250-gal.).

"C" Co. (Engr)
- 10—Trucks, ¼ ton, 4x4..
- 4—Trucks, 2½ ton, 6x6, cargo.
- 1—Vehicle, utility, armored.
- 3—Trucks, ¾ ton, 4x4, Weapons carrier w/WN.
- 4—Trucks, 2½ ton, 6x6, dump.
- 2—Trucks, tractor, 6 ton, 6x6.

2—Vehicles, Engineer, Armored (dozer).
18—Trucks, 6 ton, 6x6, treadway.
3—Trucks, 2½ ton, 6x6, Bolster.
2—Trailers, 2W, type VIII.
2—Trailers, 2W, type I.
2—Trailers, 2W, Bolster.
3—Trailers, 2W, Pole.
5—Trailers, ¼ ton, 2W, cargo.
4—Trailers, 1 ton, 2W, cargo.
1—Trailer, 1 ton, 2W, water tank (250-gal.).
1—Boat, power, utility, 25 ft.
21—Boats, Assault, M2.

"D" Btry. (Armored Artillery)
6—Trucks, ¼ ton, 4x4.
2—Trucks, ¾ ton, 4x4, weapons carrier.
6—Trucks, 2½ ton, 6x6, cargo.
4—Trailers, ¼ ton, 2W, cargo.
4—Trailers, 1 ton, 2W, cargo.
1—Trailers, 1 ton, 2W, water tank (250-gal.).
4—Carriage, motor, 105mm How.
2—Carriage, motor, 155mm How.

The Armored Replacement Battalion should normally move with the armored division trains. The unit will be in constant close association with the organic ordnance maintenance battalion and dependent upon this unit for the purpose of general vehicle maintenance and maintenance refresher training of replacement personnel.

The six 45 ton semitrailer transporter vehicles within the ordnance maintenance battalion will be a great help to the Armored Replacement Battalion. These vehicles, when assigned a recovery mission, are capable of transporting a replacement vehicle and crew forward and returning with a damaged vehicle and its crew. The fresh vehicle will not be subjected to a long road journey forward and the crew will arrive fresh and rested.

The Advantages

Many readers, far more skilled in the art of command and staff procedure than the author, will doubtless find that the troops and equipment necessary to establish an Armored Replacement Battalion are excessive. There are possibilities that cannot be denied, however. The Armored Replacement Battalion is capable of defensive action in protecting the armored division trains against enemy attack. It can be employed in the field as a full-fledged combat element in time of *extreme* emergency. The advantages definitely tip the scale in favor of an Armored Replacement Battalion and only a fair trial will advocate its practicability or its failure in solving pressing problems.

One point of criticism may be in the proposal of including an engineer bridging platoon in the Armored Replacement Battalion. The main purpose is in the assumption that our next enemy will be far more active in the air than our last. If so, we can expect ground support enemy aircraft to pay considerable attention to our bridging activities especially. Casualties in bridging and bridge maintenance personnel and equipment will doubtless be heavier than heretofore.

Independent Uses

When this article was still in the thought stage, it was mentioned that perhaps a "wedding" between the organic Ordnance Maintenance Battalion and the newly organized Replacement Company of the Armored Division would achieve the ends desired. It is believed that this "wedding" would soon end in "divorce" after a very short period of operational association. The Ordnance Maintenance Battalion has a very definite mission to perform and its role is of vital importance to the mobility and success of the division as a whole. It is obvious that the Replacement Unit, whether it is to be the present Replacement Company or the proposed Armored Replacement Battalion, also will have a separate responsibility. It is best never to mix administrational commands, roles, missions, or objectives.

From History

The Armored Replacement Battalion advocated here is no mere pipedream. The Royal Canadian Armored Corps operated a similar unit, known as an Armored Delivery Regiment, in support of First Canadian Corps during operations in Italy and later in Holland and Germany. Originally designated as a Tank Delivery Regiment, this name was changed when it was found necessary to supply crews and vehicles to reconnaissance elements which utilized Bren carriers and armored cars. A little later, self propelled artillery pieces were included as part of the replacement requirement under sustained combat conditions.

Commanded by a very competent Royal Canadian Artillery Officer, Major Bob Lietch, this A.D.R. moved constantly in close support of the armored formations of First Canadian Corps. Armored advances in Italy were quite limited and a slow procedure at best. It was relatively easy to remain within easy tank transporter range of Canadian armored elements. Later, Canadian forces in Italy were ordered to join the First Canadian Army dug in along the Rhine estuary in Holland. The move, accomplished with most strenuous measures in regard to security, commenced in February. *This move proved that an armored replacement unit can remain in support of its forward elements no matter how far and fast they move.* The Armored Delivery Regiment moved from the Adriatic coast of Italy, to central Belgium. They traveled by road, LST, and rail via Leghorn, Marseilles, and the Rhone valley. The A.D.R. was almost the last unit to move having remained in the Corps administration area to pick up all casual vehicles left behind for repair by combat elements. The unit moved far overstrength in vehicles and far understrength in personnel. *The move was accomplished in two weeks! The unit arrived intact!*

Let us look at some of the reasons for this successful move. The Commanding Officer of the A.D.R. was a combat veteran and an experienced staff officer. His officers and men were mostly experienced men returned to duty from hospitals. The raw replacements were able to see some real snap, dash, and accuracy in armored movement. They were shown the easy efficient way to do the impossible, and learned more in two weeks than they had during six months training in the United Kingdom. They were valuable replacements in the Rhine crossings that spring.

Transporters Desirable

Another reason for the success of this operation was in the smooth cooperation of a Royal Army Service Corps Tank Transporter Company attached to the A.D.R. for the move. Contrary to the belief of many American tankers, the tank transporter is an efficient vehicle and can be utilized in support of tactical elements.

Most American Army tank transporters and recovery vehicles are so immense and bulky that they bind up vehicular traffic on the MSRs to a frightful degree. Not so with the Scammel and Diamond T Transporters used by the British forces in the ETO. It was found that by using a medium transporter, armored units were often saved the rugged road march forward on their tracks and the supply routes were saved the engineer maintenance required on roads torn up by tracked armor moving up in quantity.

The heavier the armor, the slower the tank. Tanks of the future will probably not be as heavy and bulky as those of the past and present. This will be brought about through the fact that no matter what the armor basis of a tank may be, it is easily knocked out by either a heavier antitank gun or some small infantry antitank device. True to the original concept of the role of Cavalry, Armored Cavalry will rely upon a high degree of mobility. Speed in tactical movement will be the best guarantee of protection for vehicle and crew. Light armor capable of withstanding hits from small automatic cannon and near bursts of artillery shells, mounting a heavy high velocity gun, will likely become the standard maneuvering vehicle. Transporter vehicles will naturally conform to this trend and be far more maneuverable and roadworthy. There is little doubt that eventually there should be an organic transporter element of greater strength within the armored division.

Major Lietch's A.D.R. moved in support of Canadian Armored Forces after the Rhine crossings and although the war moved swiftly through Holland to its final close in Germany, armored vehicles and their crews were always available and not very distant from the forward elements requiring replacements. It has worked and it will work.

Discussion Needed

There is a lot to be said in favor of an improved system of replacement *within* the armored division. It is hoped that the idea set forth here will stir up discussion. Certainly the replacement system in operation in World War II had its faults, and, from all indications, it was definitely inadequate.

Replacements in the Armored Division

What does the Armored Division Replacement System consist of today? How does the procedure of receipt, processing and assignment work?

by MAJOR BUIE HESS

DURING World War II the problem of receiving and processing replacements into the armored division was, in many cases, accomplished by provisional replacement detachments. The value of such a detachment prompted the inclusion of the replacement company in the T/O&E of the postwar division.

Since it is through the division replacement company that the life line of the division is sustained, it is of prime importance that every commander and every staff officer within the division have an understanding of its operations. The manner in which new men arriving in combat are integrated into the fighting team must be of concern to every officer and every man of the division. The turnover of strength in many line units during World War II was from 100 to over 300 per cent; thus it is evident that this integration is no small task. Properly acquainted with his team, his surroundings, his commanders, characteristics of the enemy, and the tricks of battle which come by experience, the new replacement has a greater chance to survive and contribute something instead of being an added burden to his organization.

The cadre of the division replacement company consists of seven officers, one personnel warrant officer, and 34 enlisted men. The capacity, without augmentation of the cadre and equipment, is 400 replacements.

The choice of cadremen for the division replacement company must be made with great care. The success of the company will depend upon the attitude developed toward this duty. The assignment of cadremen to the replacement company, with the exception of the personnel warrant officer and the enlisted men of company headquarters, should be rotated among line personnel and should be made on the basis of outstanding leadership in combat. Further, those chosen must be indoctrinated with the importance of the assignment, so that not the slightest doubt will exist as to the need for a high standard of performance in the job. Widespread education throughout the command will sustain and insure continuity of this attitude. Mediocre performance in this assignment must be quickly recognized and eliminated.

Contrary to a rather widespread belief, replacements in the company do not form a division reservoir to be assigned as needed. They are present as a result of previously made personnel requisitions, which are based on actual shortages. The period which they remain in the company depends on the circumstances at the time of receipt and will vary to fit these circumstances. This time must be profitably spent; therefore, thoughtful planning and preparation are necessary.

A standing operating procedure for the integration of replacements into the armored division is reproduced below. It is hoped that anyone experienced along this line will forward suggestions and recommendations for improvement to the author at The Armored School.

1. The procedure provided herein will govern the receipt, processing, and assignment of replacements.

2. G-1 will prepare the replacement plan, coordinate replacement activities, and keep the division commander informed of the replacement situation. The G-1 will further recommend to the chief of staff, after consultation with the G-3, allocations of replacements to units, inform the adjutant general of the approved allocation, and coordinate with G-4 for necessary transportation, rations, and equipment.

3. G-2 will screen replacements for sensitive positions, ascertain qualifications of possible linguists, and coordinate with G-3 on intelligence and security training.

4. G-3 will prepare the replacement training program to be conducted in the replacement company, perform normal supervision of training, and keep the division commander informed of the results of the training program.

5. G-4 will provide the necessary transportation, supplies and equipment for replacements.

6. The adjutant general will:

a. Furnish liaison between the division and the forward replacement battalion.

b. Ascertain when replacements and casuals are ready for shipment to the division.

c. Alert the company to receive replacements.

d. Organize a team to operate under the supervision of the classification and assignment officer for the administrative processing of replacements and casuals. This team will be composed of members of the adjutant general's section, the replacement company, and selected individuals of the unit personnel section. It will normally operate in the division replacement company. The adjutant general will regulate the strength of this team to meet the requirements of the situation. The team will receive the records, orders, and allied papers of replacements and casuals, make the appropriate breakdown according to unit requisitions after consulting with G-1 for allocations, and issue orders assigning replacements to units. It will extract and pass on to the replacement company commander such pertinent information from individual records as may indicate training deficiencies.

e. Cause proper distribution to be made of orders, individual records, and allied papers.

f. Issue orders assigning hospital returnees to their former units.

7. The division trains commander will direct and supervise the training of replacements, under the program prescribed by G-3; provide security, control movement, and supervise normal housekeeping and administrative duties of the replacement company.

8. Units of the division will furnish, as directed, combat experienced officers and enlisted personnel to assist in the conduct of the training program.

9. The chaplain, special service officer, finance officer, troop information officer, staff judge advocate, postal officer, and surgeon will provide appropriate facilities and services for replacements and casuals.

10. The division replacement company will:

a. Provide normal housekeeping and administration.

b. Prepare schedules and conduct the training program, under the control of the trains commander.

c. Assist the adjutant general in the administrative processing of replacements and casuals.

d. In coordination with the trains commander, request transportation through G-1 when replacements and casuals are ready for shipment from the replacement battalion to the division replacement company.

e. Furnish guides for shipment of replacements and casuals to the division from the replacement battalion.

f. Provide personal affairs services to replacements.

g. Prepare locator and change of address cards for replacements and casuals.

h. Accomplish payment of replacements and casuals when necessary.

i. Act as a check point for individuals leaving the division, or returning to the division from pass, leave, redeployment, rotation, separation, temporary duty, or detached service.

j. Contact units when replacements and casuals are ready for delivery.

11. Units will furnish transportation and guides to move replacements and casuals from the replacement company to the unit. Class I supply vehicles will be utilized.

12. All replacements, hospital returnees, and other casuals will be received and processed through the replacement company.

13. Immediately upon arrival in the replacement company, an officer will orient the incoming troops with regard to the following:

a. Initial processing activities.

b. Location of administrative and recreational facilities.

c. Local security requirements.

14. Hot meals and billets will be provided without delay.

15. Divisional insignia will be issued depending on security.

16. Hospital returnees and other casuals will be billeted, administered, and maintained separately from replacements.

17. As soon as possible after arrival in the replacement company, replacements will be addressed by the division commander. They will be oriented, consistent with security, on the situation and mission of the division. Every effort will be exerted to capitalize on this opportunity to instill in the replacement esprit de corps and to promote morale.

18. Replacements will be retained in the replacement company a minimum of three days for processing, orientation, and training.

19. Hospital returnees and other casuals will be processed to insure that records are complete and current and that clothing and equipment are complete and serviceable before being returned to their former units.

20. Deficiencies of clothing, equipment, and weapons will be determined and corrected.

21. Records will be checked, verified, and brought up-to-date during the training period.

22. Training of replacements and any necessary training of hospital returnees will be conducted by experienced combat personnel. Emphasis will be placed on living in the field, weapons, and combat instruction appropriate to the immediate tactical situation confronting the division.

23. Insofar as possible personnel assigned to a particular unit will be assigned and trained together. Consideration will be given to assigning friends to the same unit.

24. Whenever possible, arrangements will be made for the replacement battalion to issue orders assigning replacements and casuals directly to units of the division. Where this is not possible assignments will be made to the division, the division in turn will issue orders for unit assignments.

25. Forwarding of replacements and casuals to units will be closely coordinated with unit commanders. Insofar as practical, replacements will be integrated into units at a time when these units are in a reserve or a comparable status.

26. Replacements must not be rushed into battle. Battalion commanders will ensure that training and orientation are continued to the maximum extent consistent with the situation. Every effort will be made to instill into the replacement the feeling that he is a member of the unit.

27. Hospital returnees and other casuals returning to the division will be immediately assigned and promptly forwarded to their former units after the required administrative processing is completed.

History and tradition are the continuity of military life. They supply the framework for the building of esprit, for the creation of the qualities which lend distinction to an organizaton and to its members. Properly fostered, here is a medium by which the recruit dons the mantle of achievement of his predecessors, and with this inspiration, goes on to greater service.

This continuity is often disrupted by virtue of the lack of foresight on the part of successive administrations of a unit in assembling and preserving valuable historical items; by inactivation of units; and by various reorganizations of units.

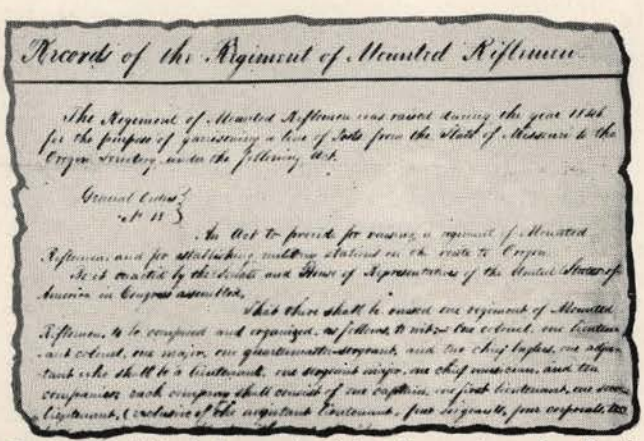
The 3d Cavalry is a prime example of the many angles entering into this picture. It has age. It has a grand history. It has cultivated tradition. It has undergone periodic reorganization. The foresight of successive commanders finds it today with treasured archives, and with a continuity maintained despite much change.

ONE HUNDRED AND FIVE YEARS ago, Congress passed an act authorizing the formation of a regiment of Mounted Riflemen, for the purpose of opening and protecting a route to the Pacific Northwest, from the State of Missouri to the Oregon Territory. A copy of the original of that act is among the most jealously guarded archives of that regiment today, at its present headquarters at Fort George G. Meade, Maryland. The regiment is the 3d Armored Cavalry Regiment (Light).

There have been changes of name, changes in organization of this regiment through the years. The story of development has its significance for all military units and for all military personnel. It is more than the story of one outfit, for it has a close relation to history and tradition as we know them in the military today—the sources from which spring much of the continuity of military life—and to unit effectiveness, so much the outgrowth of these factors. The *esprit* of the regiment today comes to life with the telling of its history.

That mission on the frontier, for which the regiment was formed, was interrupted, before it could get under way, by the war with Mexico. As the outfit prepared to depart New Orleans for the battle area, it was presented with a battle standard by the ladies of that city, which it carried through all the engagements of the Mexican War. This standard, one of the first of many cherished possessions to document the history of the organization, today hangs in the office of the commanding officer of the regiment. A well-worn volume of historical record contains the letters involved in the presentation.

During the war against Mexico, General Winfield Scott committed the regiment to action, where it distinguished itself from the very first engagement. The annals are replete with examples of gallantry such as that of June 20, 1847, when thirty riflemen of the regiment defeated five hundred Mexicans: and the earlier action on the 18th of



Record of the Regiment of Mounted Riflemen

The Regiment of Mounted Riflemen was raised during the year 1846 for the purpose of garrisoning a line of Forts from the State of Missouri to the Oregon Territory, as in the following Act.

General Orders
No 15

An Act to provide for raising a regiment of Mounted Riflemen and for establishing military Stations on the route to Oregon

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

That there shall be raised one regiment of Mounted Riflemen, to be composed and organized as follows, to wit: one colonel, one lieutenant colonel, one major, one quartermaster sergeant, one sergeant major, one chief bugler, one regimental sergeant who shall be a Quartermaster, one sergeant major, one chief musician, and ten companies, each company shall consist of one captain, one first lieutenant, one second Lieutenant, (exclusive of the regimental Lieutenants), four Sergeants, four corporals, two

Copy of original Act authorizing formation of a Regiment of Mounted Rifles.

Preparing to depart New Orleans for the Mexican War, regiment was presented with a battle standard by the ladies of that city.

of

history

tradition

and

Brave Rifles

by COLONEL SAMUEL L. MYERS

April of the same year when the regiment stormed the Fort of Cerro Gordo—Gibraltar of Mexico.

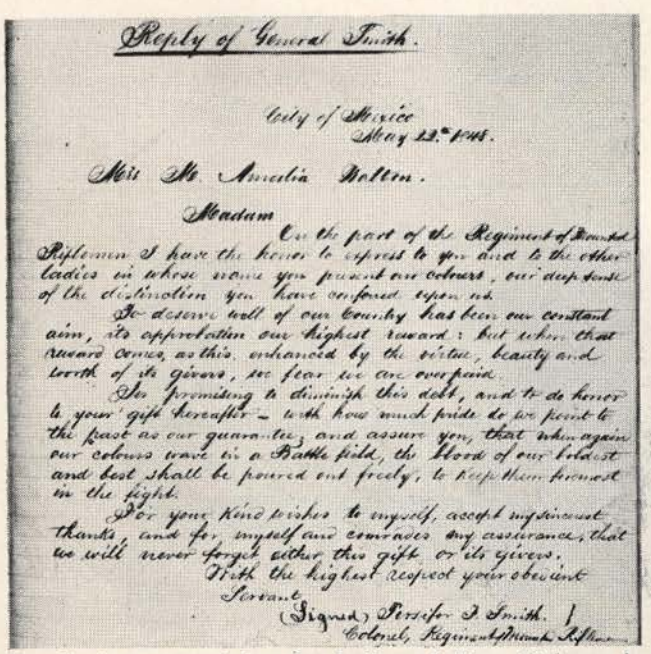
The spirit of this new regiment was better demonstrated in the storming of Chapultepec, a stone castle which guarded the approach to Mexico City. Second Lieutenant Jeb Stuart was a member of the storming party which carried the flag through the bloody battle and which later planted this flag on the heights of Chapultepec.

Later the same day this flag was placed over the National Palace of Mexico and another cavalryman displayed the regimental standard from the balcony. General Scott riding by, took off his hat and, bowing low, said, "Brave Rifle Veterans, you have been baptized in fire and blood and come out steel." These words are now the motto of the 3d Cavalry and are emblazoned on the regimental coat of arms.

On August 31, 1861 Congress reorganized the U. S. Cavalry and the regiment of mounted riflemen became the 3d Cavalry. With the outbreak of the Civil War the regiment suffered what was in many respects the saddest experience of its history, when a large number of the well-known officers of the regiment felt impelled to join the Southern cause. The officers who left were Loring, Crittenden, Lindsay, Walker, Claiborne, Maury, Baker, W. H. Jackson, Joe Wheeler and McNeil. Many of these names became famous on the Southern side.

During 1861 and 1862 the regiment earned more battle streamers fighting Indians in the southwest and battling against Confederate forces from Texas. In 1863 the unit moved north to Tennessee and led the advance of General Sherman's army, thus adding four more battle streamers

An interesting anecdote of these days has to do with a trumpet now in the Regimental trophy case. Back in 1861 the ladies of Washington presented the Regiment with an engraved, silver-mounted trumpet. It disappeared almost



Reply of General Smith.

City of Mexico
May 22nd 1848.

Mrs Mr Amelia Mollen.

Madam

On the part of the Regiment of Mounted Riflemen I have the honor to express to you and to the other ladies in whose name you present our colours, our deep sense of the distinction you have conferred upon us.

To deserve well of our Country has been our constant aim, its approbation our highest reward: but when that reward comes, as this, enhanced by the virtue, beauty and worth of its givers, we fear we are overpaid.

In promising to diminish this debt, and to do honor to your gift hereafter — with how much pride do we point to the past as our guarantee, and assure you, that when again our colours wave in a Battle field, the Blood of our boldest and best shall be poured out freely, to keep them foremost in the fight.

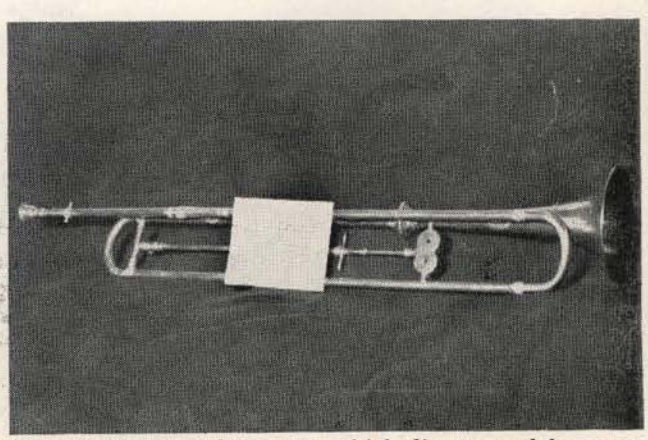
For your kind wishes to myself, accept my sincere thanks, and for, myself and comrades my assurance, that we will never forget either this gift or its givers.

With the highest respect your obedient Servant

(Signed) Persifor F. Smith.
Colonel, Regiment Mounted Rifles

Standard presented by the ladies of New Orleans in 1848 hangs in regimental headquarters today. Above is letter of thanks of Colonel Smith.

Photos by Plummer.



Trumpet presented in 1861, which disappeared for years, came back through General Eisenhower.

immediately thereafter. Eighty-seven years later it finally came home—a gift from General Eisenhower.

How it got in his hands is quite a story. A few years ago, Colonel Sidney Morgan, while waiting for a bus in London, was approached by the owner of a near-by antique shop. Inside the shop, the proprietor produced the trumpet and asked the Colonel to take it to General Ike. Upon retirement, the General felt that the trumpet should be with the 3d Cavalry, along with its other mementoes, and arrangements were made for its return.

During the period between the end of the Civil War and the Spanish-American War the regiment was actively engaged almost constantly suppressing hostile Indian tribes throughout the west. A station list of the regiment during these years reads like a Cook's Tour of the West, with troops scattered from southern New Mexico to northern Montana and west as far as Nevada. In October 1867, for example, Troop D was engaged with the Mesclaro Indians, in the vicinity of the Guadalupe Mountains of New Mexico, while Troops A, C, F and G were engaged against the Comanches farther to the north and east. In 1870 the regiment was ordered to Nevada and Arizona for duty against the Apache Indians. In 1871 it participated in no less than eighteen engagements, all of them involving long, hard rides and entailing great hardship for the men. In the winter of 1871-1872 the regiment was transferred by water and rail to Wyoming and western Nebraska. It was in this area for several years during which time it participated in numerous battles around the Big Horn country, the scene of Custer's Last Stand.

In 1882 a series of Indian uprisings took place in Arizona, and, although the regiment had served in Arizona previously while others nearer had not, it was ordered to move there without delay. Travelling by forced marches, in a few days the regiment arrived in Arizona, encountering a change of climate that left the men gasping for breath. The hostile Indians had crossed into Mexico and had taken refuge in the Sierra Madre range, but had left behind a great band of disturbed Apaches which the regiment immediately engaged and which resulted in its fiercest battle on Arizona soil, on 17 July 1882.

The regiment remained on duty in Arizona until 1885 when it was ordered to move to Texas, where it took up stations along the border and participated in the usual garrison duties until 1891. At this time marauding bands of Mexicans started crossing the river and for several years the regiment was engaged in preventive action against violators of our neutrality laws. From 1892 various segments moved to and participated in activities at Fort Riley, Kansas; Chicago, Illinois; Jefferson Barracks, Missouri; Nashville, Tennessee; Fort Ethan Allen, Vermont; Washington, D. C. and numerous smaller localities throughout the country.

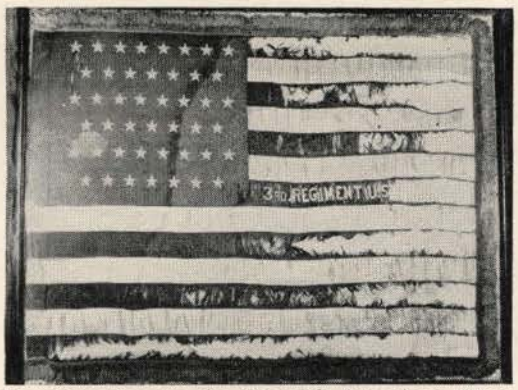
The outbreak of the Spanish-American War found the regiment immediately ordered to a concentration area near Tampa, Florida. [It was while the 3d was at Tampa that Frederic Remington first sketched Sergeant Lannon, of the 3d, later presenting the CAVALRY JOURNAL with the finished sketch which became familiar as "Old Bill."—Ed.] On the 14th of June 1898 the regiment, together with other troops of an expedition, sailed from Tampa and landed on 24 June on the Island of Cuba. It was actively engaged in numerous battles in Cuba, outstanding of which was the Battle of San Juan Hill on which it enjoyed the outstanding honor of being the first to place the American flag at the point of victory. This flag is another of the jealously guarded trophies of war which now hang in the office of the Commanding Officer.

Upon return from Cuba the regiment sailed immediately to the Philippine Islands and was engaged in fourteen minor skirmishes with hostile natives even before the insurrection started. It remained in the Philippines, being stationed at various points throughout the Island of Luzon where it participated actively against the insurrectionists, until its return to the United States in 1902. Another battle streamer was added to the standard for participation in these engagements. Upon return to the States the regiment was scattered throughout five states of the west, namely, Montana, Wyoming, Arizona, North Dakota and Idaho.

From this time until World War I numerous changes in status of the regiment took place. In 1905 it moved back to the Philippine Islands. In 1908 it returned home, being stationed along the border of Texas at Fort Clark and Fort Sam Houston. In 1911 and 1912 it participated in active border patrol against Mexican rebels and ammunition smugglers. During 1913, 1914 and 1915 it participated in active border patrol with numerous small skir-

Colonel Samuel L. Myers, author of this article is present C.O. of the 3d.

3d is rich in battle streamers. Valuable "rogues gallery" of past commanders includes such distinguished soldiers as Wainwright, Patton, Henry.



Participating in the Spanish-American War, 3d was first to plant the flag at the point of victory on San Juan Hill.

Today the 3d is one of the main striking elements of our mobile ground forces. A great past is carried on.

mishes with bandits who had escaped across the river. In 1916 it crossed into Mexico, in part, in pursuit of these bandits.

In 1917 the regiment embarked for duty in France during World War I where it had the rather prosaic mission of running remount depots for the American Army fighting in France. It returned to the United States on June 30, 1919 where it took up station at Fort Myer, Virginia with the 1st Squadron at Fort Ethan Allen, Vermont, stations which soon came to be assumed as the permanent homes of the regiment.

The years between World War I and World War II were marked by almost continual participation in parades, escorts and other ceremonial functions around the nation's capital. During these years the regiment was commanded by such outstanding soldiers as Skinny Wainwright, George Patton, Guy Henry, Hamilton Hawkins and William Rivers, all of whom later became famous in their own right. The regiment became famous for its participation in horse shows and in polo tournaments and became one of the choice assignments of the Army.

During World War II, the 3d Cavalry was committed as a group consisting of Group Headquarters, the 3d Cavalry Squadron Mechanized and the 43d Reconnaissance Squadron Mechanized, to action with the XX Corps, a part of the famous Third Army. On 10 August 1944 after landing in northern France the group was given the urgent and vital mission of area reconnaissance from Vitre and Angers, 75 miles east of Blois. In three short days and nights, faith in the group was justified and the action pointed the way for the infantry's determined wedge driven by the XX Corps between the 15th and 17th German Armies. Wheeling northeast the speed and aggressive thrust carried the group to Chartres, where a sudden turn to the east lanced deep through and behind enemy lines to reach the Seine River.

First to reach the Meuse, first on the Moselle and the first Americans to enter Thionville, the men of the 3d gave the enemy a bad time. In the reduction of Metz their efforts contributed as much as any single unit in the elimination of "the last barrier that stood like a shield to our entry into Germany." 3d Cavalrymen were the first XX Corps troops to enter Germany.

Next came the development of the Siegfried Line and the pursuit throughout the Palatinate, a 150-mile dash in three days from the Rhine to the Fulda which permitted an entire infantry division to move forward motorized, without detrucking. This move marked one of the most important and significant tactical achievements of the war. In the final days of combat the group served as a special combat team for the Corps Commander and carried out missions with "All the dash and daring of Stuart's famous raiders themselves." With final victory in sight this now famous task force marched through Austria to contact the Russians on the Steyr.

At the war's end the 3d Cavalry, like its predecessors at Chapultepec nearly one hundred years before, received the praise of the Commanding General, George S. Patton, Jr. "The 3d Cavalry has lived up to the accolade bestowed upon it at Chapultepec by General Scott. As horse cavalrymen you were outstanding. I have never seen a better regiment. To your performance as mechanized cavalrymen the same remarks apply. It is a distinct honor to have commanded an Army in which the 3d Cavalry has served."

Upon return from overseas the 3d Cavalry Group was inactivated in December 1945 and reactivated at Fort Meade, Maryland, in March 1946. The 3d Squadron returned from overseas to Meade via Fort Bragg and Fort Jackson. The 43d Squadron returned to Camp Bowie, Texas, and thence to Fort Meade. Shortly thereafter the 43d Squadron was reduced to zero strength and replaced by the 35th Squadron. On 6 November 1948 the 3d Armored Cavalry Regiment (L) came into being to take its place as one of the principal armored units of the Army today. The 35th Squadron became the 3d Battalion. The 3d Squadron became the 1st Battalion and the 2d Battalion was created by being cadred from the 1st Battalion and filled with replacements.

To the building of such a rich history and tradition by the unit may be added a word of praise for the foresightedness of successive commanders through the years in assembling and preserving such valuable documentation as that which exists today supporting the highlights of the regiment's service. The standards, the streamers, the letters, the carefully preserved volumes and uniforms, serve to bring to life the words which spell out a great past—words which provide the inspiration for the present and the future.

IS A WORD TO THE WIVES SUFFICIENT?

Dear Army Wife:

It may seem a little strange that we address ourselves to you, but we have a business problem, and it ought to be proper to put it to the business member of the family. Here's what it amounts to. See if we've called the turn.

As we divine it, every few weeks the old man looks at you across the breakfast table and says, "Darling, there are three new books just out, by Generals Clay, Smith and Howley. While you're downtown today pick me up a copy of each of them."

Now, all this is very fine. The old man is on the ball. He's keeping up with the military literature. He'll be that much ahead of those who don't. But there's something wrong!

With no trouble at all the words could have been, "Darling, there are three new books out, by Generals Clay, Smith and Howley. Order them for me from the Association. There's an order form on the last page of the JOURNAL."

As an Army Wife you're pretty well surrounded with things military. You probably read the magazine as avidly as your husband, and have seen the Book Section. You know it's designed for military personnel, to keep them up on the latest and best reading material. Perhaps you never gave the order end much thought.

You'll find early notice of all military books in these pages. There's a convenient order form for your use. If you order these three books, take a 10% discount when you make out the check. The books will reach you promptly, postage prepaid. If you want to tack on to that order a late fiction item for yourself, it's no extra trouble.

Your order will have still greater result. The Association, in ordering books from publishers, receives a small publisher discount. The only other income we have over and above subscriptions, this Book Department profit is put right back into the publication of the magazine. So you see, by buying your books for all the family through the Association, you're helping Association members and readers get a better JOURNAL.

Many of our member-subscribers read $50, $75, $100 worth of books per year. Some faithful members buy all of their books from the Book Department. Many do not. That's why we're going to you, the wives, in asking for consideration. We can supply you with any book for any member of the family. Help us build up that guilty conscience for those members who sit down to read a book that came from some other source. Help us in our efforts to turn out a better magazine.

A BID TO COMPANY LEVEL

There are two key matters that we'd like to match up. They go hand in hand, but the equalization is a pretty difficult thing.

The first item is the undoubtedly valid criticism that The JOURNAL is on too high a level, at least so far as the company grade personnel are concerned. When we speak of company level, we include noncommissioned officers, and the lieutenants and captains, all of whom are on the important working level.

This field is one of our great areas of responsibility, and we try our best to serve it. Those who feel we don't quite make the grade in this respect may be interested in knowing that much of the reason lies right in the company level itself. That brings us to item number two.

We have repeatedly put out editorial calls for material by company grade personnel. The response is light. We need, we want much more. We want to match up the demand with a supply. Our pages are wide open for your use.

This material might be a letter, a brief item, or a full article. We want to get to the core of your service.

In writing, remember that we are governed by security, policy and propriety. You can easily remain within bounds on those three points. You company level people are the ones who voted most strongly to continue your branch magazine. We'll do our best. A lot depends on you.

THE MEMBERSHIP VOTES

As the membership knows, but many of our subscribers do not, a proposition to merge the U. S. Armored Cavalry Association and JOURNAL with the other three ground arms Associations and *Journals* was placed before our membership, in company with a plan to continue in business as always. With a limiting date of 25 February on the return of the ballots, the bulk are in as of this writing. The membership has voted substantially in favor of remaining in operation in our present status. A more complete report will appear in the next issue of the JOURNAL, with the full return in and other matters clarified.

HOW SHOULD YOU USE YOUR ARTILLERY?

1. Your armored artilleryman commanding the artillery supporting a division, combat command, or reinforced battalion is one of your principal staff officers. It does not matter whether your artillery is an organic part of the unit as in the case of the division or whether it is in direct support or attached as in the case of the lower units. The artilleryman should be with the commander on his initial reconnaissance and with him when he issues his orders. He should be constantly planning his fires and their coordination with air support and other means available to the force. He is the fire support coordinator and planner for the force and his liaison officers work with the force operations officer on the over-all fire plan. He is always available to be called on when it is desired to make use of the vast observation and intelligence agencies at the disposal of the artillery.

2. The same doctrines as for towed artillery apply so far as centralized and decentralized command, attachment and the assignment of missions are concerned. Very often two battalions of light SP artillery will be attached to or in direct support of a combat command. One or two AW batteries should be in support of the same force. The plan of employment of the force should be the determining factor in the organization of the artillery for combat. Attachment or direct support is a command decision which must be based on the situation. Command of the division's armored artillery should become centralized in an action at the earliest practicable time, which is usually when communications are complete and supporting ranges are suitable.

3. It should be a prerogative of the combat commander to organize or reorganize his artillery for combat when it is attached. Among suitable organizations when two light battalions are available to support a single combat command are the following:

a. *Exploitation or Pursuit along Two Main Routes.* A battalion group is formed with one FA battalion in direct support of each of two subordinate forces. One automatic weapons battery or platoon is attached to each battalion of FA with specific missions assigned in accordance with priorities established by the combat command commander.

b. *Limited Objective Attack with One or Two Task Forces Leading.* One battalion of FA is placed in D/S of the combat command. An additional light FA battalion is assigned the mission of reinforcing the D/S battalion. AA automatic weapons are assigned specific missions of protecting elements of the combat commands in the priority established by division commander.

c. *Combat Command Part of a Covering or Blocking Force on a Very Broad Front.* (Example: Desert operations or flank of a deep enemy penetration.) Two battalions of FA and two batteries of antiaircraft AW are attached to combat command. One battalion of FA and one battery of AW may be further attached to each of two task forces. Batteries within FA battalions may be dispersed to support road blocks or strong points in such situations. AW batteries are given missions of protecting elements of task force in priority established by task force commander.

4. There are 31 companies of infantry and tanks in the armored division. There are 29 forward observers provided in the latest T/O & E's for all four organic field artillery battalions. These should be kept parceled out to all except the three heavy tank companies. This should be in accord with the "normal partner" and direct support assignments to combat commands. So far as possible one forward observer party should be kept with each company at all times. Liaison officers should be similarly placed with all combat command, infantry and tank battalion headquarters. The method with which this is done should be provided in the division artillery standing operating procedure.

5. The use of heavy SP guns for direct or direct-indirect (full defilade but adjacent axial observation) fire missions against fortifications and buildings should be considered normal. A 155mm gun battery may be attached to a combat command when such action is contemplated.

6. Light armored artillery battalions should be attached to advanced covering forces and general outposts. The armored cavalry regiment (light) can be used for this mission when suitably reinforced with corps or divisional tanks and light armored artillery together with other attachments. The force then constitutes a small armored division. Cavalry groups reinforced in this manner did much effective fighting in the European Theater in 1944 and 1945.

7. The field artillery of a force is its main base of fire. This fire can be maneuvered in any manner that the supported arms desire. It should be closely coordinated with available air and naval gunfire support. It can neutralize or destroy any targets that it can locate unless they are under considerable cover. When only neutralization can be attained the fire should be lifted at the last possible moment upon request of the assault force commander.

Dear Armored Cavalry Journal Editor:

At the time the following events took place the 3rd Armored Division was engaged in a good fast pursuit of a demoralized enemy. The period covered was from the crossing of the Seine on 26 August 1944 until 9 September 1944 when the enemy covering forces in front of the Siegfried Line were driven in and the order for the first successful penetration of this formidable defensive position was issued. During this time innumerable small battles were fought, tons of German equipment were demolished, thousands of the enemy were killed and many other thousands were taken prisoner.

Throughout these 15 days my artillery units supported Combat Command A. They were composed of my own battalion, the 67th Armored Field Artillery Battalion; the 54th Armored Field Artillery Battalion; Battery C, 486th AAA AW Battalion; and Battery B, 486th AAA AW Battalion. The entire organization was called the 67th Armored Field Artillery Battalion Group.

Our division commander at this time was Maurice Rose, later killed in action near PADERBORN, Germany, when the encirclement of the RUHR was almost completed. Combat Command A was commanded by Doyle Hickey who later succeeded General Rose as division commander.

This should satisfy your request for an article about "armored artillery in the attack" and in "full support of the tanks and armored infantry" occasionally getting into a "front-line role." The quotes are from your letter.

Very truly yours,

/s/ LIEUTENANT COLONEL EDWARD S. BERRY.

From the SEINE to the SIEGFRIED LINE

26 August 1944

At 0730 this morning Combat Command A began crossing the Seine NW of MELUN. We occupied the vicinity of VERT ST DENIS as our first objective. Our own 23rd Engineers put in CCA's ponton bridge. It was 540 feet long. Very little artillery fire was required in CCA's bridgehead during the crossing although we had the 67th, 54th and 991st (self propelled 155mm guns) available. The crossing of the 7th Armored Division at MELUN was still being contested and this took off most of the enemy pressure in our zone. Light contact with enemy forces was maintained by our reconnaissance.

Movement toward the Marne began at 1500. No battle maps of this area are available. We have only six 1 to 100,000 maps. We made a number of indexed route sketches for our forward observers to use in initiating observed fires. I delivered these personally to each 67th FA observer just as the main column got under way. Our route is planned as GUIGNES, CHAUMES EN BRIE, ORMEAUX, MAUPERTHUIS, COULOMMIERS, and LA FERTE SOUS JOUARRE where we will cross the Marne. Our missions during the day were on road blocks containing antitank weapons and on fleeting enemy columns.

The sharpest action of the day was at a crossroads five miles northeast of CHAUMES EN BRIE. Lt. Howard Blue, a forward observer, was a main cylinder in this action. He seemed to have a charmed life and moved on foot around the tank units, oblivious to enemy fire. He wound up the day by driving his peep across the newly opened side road to the north with no other support to determine the progress of CCR on our left, incidentally picking up some new targets. We fired a number of missions during the fight. All units have coordinated defenses for the night. Defensive fires were adjusted in by our forward observers just at dusk.

27 August 1944

We were on the move at daylight this morning. This combat command ordinarily advances in two columns. General Hickey uses two task forces on parallel roads

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within mutually supporting artillery range whenever possible. This allows us to mass at least two light artillery battalions in front of either force. Our self propelled heavies are also available. The division artillery commander, Colonel Brown, is marching them in the rear of our column. They are in general support. Fighting for crossroads and bridges was continuous all day for both forces. At COULOMMIERS we fired a short, snappy preparation followed by an attack by tanks and dismounted infantry. They captured a bridge over the Grand Morin River intact and again we moved forward.

At LA FERTE SOUS JOUARRE our force seized a bridge over the Marne. The enemy seems to be completely disorganized. Our casualties have been light. This is a key point on the Marne and is also its junction with the Little Morin River. General Hickey chose a high ridge above the city on the north bank as a suitable terrain feature to hold for the night. This objective overlooks the valley of the Marne and some country to the north and east. All elements of the combat command and the 67th, 54th and 991st FA Battalions are in positions here with tree and building defilade in and about the villages of LE LIMON and FAVIERES. We are in a powerful all around defensive leaguer. We are finding the 991st an important partner for the 67th Group whenever suitable missions can be found for it. It would be unthinkable to allow it to occupy separate position areas in our rear outside of our mutual defensive ring at night. I am having my executive officer, Major Trammell, block all roads and avenues of approach on our flanks with any suitable fire units that come to hand. The attached antiaircraft weapons are most popular for this mission and are usually the most available. Either a quad fifty or an M-15 combination 37 is excellent at this type of duty and can usually fulfill its AA role at the same time. A few tank destroyers and light tanks are usually available from the task force and our own towed 57mm guns using sabot ammunition are of some value. The M-7s are used on road blocks only when nothing else is available since their fire power is of greater value in a field artillery role.

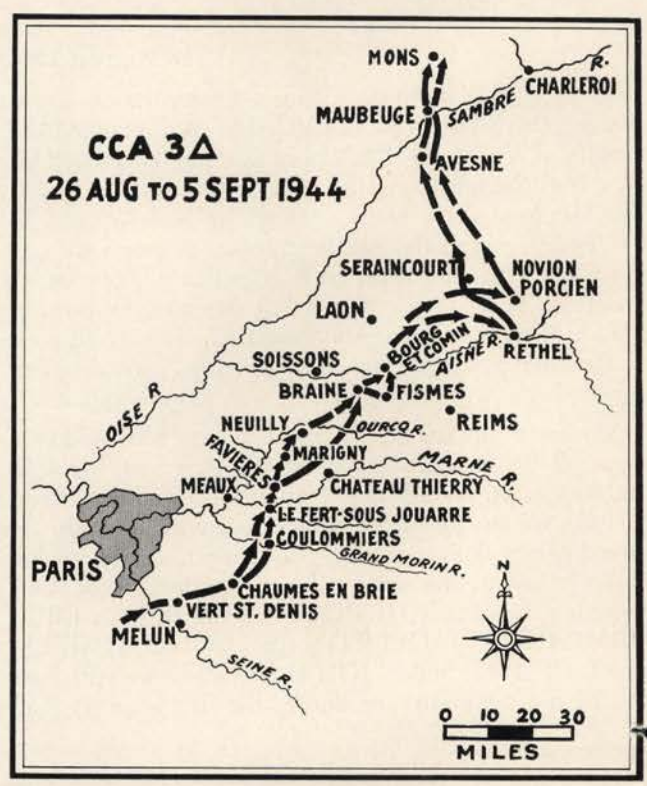
Our lines of communication are being kept open in the daytime by our own supply vehicles and the following 1st and 9th Infantry Divisions which are mopping up in our rear. A number of 1-50,000 maps came up during the day so our route sketches for forward observers are no longer needed. Our index points along all routes are coordinated throughout the combat command. Phase lines also are used but these are prescribed by the division.

28 August 1944

This morning we ran into trouble as soon as Lt. Col. Blanchard's Task Force began to move. Enemy antitank guns and automatic weapons were holding the junction CCA needed to start Col. Doan's force on a separate route on the left. The 67th was moving out of position just as the first fire mission came in so the 54th was employed by our leading forward observer in searching for the concealed and deadly pak guns that had already scored on our leading tanks. Captain Stewart Meyer (A Battery, 67th commander) was doing liaison duty with Col. Blanchard at the point. He was given a battery of 155mm guns (991st FA) to adjust. These projectiles barely cleared the trees concealing our leading elements. They sounded like express trains going by. Several enemy weapons were destroyed and the remnants of the force surrendered or withdrew. In the meantime Task Force Doan had dozed out a new road bypassing the critical junction and had moved tanks and infantry-carrying halftracks across country on our left. Both forces got under way immediately. We saw Chateau Thierry from Blanchard's route but had no orders to capture it. It is in the valley of the Marne and has no military significance for us in this war.

Towns along our routes were COINCY, LOUPEIGNE, GRAND ROZEY, BRAINE, FISMES, LONGUEVAL and BOURG ET COMIN. The enemy was withdrawing rapidly, many prisoners were taken and many casualties were inflicted. Our losses were relatively light. At BRAINE the routes of our two task forces again came together. Blanchard's force entered the town first near the east end. We captured a few Germans but there was little fighting. Our force headed sharply east toward FISMES. Major Trammell (67th Executive) and Captain De Franco (AW commander) were seeing that all crossroads and the railroad along our route through town were blocked. This immediately paid dividends as Sergeant Hollis Butler's M-15 stopped a German train, blowing up the locomotive with HE shell and raking the train with 50 caliber bullets. A complete panzer company was on the train together with one tank and other vehicles. Twenty-five Germans were killed and about 75 captured, many of whom were wounded.

A second train came in behind the first just after the leading double company of Task Force Doan entered the west end of BRAINE. This train carried four tiger tanks and other panzer equipment. A furious duel ended in destruction of the tigers, the trains and a number of task force vehicles, including two of our tanks. Battery B of



U. S. Army.

3rd Armored troops and artillery moving into Germany.

the 54th FA, commanded by Captain John Watson, took the enemy under fire using HEAT shell at 100 to 200 yards range. It was a short and bloody fight. Lt. Francis Stevens of the 54th and Lt. Leonard Banowetz of the 67th distinguished themselves in this action. Banowetz lost his tank and suffered punctured eardrums due to the concussion. The town was mopped up by Doan while Blanchard's force continued into FISMES, turned north again to LONGUEVAL and headed for BOURG ET COMIN and a coveted bridge over the Aisne. The bridge was taken by our lead tanks and infantry in a burst of gunfire. A German staff car containing four occupants sitting normally upright just as they were shot was blazing in a ditch as I came forward to locate our positions for the night. The new bridgehead extended to a depth of about 1500 yards up a valley with high hills on both sides. I took what ground and tree cover I could find and prayed that the heights were unoccupied. Our flank units sent radio equipped patrols out on foot to make sure. I was soon able to notify Blanchard that I had roadblocked both sides of the bridge and the village in his rear with AW units, 57's and a troop of armored cavalry that came wandering into our perimeter after dark wanting to tie in with us. Our observers registered and shot in two defensive concentrations. It has been an exciting day. I have not heard from Julian Moore, the 54th commander, supporting Doan, but my reports indicate that they are trying to get another bridge to the west at PONT D'ARCY.

29 August 1944

At 0200 my observers called for our prearranged defensive fires. Enemy tanks and infantry were bearing down rapidly on our forward elements and Blanchard let them get in close before he opened fire. Even the panzer Mark IVs had us badly outgunned and it was safer to shoot it out with them at close quarters. Four or five enemy tanks and a number of personnel carriers were burned out in the fight and the rest withdrew. Our artillery fire and the crossfire of our leading tanks on the partially deployed enemy was decisive. Our own losses were small in comparison. Several enemy vehicles wandered into our roadblocks near the bridge during the night and were destroyed. Our cavalry friends lost one vehicle and part of its crew. Shortly after dawn we were joined by the remainder of CCA and proceeded to capture MOULINS and PAISSY and enlarge the bridgehead. I put in all the artillery near MOULINS. The 991st was put in to cover LAON for an assault by CCB but its range was extreme. Colonel Brown, the Division Artillery Commander, directed them to displace to a position to the east. They unhappily complied and we were reluctant to see them go although we had no pressing need for them at the moment. It was reported that CCB had captured SOISSONS.

Our 67th FA Battalion surgeon, Jerry Morin, had stayed behind to repair the damage at BRAINE where a large number of wounded Germans and a few Americans were treated by him. At the completion of this mission he loaded his halftracks with captured German pistols and several cases of French liquors and other booty recovered from the Germans. He then departed hurriedly to catch the battalion. His plan was excellent but his execution was faulty and he found himself on a side road leading down to a light bridge over the Aisne. His crossing was unopposed and he was received by the mayor of CHAVONNE as the first American liberator. By this time it was dark and it seemed senseless to go on. Jerry agreed that the FFI could outpost the town and he retired for the night. Next morning he collected his retinue and 14 German prisoners, who had requested to be escorted to our lines, and recrossed the Aisne. Here he joined Doan's force and came on up with them.

30 August 1944

The afternoon of the 29th and part of today was devoted to maintenance. At 1740 a displacement was begun by way of CRAVUNE and CORBENY to JUVINCOURT. CCA directed its MP Lieutenant Arthur Rutshaw to mark one of the task force routes forward, but failed to tell him to travel behind combat troops. Lt. Rutshaw faithfully performed this duty although he was surprised by the remark of one French woman who said: "You're the first American I've seen in ten years." We are now in our new positions awaiting orders for our next objective. Will it be Sedan?

31 August 1944

Our orders were received during the night and movement toward AMIFONTAINE and NEUFCHATEL started early this morning. A thin crust of resistance had built up during our halt. This required several fire missions before our rear batteries were moved out of position.

It is normal in pursuit to put an "advanced guard" battery behind the first double company in each column of a combat command. The last battery of a battalion need not be moved until trains, all headquarters, reserve units and attachments of all kinds have passed by. However, if the range is extreme the lead battery may be emplaced and another battery sent forward to replace it at the first halt by doubling the column. Orders for movement are given by radio by the battalion commander or his S-3.

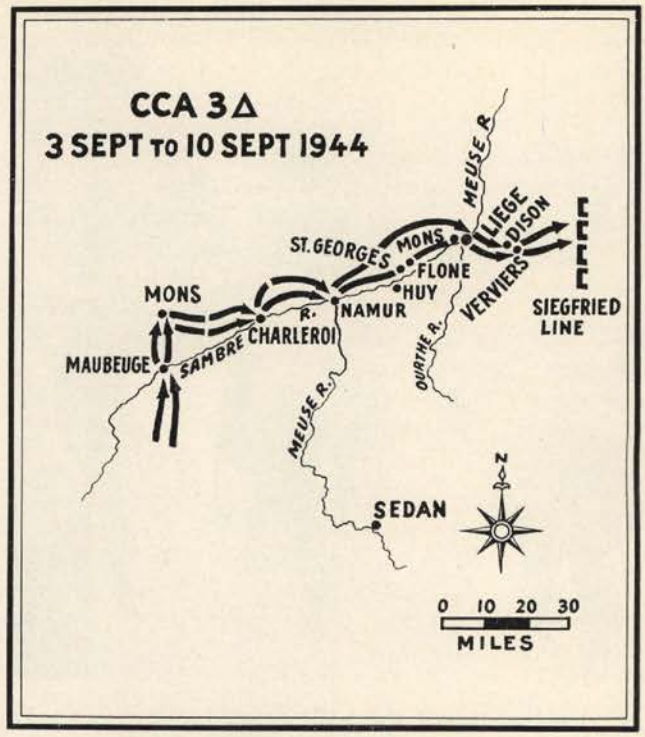
The artillery commanders keep in close touch with the supported task force commanders and perform reconnaissance while in movement. Brevity codes and slidex secret code facilitate the radio transmissions. Most important of all in coordinating support and movement is the indexing of terrain features on the map along the routes of march prior to each day's advance. These numbered and lettered locations serve as coordinating points for the force as a whole and are most useful in initiating artillery fire missions. Anyone knowing these locations can call for observed artillery fire based on estimated distances and directions from them. Terrain indexing makes long messages and the transmission of coordinates unnecessary.

The history of today's action should mark a new milestone in the record of maneuvering large units on the battlefield. The combat command took AMIFONTAINE, NEUFCHATEL, SUR AISNE, NOVION PORCIEN, and RETHEL in a series of small actions in which a great deal of German equipment was overrun and destroyed. Our batteries were firing and displacing continually all during the morning. Our losses were larger than on previous days and included tanks, armored cars, and other vehicles. A number of 88's were encountered and destroyed.

I was with Blanchard during the attack on RETHEL but could clearly see Doan's force on our left fighting strong enemy units on the outskirts of NOVION PORCIEN. Observation was excellent all morning and both the 54th and 67th ground and air observers were systematically engaging enemy formations with observed fire. My own vehicle is equipped as a rolling OP. It carries a remote control for the radio and two receivers as well as the finest field artillery optical instrument in the world, a captured German 10 power commander's binocular scope made by HENSOLDT. I can usually participate in the attack of enemy targets in this type of action and help control the artillery from any observation post that overlooks the area.

At 1300 we were ordered to break off the engagement and prepare to advance north into Belgium to capture MONS. One and one-half hours later new combat command orders were issued and the division was advancing on a 90-degree change in direction almost due north in five columns. CCA remained on the right but our right force commanded by Blanchard crossed the route of Doan's force in his rear and became the left prong of General Hickey's force. A redistribution of maps to all observers and a new set of index and check points for CCA leading toward MONS was the artillery group's chief function in the change of plan. Radio and messengers transmitted all the necessary orders for the entire division.

The attack to the north encountered resistance almost immediately. Blanchard's new route led us through ROZOY and ARCHON. We are stopped at CUIRY LES IVIERS. Doan's force has halted on our right at BRUNEHAMEL. The 67th and 54th have exchanged defensive fires. We are in close contact with mobile enemy forces. They have blown the bridges over a fair sized stream in our front. Our engineers are repairing the span under close-in protective artillery fire. Enemy infantry weapons are causing us trouble at the bridge



site but they lack supporting artillery. It promises to be an all-night battle.

1 September 1944

This morning we renewed the attack across our newly completed bridge at 0700. Enemy fire had not been quieted at the bridge site until 0245 but the span was ready on time. Forward observers Van Fleet and McClure spent a sleepless night and twice pulled in defensive fires within 75 yards of our outposts.

By 0945 Blanchard had taken LANDOUZY and Doan on the right had occupied CHENE BOURDONNE. These towns had been designated as our objectives for the day. Some of our forces were on exposed forward slopes. Enemy artillery soon opened fire on these positions which were poorly concealed. The enemy supporting weapons were soon located generally by both our air and ground observers. We used the 54th and 67th immediately and finally employed the division general support artillery to neutralize this fire. It required a painstaking search by fire of a number of well masked probable position areas to silence the enemy. Enemy rapid fire rocket weapons were among those silenced. General Hickey was slightly wounded in this action but refused medical attention just as I had seen him do once before at VILLERS FOSSARD. He is a tower of strength in tight situations and an inspiration to all who serve under his command.

At 1300 CCA resumed the attack toward MONS. Two routes were chosen. They converge at AVESNES and again near MAUBEUGE. General Hickey clearly understands the advantage of being able to concentrate the fire of all his artillery and tank weapons against places likely to constitute enemy centers of resistance. The attack moved forward rapidly. The light self-propelled batteries in both columns were leapfrogged forward with one or two fire units continually in position. Two armored fire direction centers were employed by each bat-

talion and alternately displaced forward to maintain constant reliable radio communication with all observers. Small groups of enemy tanks, antitank guns, and enemy infantry in armored carriers were encountered all along the routes of advance.

Our flanks are always open in this type of action and it is up to the artillery to block the side roads. I again asked Major Trammell to put in heavy roadblocks on crossroads leading into our west flank since all day our trouble has been from that direction. Our light airplanes are grouped too far to the rear with division artillery today, and it is difficult to keep them forward long enough to keep a continuous watch over our front and flanks.

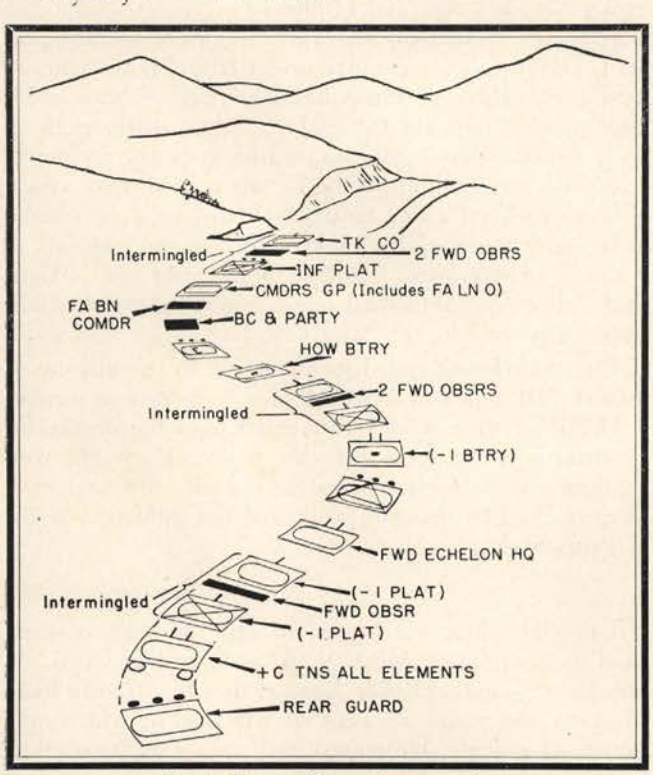
Both forces halted by 2130 and the artillery units exchanged defensive fires. We are just south of AVESNES.

2 September 1944

The assault on AVESNES began at 0700. It is a large town. The enemy fought a sharp delaying action all the way through it. With difficulty two main roads were cleared through a shambles of burning buildings and enemy road blocks. Intense street fighting was followed by enemy artillery fire. The church tower and roof was struck and immediately took fire. This ejected the 54th FA's observers who decided to seek more favorable positions. Our battalion observation posts are constantly pushing forward to assist the forward observers and attain a deeper view into enemy territory. One of Doan's officers thought the observers should have stayed in the tower. I disagree completely.

The city of MAUBEUGE was unoccupied by Germans. Our march through the city was in the nature of a victory parade. The FFI was much in evidence and the streets were crowded with well wishers in high spirits.

The Belgian border was crossed at 1610. A detachment of German infantry in motor vehicles was overtaken and destroyed just over the line.



Task Force Doan in pursuit.

Resistance stiffened immediately as we entered Belgium. Many artillery missions were fired on tanks and self-propelled guns. The Germans are emplacing them sparingly to delay our advance. At every main crossing we are putting in powerful road blocks using our towed 57mm guns and M-15 combination antiaircraft half-tracks. German vehicles are likely to appear at these points at any time. Burning enemy vehicles and a few of our own were left all along both routes used by CCA.

Enemy infantry were encountered throughout the day's advance. More antitank guns were met and destroyed. Numerous reports were received from Belgian civilians that areas to our immediate right and left contained tanks, horse-drawn artillery, and foot troops. It was impossible to search all these locations.

General Hickey put Blanchard's force on MONT ERIBUS just south of MONS. Doan was directed to occupy the slopes of MONT PANISE which covered all exits from MONS to the north and east. CCA's armored patrols mopped up the city and established additional roadblocks. By 2000 the forces of CCB were observed mopping up some villages and suburbs of MONS on the west which completed the occupation of our objective.

We have our artillery battalions and trains tucked in for the night in a tight position that includes the village of CHASSE ROYALE. The roadblocks to the south and east are made up of antiaircraft artillery weapons, our 57's, and a number of tank destroyers. Our supply of ammunition and gasoline is none too large, but our resupply vehicles are with the division trains fully loaded somewhere to the rear.

3 September 1944

All night our roadblocks south of MONS were extremely busy. Enemy staff cars, personnel carriers, and tanks came under fire in an ever increasing stream. Our batteries are now directed toward the south and southwest. Prisoners are being taken at many points on our circumference, often without resistance. Captain Greenhalgh and Corporal Kistner of the 67th took in 23 in a single group. It was pitch dark and they surrendered when challenged by headquarters battery's machine gun positions. Lt. George Wilson led his antiaircraft platoon from Battery B of the 486th in mopping up a woods and bagged 215 more after daylight.

Just as the day dawned Captain Hart, Lt. Banowetz, Captain Meyer, and many other observers placed accurate observed fire on enemy columns cutting across our lines of communication to the south. Horse-drawn artillery and trains, columns of infantry, and enemy armored units were destroyed or dispersed impartially. The lack of our light aviation was still felt. It was cut off far to the rear and we could not communicate with it to order it forward. Captain Meyer is manning a slag pile OP on the south slope of MONT ERIBUS for the 67th. This makes up for part of our aircraft deficiency. He has been firing destructive precision missions all day. One enemy column attempted to escape on a road only 800 yards in our rear. It was destroyed by direct fire by Battery C of the 67th together with our roadblocks and machine guns. The artillery fought as infantry and tanks several times during the day.

At 1145 Colonel Brown radioed us to send an observer

to the division trains. They are three miles to the south and were receiving antitank and small-arms fire. Forward observer Lt. William C. Martin was sent with his tank and two half-tracks on this mission. He found observation, registered, and prepared a defensive fire plan for the trains after proceeding about 5500 meters through enemy infested territory. The trains are now as safe as we are if they are not overrun by German tanks.

4 September 1944

During the night many more prisoners were captured and two more enemy tanks knocked out by our roadblocks. General Hickey had reinforced our outposts considerably with tank destroyers and tanks. Captain Hart and Lt. Banowetz brought in a fine bag of French currency taken from a captured German convoy. It totaled 910,557 francs. With another payroll captured at RANES we have well over a million francs. Unfortunately we must turn it in instead of using it to establish a rest camp for weary artillerymen.

The 18th Field Artillery took over our defensive fires and principal observation posts before noon today. The 1st Division took over CCA's mission at the same time. They are to finish the cleanup of the Germans at MONS while we continue the attack in a new direction.

The division will clear the valley of the Meuse and advance into Germany. This afternoon we took CHARLEROI without serious opposition. We kept all batteries moving on the roads until missions were received, then occupied the nearest available space and began firing. A few German prisoners were taken by all units. There was sniping at WAINAGE, and our men are in a nasty mood after suffering a number of casualties in the rear of the columns. Enemy troops in considerable strength were encountered by Blanchard at LAMBUSART and by Doan at FLEURUS. After sharp fighting both forces halted for the night. NAMUR should be in our bag by this time tomorrow.

5 September 1944

Our light airplanes rejoined us on 4 September. I have issued orders that they will displace with the units and operate from fields to be selected along our routes of advance. They were of great assistance in the fight before FLEURUS, which started at 0700. The attack was successful although Doan lost several tanks and suffered many casualties. The resistance at LAMBUSART folded during the night so I had both battalions of light artillery firing to assist Doan.

Our advance continued. Lt. Martin nailed a roadblock of antitank guns at LES GOLLETES. A pair of 88's caused us much trouble farther along until they could be neutralized. Captain Meyer made short work of a company of bicycle infantry that he pursued with fire. Their dismembered bodies were all along the road. When I passed I noticed several rosy cheeked Belgian mothers and children happily separating the bicycles from the remains of their former owners. More opposition was encountered at JAUMAUX consisting mainly of infantry. They were dispersed or captured.

At 1500 leading elements of both CCA forces contacted an enemy shell of resistance on the hills overlooking NAMUR. Doan was fighting enemy forces in the vicinity of FORT DE SUARLEE and in the BOIS DE MORIVAUX. I was with Blanchard's column and had a 67th air observer (Captain McKee) firing on the enemy's rear and keeping us informed of the situation. The enemy was caught between our two columns. As they emerged from the woods, I ordered C Battery of the 67th to take them under direct fire at 300 yards. We had been under small-arms fire for some time but could not locate the enemy infantry in the edge of the trees. Soon the enemy were subdued, an ammunition or supply dump was set ablaze and the combined task forces completed the cleanup taking many prisoners. NAMUR was easily controlled by the capture of these positions on the surrounding hills. General Hickey quickly put out patrols and outposts around the city. Defensive fires were prepared by the artillery.

6 September 1944

Orders were received about 0635 to prepare to resume the attack and seize LIEGE. The advance was not begun until about 1430. CCB is routed on the south side of the Sambre and Meuse. During our capture of NAMUR they cleaned up the small towns of CHATELET and FOSSE and forced a crossing over the Meuse which joins the Sambre at NAMUR. They are now to proceed along the south bank of the Meuse and assist us in taking LIEGE.

No resistance was encountered until 1745 when an enemy roadblock held up Blanchard's force at BIERWART. It was composed of two antitank guns and infantry and was quickly reduced by artillery fire adjusted by the liaison officer, Lt. Burt Van Fleet. Brigadier General Williston B. Palmer, the corps artillery commander, came up the column just as the action started, and I ordered a second battery into action to shell the BOIS DE BIERWART to the right of our route. Everything was going like clockwork and I followed the general up to the point where Blanchard and Van Fleet were operating on foot, keeping the lead tanks under cover. Both batteries came in on their objectives like 2000 tons of brick and I was proud to have the General see light artillery working as it should. Blanchard advanced his infantry and tanks cautiously in cleaning up the Germans. This was accomplished with only one casualty—Blanchard's own radio peep—which one of his tanks ran over and reduced to a tangle of wreckage. Blanchard's face was red as General Palmer complimented us on a good piece of action and started back to the rear.

Both task forces coiled for the night in the vicinity of LONGPRE at about 2050. All of our air sections were at LAVOIR. I gave the 67th's combat train the mission of protecting the airfield for the night. They are well equipped with machine guns and small arms and have become used to using them under the guidance of Lt. Thomas Stewart.

7 September 1944

Last night there was no action. This morning we occupied the towns of AMPAIN, AMAY, and FLONE. At this point General Hickey directed that Blanchard's force abandon the route adjacent to the Meuse which was becoming a defile. He moved both routes to the north a few miles and we began to breath easier. The nuns at

the convent at FLONE presented some of us with silver medallions.

The two routes converged at ST GEORGES where the retreating enemy forces were picked up by our light aircraft. The missions fired were broken off due to ground haze. LES CANOTTES and ROSART were taken and our forces converged again in the suburban town of MONS northwest of LIEGE. Here both of our columns drew enemy artillery and antitank fire. The enemy guns were located in three different localities on the hills surrounding LIEGE and were taken under fire by our observers. We destroyed twelve 88mm and four 20mm antiaircraft guns in a single flaming mission requiring several hundred rounds of time and ricochet fire. This exhausted all of the ammunition in Battery A of the 67th. While this was going on Battery C of the 67th was caught by devastating fire from a heavy German AA battery located across the Meuse to the south near FORT DE BONCELLES. C Battery withdrew behind defilade, reoccupied position, and Captain Lefler proceeded to silence the fixed enemy battery although he was firing at extreme range. He finished the job by calling in a battery of the 991st FA (heavy). Our casualties were more serious than on previous days.

By nightfall General Hickey had ordered patrols into the northern outskirts of LIEGE and our main force was coiled on the heights overlooking the city. I had five airplanes with the group and landed them on a small field inside our perimeter.

8 September 1944

Today was used in clearing all of LIEGE north of the Meuse and waiting for CCB to clean out the part on the southeast side of the river. CCB forced a bridgehead over the Ourthe River which joins the Meuse at LIEGE and proceeded to mop up. Seven enemy tanks ran into one of Doan's roadblocks but withdrew without attacking. Enemy airplanes were active over LIEGE during the day.

9 September 1944

Early today we were relieved in LIEGE by portions of the remainder of 7th Corps' first team, the 1st and 9th Infantry Divisions. CCA crossed the Meuse on the division engineer's ponton bridge. Again the division fanned out in a number of columns. The new mission was to capture VERVIERS.

The towns of CROUPET, FOND DES GOTTES, SOUMAGNE, STOCKIS, and TRIBOMONT were taken in order by CCA's speeding columns. Casualties were suffered from 88mm and large guns firing from the vicinity of HERVE and WAUCOMONT. We replied with artillery fire but could not locate the enemy with accuracy. Smoke was next employed by our artillery and since some dive bombers were immediately available General Hickey requested them. This saved time and reduced our continuing casualties. The Thunderbolts made short work of the enemy weapons and both Doan's and Blanchard's forces continued toward VERVIERS. One M-7 (105mm SP), most of its crew, and one officer were lost by the 67th in this action.

Due to someone's error in map reading both Doan and Blanchard occupied the same objective, the hill of HAUT MONT overlooking both DISON and parts of VERVIERS. I could find no room for my artillery so halted nearby in the vicinity of TRIBOMONT. We have two battalions, the trains, an airfield we built by removing a hedgeline, and other miscellaneous troops within our defensive perimeter, but no tanks except our own. I placed an OP on the heights of OTTOMONT overlooking the entire area. CCB has encircled VERVIERS on the east and has patrols in the city.

General Hickey ordered patrols out to the east and northeast as soon as HAUT MONT was secured. Antitank guns and infantry were encountered immediately. Artillery fire was placed on the enemy positions. Registration in several areas was conducted by both light battalions.

Our routes for tomorrow's attack extend through the SIEGFRIED LINE. Our ammunition supply comes from a depot 140 miles in our rear. Gasoline is equally hard to come by. Both artillery battalion commanders in the 391st Groupment with CCB have been wounded. I have been ordered to exchange Moore's 54th for the 58th tomorrow. Moore will command the group supporting CCB.

Summary

Starting on the morning of the 10th of September the 3d Armored Division developed the outposts of the SIEGFRIED LINE. The pursuit immediately became a slugging match. Progress was slow but steady. Every attack required a large preparation even though ammunition was becoming scarce. Enemy tanks and antitank guns were encountered in every favorable enemy position. High performance aircraft were used constantly to assist the artillery in quickly reducing these obstacles. Each combat command had four flights of fighter bombers constantly available.

The 1st and 9th Divisions came up on the left and right of the 3d Armored. The first town captured in Germany was the village of ROTGEN taken by CCB on 12 September. General Hickey's CCA had the honor of first breaching the SIEGFRIED LINE on 13 September. The second line of dragon's teeth was penetrated on 15 September in two places by elements of CCA, CCB, and the 1st Division.

Your Speech . . . A VITAL FORCE!

Much of an Army Officer's career requires that he speak before groups of varying sizes. Not all of us are capable speakers, and only a knowledge of basic principles and constant application and review will lay the background that produces effective speakers

by HENRY C. PORTER★

The high correlation existing between positive military leadership and the Army officer's employment of effective speech techniques was ably expressed by Colonel S. L. A. Marshall, author of "Men Against Fire," when he appeared as a guest speaker at The Armored School last year. In the course of his speech, which was primarily concerned with the American soldier's reaction to combat as determined by critiques conducted by Army historians, Colonel Marshall made this observation:

> . . . In the past, out of something like 600 of these critiques held after units had been in combat, I found one thing that was absolutely infallible—it was this: we would start a critique by putting the company commander up before his men saying, "All right, now you take the action and talk for about five or six minutes about how you started, about how you gave your order, and how the advance started. Then at the proper moment I will take it away and from that time on I will carry the discussion and I will call you back when I need you—when anything that you did or said becomes germane to the action." That was the procedure. But the interesting thing, Gentlemen, was this, that without exception, as I put the company commander up there to talk to his troops and you saw the manner in which he approached his job, the way he approached his men, and their response to him, you could tell whether the action which you were going into was going to be a favorable action or a failure. You could tell whether or not that man was going to have control of his company in the action which was about to be developed. I remind you that some of these were cases where troops had been defeated, but you could see at the same time an appreciation there which resolved itself into one thing, absolute respect between the two forces, the commander and the commanded, and further than that, absolute confidence that they were getting from each other the best deal that was possible.
>
> If the man got up and talked hesitantly, if he stumbled around, if he did not look squarely at his men, without exception, he took exactly that same approach to the problems of unit command when he came under fire. If his men did not respond to him as he addressed them, if you found that you had suddenly taken the men completely away from that company commander because he was not a sufficiently vital force, that he could not stand on his own right, you would also find as you got into the critique that some noncom or junior officer had taken his fight away from him. He was inarticulate; he had not become a sufficient force in the thoughts and actions of those men for whom he was responsible. I simply pass that on to you by way of saying that I think we tend to slight the speech principles in the United States Army. We fail as junior officers too many times to be brought up to believe sincerely in the words of Disraeli when he said that all men govern with words. We do not stimulate sufficient respect for scholarship in our fellow officers. In the final analysis, whether it means the writing of an operations order or getting up before a battalion and convincing the men of one's self-generating power by your ability to bring ideas to others, speech, the use of words, is the method of control—there is no substitute. The training aids and instructional devices that we have can never become a satisfactory and all sufficing replacement for that power which is expressed in a man-to-man relationship within the military command.

This vital force within yourself coming from the ability to speak, which Colonel Marshall holds in such high esteem, is dependent upon three factors: (1) your personality; (2) your knowledge and background in the subject; and (3) your ability to employ a few simple speech techniques effectively. It is the purpose of this article to point up a few of the techniques used in speaking before a group which have been found workable in the training of army instructors at The Armored School. Some of these things are simple and need only to be recognized by the army officer to produce results. Although personality and knowledge of the subject will not be discussed here, they must be considered as essential elements in any program for the improvement of public speaking.

The Composition of Your Speech

Your ideas, in order to produce the desired effect,

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must be expressed clearly and in an understandable manner; it must be easy for the audience to follow you—the mechanics of your presentation should be correct. You will find it especially helpful to think of your speech as being divided into three parts; the introduction, the body, and the summary. In the introduction your job is to establish contact with the audience, to arouse interest in the subject, and to disclose and clarify your subject. There are many devices which may be used in an introduction to accomplish these ends but one stands out as essential: always tell your audience specifically what your mission will be and why it is important to them. A survey of last year's Officers' Advanced Class at The Armored School, and after some nine months as students they were certainly qualified to pass judgment, indicated that regardless of the technique employed by the speaker to gain contact or arouse interest an introduction was effective only when the objective of the talk was clear and the reasons given for its importance were valid. Your initial remarks are especially important because the audience is often won or lost in the first few minutes. It behooves the speaker to do his best in the introduction.

Putting the Message

The body of the talk is the part which carries your message. If it becomes dull because of its organization or because of your delivery, it of course loses its effectiveness. Charles Dana once said, "The invariable law** is to be interesting. Suppose you tell all the truths of science in a way that bores the listener—what is the good? The truths don't stay in the mind, and nobody thinks any the better of you because you have told the truth."

Some speakers approach their subjects feeling that the material is intrinsically dull. It is true that some subjects seem to be more vital to an audience than others but all subjects can be made more interesting if the speaker will make the effort.

Here are some of the suggestions which are given to instructors who complain that their material is "dry." To vitalize an oral presentation:

V ivid and specific expression is helpful.
I llustrations, stories, and examples keep interest high.
T raining aids help to hold interest.
A sk questions, either rhetorically or to arouse participation.
L ogical organization will enable the audience to go along with you.

The summary serves to wrap up the ideas which you have presented so that the listener can readily take them away with him. If you cannot summarize a talk in a few sentences then there is probably something wrong with the organization of that talk. Don't wait until the end of your talk to use the summary. Frequent summaries throughout the talk will help the audience to follow you. After presenting several ideas, summarize before going on; this practice will help you to do a better job of thinking on your feet. You will find that it is easier to get from one main point to the next if summary statements are used frequently.

The over-all view of the composition of a speech was well expressed by the southern preacher who, in explaining his secret of success as a speaker, said:

"First, I tells 'em what I'se goin' to tell 'em,
Then I tells 'em
An then, I tells 'em what I'se told 'em."

Don't Be Nervous!

This old bromide is hardly sufficient for the victim of stage fright; he seeks, and rightly so, some more definite and specific remedy for excessive nervousness. Here is one point, however, where it is best not to depend upon short cuts. Such short cuts as, "breathe deeply," "hold a pencil in your hand," "engage in some physical activity," or "tell a story," are substitute measures and may lead the speaker to be more conscious of his nervousness.

The speaker's most reliable remedy for excessive nervousness is a proper frame of mind toward himself, toward his audience, and toward the total presentation—we might call this the proper mental attitude. He must realize that fear is the basis for the very unpleasant mental and physical reaction which he experiences when before an audience, not fear of bodily injury, but fear of not being favorably received, fear of what others will think of him. The officer must realize that this condition is not entirely bad, it is evidence of the fact that he is stimulated to physically do his best. Once he learns to control himself, this nervousness becomes a keyed up, mildly emotional feeling which is highly desirable.

Most speakers who suffer from excessive nervousness let thoughts of themselves dominate their thinking. The subject or the message is the important thing and should be the center of attention both for the audience and the speaker. It is sound practice for the officer to be so thoroughly prepared in his subject and to present it with such vigor that the audience is hardly aware of his delivery. If the speaker will think in terms of his subject and the communication of the ideas he has to present, he will be making a sound approach to a proper mental attitude.

Know Your Subject

Thorough preparation is the only real insurance against stage fright. Know the subject completely, try to anticipate any problems which may arise in its presentation, and rehearse it in detail. This will promote a feeling of confidence when the speech is delivered. Experience is no substitute for thorough

preparation; even the old-timers find that their effectiveness is in direct proportion to their efforts in the planning stage.

It also is helpful for the speaker to have his initial remarks well in mind. In some cases the introduction should be committed to memory and rehearsed several times to insure naturalness in its delivery. This practice will help to get your talk started, there is no initial hesitancy, the approach to the subject is smoothly made, and initial nervousness is soon replaced by enthusiasm for the subject. It must also be recognized that nervousness causes a speed-up of all bodily processes. Keep this in mind; slow down, be deliberate, and relax—an informal approach helps. The best approach to the problem of excessive nervousness is: first, be thoroughly prepared; then approach your task with the proper mental attitude; and then, during your presentation realize that the keyed up feeling which you have may cause you to speak or act too rapidly—guard against it by thinking in terms of the audience and their understanding of the subject.

Keep Contact with the Audience

The good speaker looks at and talks to the audience, he speaks in a conversational manner, and strives at all times to maintain contact with his listeners. The speaker who checks his time by obviously looking at his wrist watch or takes his watch from his pocket is openly inviting each member of his audience to do the same thing. The first thing a speaker must do when he addresses a group is to make each man feel that he is talking to him personally. Nothing is quite so important as a means of establishing this personal contact as the simple device of looking at your audience and speaking to them in a conversational manner.

In most cases reading a speech from a manuscript is disastrous. An over-use of notes produces the same effect. Even the reading of a long quotation is dangerous, the quotation might better be paraphrased by the speaker. At The Armored School most instructors improve their contact with classes by putting their notes on cards and placing them on the floor. This enables them to speak from the center of the platform with little obvious reference to their outline. This practice also serves to encourage the instructor to limit his notes, to speak from main points, and to think on his feet. Many otherwise excellent speakers become ineffective because they tie themselves to a lectern and lose contact with their audience.

Your Physical Behavior

Basically, there are two broad aspects of delivery: that which the audience sees and that which they hear. When a member of the military profession speaks, his audience quite naturally reacts at once to his general appearance, to the way he stands and walks, and to the over-all effect of his platform manner. The listeners expect more from an officer when he speaks than they do from other professional men. When the comment, "He certainly looks like a soldier," is made by members of your audience they have given you their highest accolade for platform appearance. This does not mean that your posture should be stiff and unnatural, but that you give the audience the feeling that you are alert, at ease, and self-possessed. Stand erect, not with the stiffness of a ramrod, but with the assurance of one in command of himself and the situation. Few officers will have any difficulties as to their appearance on the platform if they remember to:

Avoid mannerisms which may cause the audience to concentrate on you rather than on your subject.
Avoid too much hiding behind the lectern, and please do not lean on it!
Avoid excessive and meaningless movements.
Avoid a slouchy appearance, produced by folding the arms or standing with the legs crossed.

The question often arises as to what the speaker should do with his hands. The answer is: "A speaker should deliver his message with the full resources of his personality." To do this he must keep his hands free, they cannot be kept in the pockets, on the hips or locked in a "parade rest" position, they must be ready for the gestures and the physical expressions which contribute to the effectiveness of what is said. It must be kept in mind at this point that improvement in speech techniques comes from concentration on your strengths rather than too much awareness of minor shortcomings. To try to remember a list of rules relative to such things as what to do with your hands, how to stand, and mannerisms in general will cause self-consciousness and destroy your effectiveness. It is much more desirable to aim for an overall effect. Your physical behavior should at all times contribute to the presentation of the subject; when the audience becomes more conscious of your actions than they are of your message, there is something wrong.

Be Enthusiastic

Emerson's statement that nothing great was ever achieved without enthusiasm might well be applied to speech. Your enthusiasm for your subject will be contagious and will become the most important single element in your presentation. The preacher who made this notation on the margin of his sermon notes, "Pound like hell, the argument's weak," realized the convincing power of an enthusiastic presentation. Your own enthusiasm stems from your belief in the subject and your desire that others share that belief. Officers who are reluctant to demonstrate spirit in their delivery are omitting from their speech one characteristic which would go far to make their mes-

sage vital to an audience.

Be Sure You Are Heard

Obviously, the speaker should be heard by every member of the audience. One reason Lincoln's Gettysburg Address was not an immediate success as an oral presentation was the fact that many people in the audience could not hear. There were thousands present, they were restless, and the speech was actually completed before conditions became favorable for listening by those away from the platform. We are more fortunate now because a public address system may be used when the speaker cannot make himself heard without undue effort. But, with the PA comes the necessity for techniques in its use. Here, as with other speech techniques, the guiding principle should be that the public address system should be used in such a manner that the attention of the audience is never directed to the equipment. Do not play with the microphone or stand. There is no need to carry the PA cord in your hand and certainly it should not be whipped about in lasso fashion. It is a good idea to check your radius of movement when using a lapel microphone. Above all use your normal speaking voice, don't shout, the assistant will handle the volume. It is a good idea to have an assistant stationed near the rear of the room to be sure that you are making yourself heard.

Be Sure You Are Understood

The first step in making yourself understood is taken in your planning phase when you make a careful analysis of the background of the audience. An effort should be made to learn the level of comprehension which may be expected and then your material should be adapted to that level. Ask yourself the question, "Will these men understand?"—by asking that question you will set up a yardstick for the organization of your speech. If this idea is also carried over into the delivery of the speech and you think, "Do they understand?", you will find that a sense of communication will be developed which is helpful to your delivery.

Of course, the speaker must speak clearly and distinctly if he is to be understood. This does not mean that you should strive for enunciation or pronunciation which is artificial; but certainly you should not slur or run words together, nor make mistakes in the pronunciation of words.

Another factor which affects understanding is your rate of speaking. In most cases your rate will depend not so much upon the number of words per minute as upon your use of pauses. Even ideas presented at a relatively slow rate may not be understood if the pauses do not provide a psychological rest to permit the listener to catch up and move along with you. Without these pauses a retroactive mental inhibition is set up and the audience is lost. Pauses provide the speaker with an opportunity to orally punctuate his discourse; he should be careful not to mutilate his talk with pauses which destroy fluency or employ "ers," "ahs," "andas," and other such mental crutches which mark the speaker as ineffective.

Seek Variety and Emphasis

Most speakers who are known for their enthusiastic, forceful, and interesting presentations are those who have learned to inject variety into their speech. They have also learned how to emphasize important points in their speech. These techniques are your best weapons against monotony. In most cases variety will come with your effort to orally interpret your ideas for the audience. Emphasis on the other hand is secured through skillful repetition. It has been found that an idea repeated five times at different points throughout a speech will make that idea about three times as effective as it would have been with one statement of the idea. Other techniques such as raising the voice, gesturing, and placing an important idea at points in the speech where emphasis is greater (at the beginning or the end) serve to accentuate the ideas presented.

Set Your Course

The points which have been discussed here represent a few of the major considerations which the officer ought to face in improvement of his speech techniques. We have never seen an officer who was not desirous for this improvement, but many do not know how to start such a program for themselves. Here is a general outline which should set a course for the development of effective speaking habits:

First, develop a critical understanding of why the speech of other men is either good or in need of improvement. When you hear a speaker or listen to the radio try to analyze the techniques employed. In other words become alert to how others speak.

Then, establish standards for your own speech. Through self-analysis and friendly criticism from your associates find what your strengths are; work to make these stronger. Learn your weaknesses and work to correct them.

And finally, practice good speech at all times. Too often we have speech techniques for the platform, others for conversation, and still others for the home. Good speech should be constantly practiced. Make use of recordings, take every opportunity which comes your way to address an audience, and consider every appearance before an audience an opportunity to improve your techniques.

The officer, perhaps more than members of other professions, needs to be able to express himself orally. He needs to be effective in his communication of ideas; he is particularly concerned with instruction, and his personal leadership, that vital force, will be, in a measure, dependent upon his speech technique. In the words of Shakespeare,

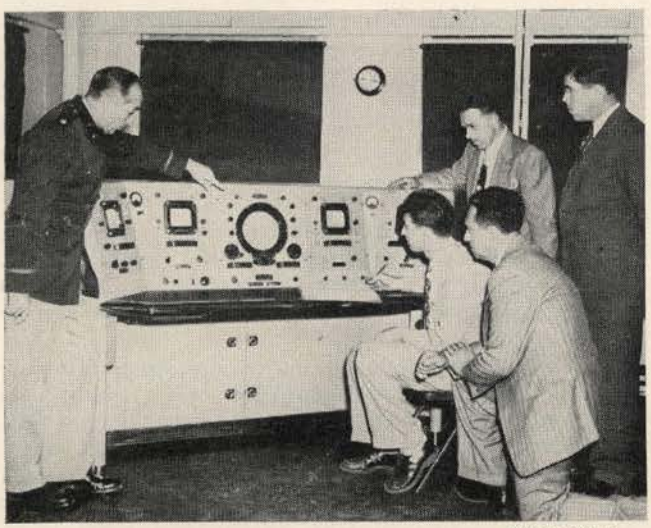
"Mend your speech a little
Lest you may mar your fortunes."

New Radar Set

A NEW radar set designed to give weathermen and pilots advance warning of storm areas as far distant as 200 miles from the site of operations has been developed at the Signal Corps Engineering Laboratories, Fort Monmouth, New Jersey. Since the average rate of storm movement is approximately 25-30 miles per hour, it will now be possible to anticipate storms as much as six to eight hours before they arrive.

This new equipment is electronically similar to the successful wartime warning radars which told of the approach of enemy aircraft or ships. However, it utilizes what was considered a characteristic fault in the earlier radars, namely, their tendency to pick up signals from nearby rainstorms, thereby masking indications from possible enemy targets on the far side of such rainstorms. In this new equipment the design has been arranged to accentuate the storm signals and to permit their detection at relatively great distances. The clouds themselves do not necessarily appear to the eye as they look on the radar; but a section of a storm having liquid water always will produce some kind of radar indication.

The apparatus consists of a high-power radar transmitter, a large eight-foot parabolic antenna mounted



Signal Corps.

Lt. Col. A. F. Cassevant, director of Evans Signal Laboratory, Fort Monmouth, N. J. points to storm disturbance at sea on Radar Storm Detector scope, as engineers and physicists check storm's progress and intensity.

on a 100-foot tower, and a sensitive radar receiver. The signals received from any storm area within range of the radar can be displayed on several types of oscilloscopes which contain cathode ray tubes similar in appearance to home television screens. The signals can be used to "paint," electronically, a picture similar to a relief map of the area or to give a vertical cross-section of the storm. In both cases the radar set introduces its own "scale of miles" on the map so that the operator can quickly and simply estimate the distance of the storm from his station.

This equipment has been undergoing operational tests by engineers of the Signal Corps Engineering Laboratories. To date, the tests have shown promise of greatly increasing the forecasting range of the weather observer, improving his accuracy, and permitting short-range local predictions of relatively high precision. As a research tool the new radar will give the professional meteorologist the means for exploring storms, observing their life cycles, and thus leading to better understanding of the physics of storm development.

by VERNON BROWN*

BRITAIN'S first-line defense against rocket projectiles or guided missiles in any future war will be her radar stations—for it is only by "early warning" radar that rockets can be detected at long distance and only by target-finding radar that guns can be automatically directed on the target.

A good deal of progress in developing radar for this work was made towards the end of the last war when Britain evolved a radar system for tracking V 2 rockets almost from the moment of take-off. The launching site was accurately pin-pointed before the rocket had finished its flight, and the R.A.F. was thus given the chance to attack the site without delay.

But progress in the air, and in weapons, has brought with it a demand for better defense preparations. So Britain is not only improving old devices but also constantly striving to develop new ones. In the words of Mr. Strauss, Minister of Supply: "Britain is not behind any country in the world in this work and we are determined to keep our lead."

Nerve center of this vital work is the Ministry of Supply Radar Research and Development Establishment, housed in fifty acres of barbed wire seclusion, at Malvern, Worcestershire, England. It is this particular establishment that,

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British Developments in Radar

since its inception many years ago, has been responsible for scientific development work associated with the detection and location of aircraft from the ground, necessary for the defence of Britain and her forces overseas. And it was there during the war that radar was developed for tracking the flight of the V 2 Rocket.

Basic Research The Keynote

Keynote of the work today is basic research, rather than detailed experiments, and by this means Britain ensures that design and development remain in the vanguard of scientific progress.

The scientific investigations are carried out by a relatively small number of scientific and experimental officers, but their effort is supported by an engineering staff, an efficient drawing office, workshop, and stores organization. A small body of military officers and other ranks are also included. Their job is to represent the military point of view and to ensure the equipment designed and developed is suitable for operational use.

Anti-rocket defence, however, is only one phase of the work carried on—a fact demonstrated recently when, before army, air force and naval chiefs and leading scientists, army units demonstrated some of the equipment designed by the center.

This was the first time that such a comprehensive opportunity had been offered for the inspection of the latest defensive radar equipment. The demonstration included the use of the newest developments in antiaircraft firing by radar, radar-directed searchlights on a new level of efficiency, and the use of ground radar sets which can pin-point enemy mortar and reveal enemy movements.

It also showed the strides made in "following radar"—which after once picking up the target automatically follows it—for army use. All heavy "ack-ack" regiments are now being equipped with this device, which, in effect, does everything automatically, except load the guns.

Radar equipment of somewhat similar nature is being issued to field regiments for picking up armored formations and convoys. It can also record and correct the fall of shells on targets under fire. But it is in the field of rocket defence radar that chief interest lies at the moment.

Speed, Spin And Direction

Research is being directed towards determining the speed, spin and direction of rockets, facts essential not only in the design but also in the defence against the rocket, and also in methods of measuring velocity. And, coincident with this, are experiments to improve "early warning" radar. This type of equipment is designed for the largest maximum range so that as long a warning as possible can be given of approaching missiles, or aircraft. It must keep continuous watch over a large area of the sky.

Research into the speed measurement of rockets is based, at present, on the Doppler principle that the movement of a target towards or away from the radar set causes a difference in frequency between the transmitted wave and the echo. This difference can be used to calculate the radial velocity of movement.

The greatest importance, naturally, is being placed on the further development of automatic following radar. I saw myself how greatly this system has been developed since the end of the war. I was shown a light colored model aircraft rotating in front of a dark "backcloth" illuminated by a scanning beam of light. White paint on the model reflected the light to photoelectric cells at the beam's source. Current generated thereby takes control and enables the beam to follow every movement of the aircraft.

How sensitive the equipment is can be gauged by directing the beam on to an individual. When an official raced to and fro on the ground after the beam had been trained upon him, he was unable to shake off the beam which automatically pursued him.

In operational use the aerial is automatically driven by electric motors controlled by the pulses received back from the target. This has always been the general principle of following radar but the interest at the moment is the degree of sensitivity that has been developed.

Side by side with efforts to develop "following radar" still further is research by another section on systems for exploring the upper atmosphere. The chief of these is based on similar principles to radar except that a pulse of light is transmitted. But, whereas in radar, the received signals represent separate objects, in the light system there is a continuous but diminishing echo from the particular density of the upper atmosphere regions.

In the initial experiments the first tests have been effective up to heights of about 18 miles. Later it is hoped that heights up to 60 miles will be explored in this way. Light waves are used instead of radar because the atmospheric layers reflect them more effectively.

In the general investigation into high atmosphere research, the scientists at the center have sent radar signals to the moon. They took about three minutes to get there and back.

A research officer told me—"The tests were part of our general study of the upper atmosphere. Lots of things happen there that we do not understand. But any experiments of that sort are pure research. It is not possible to say what practical use the information we may gain will have."

The Use of the *COUNTERSIGN*

"The true purpose of all rules covering the conduct of warfare and all regulations pertaining to the conduct of its individuals is to bring about order in the fighting machine."

S. L. A. MARSHALL—*MEN AGAINST FIRE.*

ASK any group of ground force officers what is meant by the COUNTERSIGN and you will probably receive any number of different answers.

"Anyone familiar with the Articles of War knows that AW 77 says that the COUNTERSIGN and the PAROLE are the same."

Colonel Legal will say that the COUNTERSIGN is the same as the PAROLE.

Captain Foggy says that the terms COUNTERSIGN and PAROLE are obsolete. "The correct term for establishing recognition between members of the same unit is known as the SIGN."

Lieutenant Knowitall, presently assigned to a training division, says that the correct terms are PASSWORD and REPLY.

Lieutenant Kino is not the only one who has never had recognition among members of the same unit explained to him.

"That's right," says Lieutenant Kino, "I recall seeing a training film in which a mounted patrol passes through an outpost. One man called out, 'Spaghetti'; another called out, 'Meatballs.' I don't remember which soldier said which. This business of recognition of friend or foe was never fully explained to me."

Some officers have the idea that the terms COUNTERSIGN, SIGN, PAROLE, PASSWORD, CHALLENGE and REPLY, all mean the same thing although there are rules for establishing recognition either on interior guard duty or outpost duty.

Proper use of the COUNTERSIGN is only one of the many rules we have to learn to put our fighting machine in order, but it is a rule which, if applied properly, will save lives in the next shooting war.

One officer recently stated that when his unit first entered the combat zone there were too many instances of: BANG!—"HALT! WHO WAS THERE?"

In the last war there were many cases of sentinels shouting into the night: "HALT. WHO GOES THERE?"—BANG!

During the early days of the Normandy Campaign a few German soldiers succeeded in fleeing through our lines, across France, and into Germany equipped with American uniforms, a jeep, and knowledge of the Allied COUNTERSIGN. The COUNTERSIGN was obtained by listening to soldiers compromise it by shouting the secret elements at every approaching person or vehicle.

Throughout the pages of military history one can find examples of victory being won before the actual battle by one army gaining and using the secret word of entry into the opponent's camp.

What is the basic regulation for the use of the COUNTERSIGN?

There are three army publications which deal with the COUNTERSIGN, and these three conflict with one another.

The *Manual For Courts-Martial* (1949) gives only the punishment for misuse of the COUNTERSIGN. AW 77 states: "Any person subject to military law who makes known the PAROLE or COUNTERSIGN to any person not entitled to receive it according to the rules and discipline of war, or gives a PAROLE or COUNTERSIGN different from that which he received, shall, if the offense be committed in time of war, suffer death or such other punishment as a court-martial shall direct."

From the court-martial manual one can point out that COUNTERSIGN and PAROLE are synonymous but, as we shall see later, one basic field manual says that the two terms are not the same.

Field Manual 21-75, *Scouting, Patrolling, And Sniping,* makes no mention of COUNTERSIGN and PAROLE, but states: "The CHALLENGE, PASSWORD, and REPLY must be known by a patrol prior to its departure. It must also know any additional checks to guarantee identification that will be in use when the patrol returns."

The guard says that the basic term for the identification of personnel is COUNTERSIGN, and that the COUNTERSIGN consists of two elements: CHALLENGE and PASSWORD.

Field Manual 26-5, *Interior Guard,* change 5, gives the most thorough and comprehensive coverage of the COUNTERSIGN.

"The term, PAROLE, as discussed in AW 77, will not be used in connection with the identification of personnel."

"A CHALLENGE is defined as a word or distinctive sound used to cause an unidentified person or party to halt and be identified. It may or may not be secret."

Challenging is further clarified by FM 26-5: "The word HALT is the CHALLENGE; if a secret word or sound has been prearranged, the secret word or sound becomes an additional challenge."

The PASSWORD is defined as: "A word or distinctive sound, used as an answer to a secret challenge, which identifies the person or party desiring to enter or pass." THE PASSWORD IS ALWAYS SECRET.

A mounted patrol from the 81st Reconnaissance Battalion approaches an outpost of two sentinels from the 1st Tank Battalion. One of the sentinels, covered by the other sentinel, steps out on the road so that the approaching patrol can see and hear the CHALLENGE. The

sentinel causes the patrol to stop by calling: "HALT! WHO IS THERE?" The patrol leader stops his patrol and dismounts. When he is sufficiently close to the sentinel, he says, "PATROL NUMBER ONE."

After the patrol leader answers the first CHALLENGE of "HALT," the sentinel tells the patrol leader, "ADVANCE AND BE RECOGNIZED."

By now the patrol leader is quite close to the sentinel. The sentinel, in a low tone, gives the secret CHALLENGE. The patrol leader gives the secret answer (PASSWORD).

Upon receiving the correct PASSWORD from the patrol leader and satisfying himself that the patrol is authorized to pass through the outpost line, the sentinel repeats the answer to his original challenge: "PASS THROUGH, PATROL NUMBER ONE."

The way to make the COUNTERSIGN effective in the future is for all ground force units to adopt one set system and use it in guard training in order that when an outpost system is established under combat conditions everyone will be familiar with the procedure.

Where does the COUNTERSIGN originate? Does each unit make up one of its own? How does the COUNTERSIGN get down to the sentinels and patrols?

The COUNTERSIGN is authorized by the highest headquarters in a given zone or area. Usually army headquarters, or in rear areas the communication zone headquarters, will originate and authorize the use of the COUNTERSIGN.

Army or comm Z, will publish and distribute COUNTERSIGNS usually through the SOI. Corps will receive a list about a month before the date the COUNTERSIGN is to be used. Corps will distribute the list to its divisions approximately fourteen (14) days ahead of time.

Normally complete lists of COUNTERSIGNS should not be distributed below combat command headquarters or headquarters of the regiment.

Each armored division and armored cavalry regiment (light) will have an SOP for the dissemination of the COUNTERSIGN. The division G-2 will be responsible that the combat commands and all attached units receive the COUNTERSIGN in sufficient time to further disseminate it to lower units.

In selecting the COUNTERSIGN the choice of words or sounds should be made with care. "Spaghetti," as the secret CHALLENGE, and "Meatballs," as the PASSWORD, does not constitute a good COUNTERSIGN. Words should be selected that are difficult for the enemy to pronounce and which do not indicate the answer.

Armored Cavalry units operating as an Aggressor force should select words from Field Manual 30-102.

Except in cases of emergency, COUNTERSIGNS will be distributed to battalions and separate companies on a daily basis only. In an emergency they may otherwise be disseminated at the discretion of the combat command or regimental S-2.

In using sounds as the COUNTERSIGN, the sounds should be distinctive and of such a nature that they simulate sounds normally heard in the locality—simulating the call or cry of a particular bird or animal, or tapping a rifle stock. Sounds will normally be used as the COUNTERSIGN when only dismounted patrols are forward of the outpost line of sentinels.

The changing of the COUNTERSIGN will depend upon the desire of the highest headquarters, but it is recommended that the change be made at irregular intervals.

In passing through an outpost line a patrol leader must check with the sentinels on duty to determine if the outpost and the patrol are coordinated on what the COUNTERSIGN will be when the patrol is due to return. Experience has proved that usually the same group of sentinels will be on duty when a patrol returns.

Intelligence officers, in briefing patrols, must assure themselves that the patrol has full information of the present COUNTERSIGN and the one to be in effect when the patrol is due to return.

If a patrol is to return through the outpost line at another outpost position, it is the responsibility of the S-2 to make sure that the sentinels on the return post know the COUNTERSIGN in effect when the patrol is due to return.

Knowledge of the COUNTERSIGN is not sufficient recognition during certain critical phases of an operation. During the Battle of the Bulge instructions were issued in some units that the COUNTERSIGN alone was not to be the only means of establishing recognition. (We had learned that lesson from the Normandy Campaign.) One officer told the author that one of his privates was so impressed with using means of recognition other than the COUNTERSIGN that the private, while guarding a road block, captured a German officer who knew the COUNTERSIGN but could not answer: "Who is Charlie McCarthy's father?"

In order to standardize use of the COUNTERSIGN it would be better if there were one and only one regulation governing its use.

Every armored cavalry officer should apply the rules in the instruction pertaining to interior guard and outpost duty so that, in the future, patrols will not be fired upon by their own unit and challenged afterwards.

"It is therefore to be noted as a principle that, all other things being equal, the tactical unity of men working together in combat will be in the ratio of their knowledge and sympathetic understanding of each other.'

S. L. A. MARSHALL.

NEWS NOTES

National Guard Officers to Receive Special Armored Cavalry Training

A special armored cavalry orientation course for selected National Guard officers will be given at The Armored School, Fort Knox, Kentucky, early next year under arrangement with the Army Field Forces, the National Guard Bureau announced recently.

Designed to ground the officers in the principles and techniques of armored cavalry and the infantry tank company, the course will be in two parts, general and specialized. The last 40 hours of the course will be devoted to one of three specialized electives: maintenance, gunnery or communication.

An estimated 100 key armored cavalry, reconnaissance and tank unit officers will take the two-week course, starting February 26, 1950. Priority will be given to officers who have not previously followed a resident course at The Armored School.

Eight armored cavalry regiments were recently added to the National Guard troop basis. New to the Guard, the regiments are capable of operating and existing alone, can serve as a screening force, or as reconnaissance and scout forces, for an advancing army.

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All Regular Officers to Serve Two Years With Reserve Forces

A general policy that, to the fullest extent feasible, all officers of the regular military services henceforth will be assigned to at least a two-year tour of duty with their civilian components, has been announced by the Department of Defense.

Announcing this move for unification, by integration of the regular and reserve forces for speedy and effective mobilization in a National emergency, Secretary Louis Johnson pointed out that reserve components are the major mass of our fighting forces into which they then must be welded by officers of the regular services. In this connection he said:

"In time of mobilization for any future National emergency, the officers and men of the civilian components will comprise the great bulk of the Nation's Armed Forces as they did in World War II. For the professional military man in such a time to weld these components and our regular establishment together into the most effective fighting force, he must be intimately familiar with and understand the problems, state of training, and psychological outlook of the members of our civilian components. By the same token, our reservists urgently need the skilled guidance and supervision that only the professional military man can give."

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New Executive for Reserve and ROTC Affairs

Secretary of the Army Gordon Gray recently welcomed to active duty Major General James B. Cress of Richmond, Virginia, the Army's new Executive for Reserve and ROTC Affairs.

Members of Congress, Department of Defense executives, ranking Army, Navy and Air Force officers and prominent Reserve officers were among those invited to attend the ceremony.

Secretary Gray, in welcoming General Cress, emphasized the vital importance of the Organized Reserve Corps in the defense program. He said:

"We must have a well organized and adequately trained and equipped force of citizen-soldiers ready at all times to mobilize at short notice and stand shoulder to shoulder with the Regular Army and National Guard in the defense of our nation.

"It is particularly propitious at this time, when the entire Reserve program is being restudied with a view to increasing the effective integration of the Reserve Corps into the national defense plan, that a Reserve Major General has been ordered to active duty to assume active leadership in the execution and development of ORC activities."

General Cress, at the time of his appointment as Executive for Reserve and ROTC Affairs, was Commanding General of the 80th Airborne Division (Reserve) at Richmond. He is an overseas veteran of World War I and World War II.

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Lieutenant General Willis D. Crittenberger Visits Mexico as Guest of Mexican Army

Lieutenant General Willis D. Crittenberger, chairman of the Inter-American Defense Board, recently toured military installations and other points of interest in Mexico, as a guest of honor of the Mexican Army.

General Crittenberger was escorted by Lieutenant General Leobardo C. Ruiz, Mexican military attaché in Washington and senior delegate from Mexico to the Inter-American Defense Board. The invitation to visit Mexico was extended by General Gilberto R. Limon, Secretary of National Defense of Mexico.

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Tripartite Arrangements for Collaboration in Military Standardization Announced by United States, United Kingdom and Canada

Tripartite arrangements for collaboration in military standardization among the Armed Forces of the United States, United Kingdom and Canada were announced recently in London, Ottawa and Washington.

These arrangements will insure that in time of necessity there will be no material or technical obstacles to full cooperation among the Armed Forces concerned and the greatest possible economy in the use of combined resources and effort will be obtained.

These arrangements are decentralized to the working level agencies of the Armed Forces of the three nations for study in the various fields of military equipment and operational procedures.

The studies, which are carried on by exchange of observers among the three nations in connection with exercises and the development and testing of matériel of common interest, aim at the gradual development of common designs and standards in arms, equipment and training methods.

Cooperative arrangements for this purpose do not impair the control of any country concerned over any activities in its territory. No treaty, executive agreement or contractual obligation has been entered into by the participating nations.

These arrangements between Canada, the United Kingdom and the United States, which have been under discussion since 1947, are a step toward the fulfillment of the wider arrangements under the North Atlantic Treaty Military Production and Supply Board which call for the promotion of standardization of parts and end products of military equipment in the North Atlantic area. They are similar to arrangements already made by the Brussels Treaty powers.

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Army Signal Corps Developing Durable Miniature Equipment

Small lightweight Army Signal Corps equipment which can be easily carried by men and withstand extremes of climate is being designed to provide fast, effective communications networks for combat troops in the field.

A crystal rectifier reduced to the size of a match head, a field switchboard that weighs but 22 pounds and a portable teleprinter weighing 45 pounds are among items developed through Signal Corps research projects. Both miniature and subminiature radio tubes have also been produced.

"Miniaturization" is the word used to describe the task of developing matériel which can be handled with greater facility and less personnel than similar equipment used during World War II. The new products will also provide added protection for soldiers working under combat conditions. In the past, Signal Corps troops have had to work on occasion with equipment which was both cumbersome and conspicuous.

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Shock and Vibration Symposium Meets at California Institute of Technology

Representatives from agencies of the Army, Navy, and Air Force and from the National Bureau of Standards recently attended a Shock and Vibration Symposium, at the California Institute of Technology, with the Department of the Navy as host.

The three-day conference was attended by 300 representatives of the armed forces, universities, and industrial organizations.

Under an assignment made by the Research and Development Board, the Department of the Navy has the task of conducting quarterly symposiums in the field of shock and vibration on behalf of the Board and in the common interest of the Army, Navy, and Air Force. The aim of the symposiums is coordination and exchange of information in technical fields. The RDB Centralizing Activity at the Naval Re-

search Laboratory handles arrangements for the meetings as a part of the shock and vibration program of the Department of Defense.

The symposiums were started in 1946 to centralize military activity in shock and vibration. The principal discussion at this meeting will be "The Effects of Mechanical Shock and Vibration Upon the Operation of Guided Missiles and Rockets."

The Army will be host to the group in the spring of 1950 in Washington, D. C., when the theme of the conference will be the "Reduction of Damage to Military Equipment by Shock and Vibration When Transported in Common Carriers." In the fall of 1949, the Air Force was host to the symposium at Wright-Patterson Air Force Base, Dayton, Ohio, when "Aircraft Shock and Vibration Troubles and How to Overcome Them" was the subject.

The symposiums concentrate upon problems of shock and vibration peculiar to the special category of military vehicles as they are evident in moving trucks, tanks, trains, ships, and planes. Many of the difficulties and the methods for overcoming the problems are common to all vehicles, and to protect these vehicles, as well as the riders, it is necessary to equip vehicles with shock absorbers and antivibration devices. In order to determine the type of device that will be most effective for various vehicles, separate studies are made against a common background with fundamental principles of shock and vibration.

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Kalervo Kallio to Execute Forrestal Memorial Bust

The award of a commission to Kalervo Kallio to execute a bronze memorial bust of the first Secretary of Defense was announced recently by Secretary of Defense Louis Johnson, chairman of the Forrestal Memorial Committee.

The working model submitted by Mr. Kallio was one of 35 entries in the open competition held in the Pentagon. The Kallio entry was the unanimous choice of both the Forrestal Memorial Committee and of the committee of professionals called in to make recommendations. The entries were assigned numbers, with all marks of identification masked. The winning sculptor was not known by the members of either committee until the unanimous decision was announced.

The plaster model submitted by Mr. Kallio was judged the winning entry both from an artistic point of view and because of its remarkable likeness of Mr. Forrestal, Secretary Johnson said.

Mr. Kallio is the son of the late Kyosti Kallio, president of Finland from 1937 to 1940. Kallio's sister is now a member of the Finnish parliament. He received his formal training in sculpture at the Ateneum, Finland's art institute.

The Forrestal Committee also announced that a commission of $5,000 will be paid for the finished bronze. The site selected for the location of the bust is at the west end of the Mall Entrance, opposite the Pentagon dedication plaque.

The fund for the memorial, raised by voluntary individual one-dollar contributions, totals more than $34,000. The Forrestal Memorial Committee will hold further meetings in January to decide what use will be made of the remainder of the fund.

AND FEATURES

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Army War College to be Reopened

Reestablishment of the Army War College was recently announced by the Department of the Army.

The College is to be reopened as the result of recommendations by the Army Board on the Army Educational System for Officers, of which Lieutenant General Manton S. Eddy is chairman. General Eddy is Director, Army Educational System, and Commandant of the Command and General Staff College, Fort Leavenworth, Kansas.

Pending selection of a permanent site, the first session of the Army War College will be held at Fort Leavenworth, where an enrollment of 100 officers is expected for the 1950-1951 course. No date has been fixed for the initial session.

The Army War College, at the apex of the Army educational system, will fill a gap that has existed since the former Army War College was converted into the National War College in 1946, the Army said.

The course, of about 10 months' duration, will include instruction in the duties of the commanders and staffs of the higher Army echelons such as an Army group, theater, and Army headquarters, as well as Headquarters, Department of the Army.

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726 Distinguished Military Students Selected for Regular Army Commissions

A total of 726 Distinguished Military Students have been selected from among 1,418 applicants for appointment as second lieutenants in the Regular Army, the Department of the Army announced. Closing date for the applications was November 5.

The Army stated that a large majority of the Distinguished Military Students not selected for appointment will be offered an opportunity to gain Regular Army commissions through competitive duty tours following graduation from their respective schools.

In addition to the 726 students selected for appointment, 66 applicants under 21 years of age will be selected upon reaching the legal age for commission.

Those Distinguished Military Students whose applications reached the Department of the Army subsequent to the deadline date of November 5 will be considered for appointment later. As of December 1 there were 270 applicants in this category.

ARE YOU WELL INFORMED?

Answers on page 54

1. As the new year rolled around much thought was directed to the half-century. Who was President of the United States in 1900?
2. A good bit of attention was directed back over the year 1949. The United Nations, for example, had admitted its fifty-ninth member. What is the nation?
3. In the UN Security Council, Jugoslavia, Ecuador, and India replaced Argentina, Canada and the Ukraine. What is the significance behind this?
4. Name the five permanent members of the UN Security Council.
5. China's Communist leader was present in Moscow for the celebration of Premier Stalin's birthday. Who is he?
6. It is a mountainous island, lying 100 miles off the mainland, with an area about equal to Massachusetts and Connecticut, and with a population of six million. Name it.
7. Fifty years ago China was much in the news in relation to a note sent by our Secretary of State to other powers. What policy was based in that note, and who was our Secretary of State?
8. The political developments in Asia have involved important moves in Burma, Indo-China and Indonesia. What power is closely related to each of these three colonial areas?
9. In November, an agreement was signed at The Hague which provided for the establishment of a new nation, which came into being on December 27th. What is the nation?
10. During 1949 there were four changes in President Truman's Cabinet. Name the new members.
11. The Chinese Nationalists recently set up a new capital at Taipei, Formosa, one in a long line of capital changes resulting from the civil war. Three other capitals have been set up since World War II, Jogjakarta, Karachi and Pyongyang. What are the countries?
12. Angus Ward, former U. S. Council at Mukden, recently arrived back in the U. S. to report to the Secretary of State on his difficulties with the Chinese Communists. Do you recall the year of the so-called Railway Incident used by the Japanese as their excuse to take over Manchuria?

Speech of General J. Lawton Collins Before The Society of Automotive Engineers

IN the long and tragic history of warfare, the most important element of armies has always been men. Even in this day of widespread mechanization and almost unbelievably destructive weapons, this ancient principle still holds true.

Since the last war, however, our attention in the Army has been so inordinately focused by necessity upon personnel matters that I fear that the impression may have become widespread that our concern with equipment was minor. You remember the pattern of events which caused this: First, hasty demobilization that nearly destroyed our greatest Army; next, the need for personnel to maintain our occupation commitments; and finally, our absorption with rebuilding, retraining, and re-equipping what was left of our Army after the demobilization.

It would be a grave error, however, if these unfortunate circumstances should obscure the fact that the Army has great need for up-to-date equipment. For the Army has been assigned a role in the defense plans of our Nation that not only requires it to be ready at all times to move to avert aggression, by the fastest means and with the greatest firepower and adequate logistical support, but by its readiness to do so, to prevent that aggression from taking place.

To fulfill its assigned missions, the Army will have need for weapons of proven superiority over those of any potential enemy. Our lack of emphasis upon equipment was not due either to lack of need or interest, but instead was due to the perpetual dilemma that must necessarily face the armed forces of a democracy—how to apportion the limited means available, among the many urgent needs that confronted us.

Because we in the Army realize that our economy cannot support an absolute defense based upon unlimited expenditures of resources, we recognize the need to conform to an integrated national budget. We also realize that we must integrate our Army requirements for men and equipment within our allotted share of the over-all budget.

There is a tendency, however, to oversimplify the equipment problems of the Army, inspired probably by the complete dependence of the sailor and airman upon great machines as compared with the historic ground role of the soldier.

The modern combat soldier, and the supply personnel who support him, also have a great dependence upon the machines of our scientific age. For although the soldier still performs his historic role of meeting the enemy face to face on the ground, he requires a large variety of equipment in large quantities to transport himself there, to protect himself, and to fight offensively so that he can defeat the enemy. For example, more than 20,000 weapons of all types, more than 2,000 radios, and more than 4,000 vehicles combine to give the Infantry Division the mobility and the fire power necessary for modern war. As a matter of fact, the Army has become almost as dependent upon the automotive industry as have the Navy and the Air Force upon the shipbuilding and aircraft industries. Modern armies rarely march into battle. They move to the battlefield by motor truck, in tanks, or by air. And it is essential that when a breakthrough is made, infantry, artillery, and armor alike pour through the break with a speed and continuity that motors alone can give.

Because of the extent of our dependence upon your industry, I believe that you would like to hear, more than anything else, what some of our equipment problems are today, what we face in the future, and how the Society of Automotive Engineers can help us with those problems as you have done so magnificently in the past.

The haste of our demobilization after World War II was such that troops virtually had to walk off and leave their equipment. We found that we had vast quantities of it—some serviceable and some unserviceable—and not enough men to maintain it. The very men who were most skilled in maintenance were among the first we had to demobilize. The problem which faced us then was to catalogue what we had, dispose of what we could not or should not retain, and bring together for better maintenance that which was essential for our needs. This we had to do with personnel inadequate in numbers and wholly inadequate in training, and with stocks widely scattered, some on inaccessible islands, and much of it requiring repair.

There was no immediate need at that time to buy new equipment for the Army, and the Congress rightly would not have provided funds for that purpose when we had such quantities of equipment left over. Also, we had to take the time necessary to evaluate our experience of World War II, and to plan deliberately the best types of equipment that we might need, and then to concentrate our allotted resources upon them. Consequently, the Army did no major procurement in the years immediately following the war.

Our most urgent problem, of course, was devising means to keep up with the tremendous wear and tear that is being caused by our occupation mission. For the dispersion of our units, the critical shortage of skilled mechanics, the war-neglected and damaged roadnets, and an almost total lack of civilian transport systems, all combined to make our vehicle maintenance problems in occupation far exceed normal peacetime requirements.

Therefore, we decided to collect and concentrate our equipment in those occupied areas where adequate supplies of labor were available. Of the areas in which we remained in the Pacific, there was a supply of relatively skilled labor to be had only in Japan. Although the labor could not be called skilled in the American sense, it was readily susceptible to training.

We began shipping, and are still shipping, stocks to Japan from the

islands of the Pacific. The Philippines have been cleared, Guam is nearly cleared, and next on our schedule is Okinawa. When the stocks arrive in Japan, they are classified and scheduled for repair under the supervision of technical specialists from the United States.

Recently in Japan, I witnessed one part of our overhaul and rebuild program called the "Big 5" operation, which was established to fulfill the Pacific's requirements for general purpose vehicles. This operation is located in a former Japanese industrial plant where an engine rebuild plant has been set up, patterned after those designed by civilian automotive engineers for the Army, such as we have in the arsenal here in Detroit. I saw unserviceable engines taken from vehicles, which we have had to leave out in the open for years, brought in at one end of a disassembly-reassembly line, stripped down, then built up again with repaired parts and a minimum number of new parts where necessary, and then taken off the other end of the line as good, serviceable engines.

We have approximately 60,000 general purpose Army and Air Force vehicles to rebuild in Japan. At the present time, we are processing them at the rate of 1,000 a month, and are doing so at a fraction of the cost of new procurement.

The "Big 5" operation pertains only to vehicles, but we are also bringing in other equipment. It is surprising and pleasing to find that much of the packaged equipment can still be used, even though it has been stored in the open for years. The savings which we are realizing today from the use of these parts and components are made possible by the ingenious waterproofing techniques developed by industry for the Armed Forces during the war. It is amazing to find the contents of a box which has literally fallen apart still perfectly usable because of the careful preparation for overseas shipment. The Army is especially grateful to the automotive industry for its part in developing these methods.

In Europe, we were more fortunate than in the Pacific. There was an ample reservoir of skilled labor, and concentration of the equipment was much simpler. Our program of overhaul and rebuild in Germany, consequently, got under way a little sooner than in the Far East. Under a comparable program in Germany, we have rebuilt 220 million dollars worth of equipment including 38,000 vehicles, again at a fraction of its current procurement cost.

The overhaul and rebuild of our equipment in the United States has also gone forward as rapidly as could be done with the funds available. Last year, we rehabilitated approximately 826 million dollars worth of Army equipment at tremendous savings, in terms of present costs.

This Army program is doing a splendid job of utilizing Army stocks; it is saving us large amounts of money and is going a long way toward fulfilling our current needs in general purpose vehicles. However, reports of storage areas crammed with equipment may have created the erroneous impression that the supply of such vehicles is limitless. Actually, we expect that the last of the usable general purpose vehicles will be repaired and put into service within about three years.

As complex as has been the solution of our problems of rebuilding our used matériels, the development and production of new matériel have been even more complex. The time we had to take to develop superior equipment has made us lag behind in production of certain critical items.

In the field of tanks, for example, we have some very fine prototypes and experimental models. The tank is a complex piece of machinery, and we have proceeded deliberately with our available facilities until we have what we consider to be prototypes better than the known tanks of any potential enemy. But when we consider the lead that other nations have over us, both in tanks on hand and in production, we must increase our efforts.

Our nation has announced its determination to work with our friends in Europe for our mutual defense. This decision, with its concept of holding Western Europe rather than retaking it after its loss to an invader has made American shortages in tanks even more important.

Of course, we cannot afford to place the same emphasis upon peacetime military production as can the police states—we must depend instead upon producing superior equipment in limited quantities that can be mass-produced in time of emergency.

Now that we have prototypes of superior tanks, we plan to go into production on all types as soon as possible. For unless this is done, the time required to get tanks into the hands of troops in sufficient quantities in case of war would be considerably extended, and many of our divisions might have to be committed to combat with many fewer than their normal complement of tanks.

It is true that tactical aircraft, antitank mines, rockets, recoilless guns and other weapons are effective in varying degrees against tanks. But with the possible exception of tactical aircraft—and these only under the prerequisite conditions of favorable weather and air superiority—the tank is still the best weapon against tanks under all conditions of combat. This emphasizes the importance of the Balanced Tank Program which we have now under way.

The objectives of this program are threefold:

First, to develop prototypes superior to those possessed by any possible future enemy.

Second, to establish limited production facilities that will furnish industry the basis for analysis that it needs now in order to plan effectively for the rapid expansion we would need in the event of war.

Third, to provide sufficient new tanks for peacetime troop training and service testing.

This is a good program, which will go a long way toward solving our tank problems and we plan to push it vigorously.

We also have serious problems in the field of airborne equipment, where, in conjunction with our sister services, we are making some progress. We need lighter equipment and planes with greater capacity. We need to give airborne troops greater artillery support, including antiaircraft and airborne tanks.

Our progress includes the development of the prototype of a plane that can carry a tank. This is a significant achievement since our inability to deliver tanks by air was one of the greatest weaknesses of our airborne operations of World War II.

We have also developed planes and equipment that have successfully dropped the "Jeep" and the 105mm

howitzer. And we have prototypes of gliders that can carry loads up to 16,000 pounds—which is double our World War II loads—and a new assault transport that may replace the glider in airborne operations.

Another field in which we have not reached our goals is recoilless weapons, which have great value in both airborne and normal ground operations. Although these lightweight guns have proved to be sound in principle and we have tested them extensively in the field, we have not yet developed them to the point where they meet our requirements.

Our equipment situation is more favorable in other fields and, in some we excel. We still have the best artillery in the world, and we are developing some excellent antiaircraft weapons. We are completing the development of extremely accurate fire control systems for detecting and engaging high altitude aircraft traveling at near-sonic speeds for use with our heavy 120mm antiaircraft guns. And we have our new "Skysweeper," a fully automatic, high velocity, radar-directed gun for combating aircraft at lower altitudes.

The need for improved antiaircraft weapons clearly illustrates the fallacy of the belief that Army equipment does not have the same urgent need to be kept modern as does that of the Air Force and the Navy. For as the speed of aircraft increased with the introduction of jet propulsion, for example, then the weapons to combat these faster aircraft had to improve correspondingly.

In consonance with this need for modernization, the Army's research and development program seeks basically to provide a series of superior weapons and equipment consisting of the most economical number of types and sizes. In so doing, we can simplify the Army's logistical problems and increase the rate of production of military equipment.

One of our needs that was clearly demonstrated during World War II, for example, was the standardization of parts in military vehicles. This is an area in which the Society of Automotive Engineers has made significant advances in the past and in which, we hope, it will continue to make advances in the future. For it is only by making in peacetime these improvements our experience has shown will be necessary in war that we can hope to overcome the disadvantages that we may have to face. Such progress has its soundest foundations when developed by voluntary efforts in time of peace rather than under compelling pressures of war.

I have gone into considerable detail in discussing the Army's equipment problems with you here but with good reason. For I feel that it is essential to the maintenance of our future security that we continue to strengthen the rapport that has been established between industry and the Armed Forces. This rapport was built up during the compelling urgency of war, when your leaders came out to our maneuver areas, studied our problems, and then went back to build the finest combat equipment in the world.

Just as our experienced veterans in the Army must some day be replaced by younger men, the men in industry who developed an understanding of defense problems during the war will have some day to be replaced.

Without the urgency of war, we in the Army, and you in industry, must guard constantly against the tendency to become preoccupied with our own individual problems, and to go our separate ways.

In a free democracy such as ours, we do not focus the interest of our citizen by force upon national problems. Instead, we place our dependence upon the greater strength of voluntary and spontaneous interest of our citizens—as is so admirably exemplified by the Society of Automotive Engineers.

The fine work you are doing is eloquent testimony that this dependence is justified.

We cannot afford the luxury of a peacetime security based upon stockpiling the vast quantities of modern munitions we would need if war should come. For this could destroy, by exhaustion of our resources, the very security we seek to gain, and could sacrifice the freedoms we seek to preserve. We must instead seek our security in the continuous development of munitions superior to those of any potential enemy, and in the ability to mass-produce them should the need arise.

But the measures that we take to deter an aggressor or defeat him if he should aggress are only forlorn expedients in our efforts to prevent wars unless we have long-range plans to extirpate wars completely. Therefore, we must remain steadfast in implementing the programs already under way that employ our political, economic, psychological, and military resources: our continued participation in the United Nations, and support of the North Atlantic Treaty, the Marshall Plan, and the Military Assistance Program.

All of these programs, designed for the prevention of war, will demand more attention than we have previously given them in peacetime. But they do not demand—and your military leaders have never sought—undue participation by the military in civilian affairs.

Instead, we in the military seek greater participation by civilians in military affairs. For the complexity of modern war has made the military more dependent than ever before on civilian scientific and industrial genius.

Here has always been the true strength of our democracy.

Answers to ARE YOU WELL INFORMED

1. William McKinley.
2. Israel.
3. Normally an Iron Curtain country, Jugoslavia's vote may be aligned with the West since her break with the Cominform.
4. The Big Five: U. S., Britain, France, China and Russia.
5. Mao Tse-tung.
6. Formosa.
7. The Open Door Policy; Secretary of State John Hay.
8. Britain to Burma; France to Indo-China; The Netherlands to Indonesia.
9. The United States of Indonesia.
10. Secretary of State Dean Acheson; Secretary of Defense Louis Johnson; Attorney General J. Howard McGrath; Secretary of Interior Oscar Chapman.
11. Jogjakarta, Republic of Indonesia; Karachi, Pakistan; Pyongyang, North Korean Peoples' Republic.
12. 1931.

From page 51

Names of Cavalry Officers on Active Duty Omitted in Roster Published Last Issue

Ackerman, David M., 0-271752 Lt Col, Transportation School, Ft. Eustis, Va.
Adams, John J., 0-959269 2nd Lt, 517th FA Bn, APO 178 N.Y., N.Y.
Adams, Marvin L., 0-1020531 1st Lt, 9th Inf Div, Ft. Lewis, Wn.
Allen, Glen A., 0-1030288 1st Lt, Letterman Gen Hosp, San Francisco, Calif.
Anderson, Francis H., 0-1695624 1st Lt, 5th Armd Div, Cp. Chaffee, Ark.
Armstrong H. T., 0-1030887 1st Lt, The Armd School, Ft. Knox, Ky.
Arnold, Gilbert C., 0-229505 Lt Col, 2321 ASU, Baltimore, Md.
Bales, John E., 0-349175 Capt, Hq 5th Army, Chicago, Ill.
Barber, James F., 0-229457 Lt Col, Hq USARCARIB, APO 834, New Orleans, La.
Barr, William R., 0-1821809 1st Lt, 52nd Trans Trk Co, APO 827, New Orleans, La.
Bass, Alvah B., 0-2204164 2nd Lt, 2nd Bn, 6th Armd Cav Regt, APO 225, N.Y., N.Y.
Bayne, R. H., 0-19207 Lt Col, US Army Mission, Ecuador, c/o Amer Embassy, Quito, Ecuador.
Blood, Guy B., 0-1637037 Capt, 6th Armd Cav Regt, APO 305, N.Y., N.Y.
Boone, Dana H., 0-200206 Major, 118th CIC Det, Cp. Holabird, Md.
Botsford, Norman L., 0-430473 Capt, 430th CIC Det, APO 541, N.Y., N.Y.
Bowington, Elmer W., 0-1013646 Capt, 430th CIC Det, APO 541, N.Y., N.Y.
Bowman, James H., 0-1821541 1st Lt, Inf School Det, Ft. Benning, Ga.
Bowman, Vernon D., 0-452481 Capt, 2nd Armd Div, Cp. Hood, Texas.
Brainard, Stanley L., 0-303524 Capt, Army Language Sch, Presidio of Monterey, Cal.
Brannon, William H., 0-1998453 1st Lt, 9th FA Bn, Ft. Benning, Ga.
Brown, Edward M., 0-164412 Lt Col, Office Quartermaster Gen, Wash, D. C.
Brown, George C., 0-10313888 Capt, 7856 AGRC, APO 58, N.Y., N.Y.
Bruner, George E., 0-1821819 1st Lt, 37th THT Div, APO 62, N.Y., N.Y.
Brush, William H., 0-2019280 1st Lt, 111th CIC Det, Ft. McPherson, Ga.
Burbach, Erwin, 0-315121 Major, 6513 ASU, Sacramento, Calif.
Burford, John C., 0-532491 1st Lt, Sp Sv Sch, Ft. Monmouth, N. J.
Burghardt, William C., 0-451912 1st Lt, 14th Inf Regt, Cp. Carson, Colorado.
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THE RED ARMY: RUSSIA'S MILITARY TRUMP

THE RED ARMY TODAY. By Colonel Louis B. Ely. Military Service Publishing Company. $3.50.

A Review By

GARRETT UNDERHILL

The National Parks people ought to look over Washington's statue-adorned circles, to see if there isn't some memorial to a character no longer regarded as highly as he used to be. Let them remove his statue from its pedestal, and replace it with a jeep-mounted heroic figure of Colonel Louis B. Ely, G.S.C. The wreath-bearing semi-nude goddesses usually grouped around the base of such pedestals should be removed for fully-clothed facsimilies (in suitable poses) of Colonels Samouce, Batchelor, Thompson, Bailey, and Eugene Ely; of Lieutenant Colonels Hasselback and Billingslea. Let Majors Rolan and Witt—other officers whose valuable aid Colonel Ely has forthrightly acknowledged—appear as jeep drivers.

Seven Good Reasons

There's no doubt of it: in times like these, such officers deserve to be put on a pedestal. There are at least seven good reasons why:

1. While most people talk of Russia's B-29 bombers, snorkel subs, atom bombs, jet fighters, and guided missiles, Colonel Ely and the men who helped him have undertaken a thorough professional study of the A1A priority subject: the new Soviet Army—that part of the Soviet forces which everyone concedes to be Stalin's main military trump, but which all neglect.

2. Colonel Ely has turned out a type of work of which America is in critical short supply: a real job of *military* scholarship, one that deals not with the Civil War or the Battle of the Bulge, but with our knottiest problem.

3. The writing is first-class: smooth, simple, clear. Typical is the Colonel's use of "What did he mean?" when some military men, more impressed with the need for dignity than the need to get their stuff across, might have written: "Consideration should be given to the significance of the Marshal's statement."

4. Colonel Ely puts the human factor where it belongs: right up front. Because so many of our military men and scientists (including the eminent Dr. Vannevar Bush) seem to have become over-fascinated with matériel in its quantitative and "superweapon" aspects, Colonel Ely's interrelation of human and material factors makes his book all the more timely.

5. Tactics are at last given their due position in a postwar military study—and one on Russia to boot. (Lest some dealing only in high-level policy and strategy consider the Colonel's detailed documentation trivial, this book should call to their minds the fate of the French in their center punch drive of 1914. This beautiful well-conceived strategic plan came to naught, because top-level men were too high up in the wild blue yonder; they hadn't keyed into their strategy the Germans' developments in machine gun tactics, as they affected companies and battalions.)

6. Technique is tardily given its proper place. Colonel Ely in his exposition of the relative worth of different artillery techniques shows startlingly well what a difference technique can make in developing the full effectiveness of weapons.

7. Colonel Ely sticks his neck out a mile. You'll find no hedging, no weasel words in this book. When the Colonel draws conclusions, he draws them so you can see them. Not once does some responsibility-dodging euphemism like "It is believed that. . . ." rear its ugly and cowardly head. Particularly in his last two chapters, which do a remarkable job of pulling his material together by relating it to a mythical Russo-American war, the Colonel makes clear what he thinks is the meaning of the data he presents. Since the inevitable tendency of the military in peacetime is to ape the turtle and keep one's neck close to or in cover, Colonel Ely shows a degree of moral courage which represents a defense asset perhaps as great—if not greater—than the atom bomb.

Perhaps it's no coincidence that a work of this stature should turn out to be the product of an Artilleryman. It may well be that an American Artilleryman is best fitted to appreciate the strengths and weaknesses of a foreign force which is highly conscious of the value of fire and movement, which puts its trust first in artillery, then in armor (which after all, and especially in the gun-conscious Soviet Army, is basically several special forms of mobile artillery).

It's high time we heard from the Artillery, too. The only thing wrong with our Artillery during the war, was its public relations. Our Artillery was so good that it didn't have to whip up interest. Few know that the boys out at Sill by the mid-1930s had worked out tactics and technique which stood up to the test of war as did the T & T of no other arm of any

Army. Our Artillery, though teaching one of war's most complex arts, did a marvelous job of training, too.

All in all, then, there's every possibility that this book may be of far greater importance than it at first appears to be. Not only is it authored by a soldier with a background in an outstandingly successful arm; it's got enough material to give plenty of food for thought. For Colonel Ely has not worked by the vicious technique of induction—by advancing a thesis, then picking and choosing his material so as best to back up his argument. He has wisely packaged a great deal of research, and from it drawn conclusions with which the reader doesn't necessarily have to agree. Mulling over the wealth of material the Colonel has set forth, the reader has scope in which to develop his own reactions to the research. The way the book is organized makes it easy to form one's own conclusions.

Colonel Ely's book does not claim to be the definitive study on the the Soviet Army.

Timely Information

As an officer who has had the job of handling intelligence for combat forces, he clearly has been aware of the need of getting out the dope before it's history. He is evidently anxious to avoid a repetition of what happened at the outset of World War II, when our troops were surprised in North Africa by 88's—though there had been on file for years full data on "88" tactics, technique, and characteristics.

Because Colonel Ely has obviously had to strike a balance between scholarship and time requirements, we can expect the book to fall short of perfection. However, his book is considerably superior to the French Gen. Augustin Guillaume's SOVIET ARMS AND SOVIET POWER. Gen. Guillaume's study relies too strongly upon Soviet sources, so much so that it may be said to have an unconscious pro-Soviet slant. Many parts of the French general's book indicate that it is based upon insufficient research. Any real "feel" for the Soviet forces is quite lacking. Throughout the main body of his book, and especially in the appendices on matériel and organization, the French general shows a lack of knowledge

The Author

Colonel Louis B. Ely, author of THE RED ARMY TODAY, is a member of the Personnel and Administration Division, Department of the Army.

of fundamentals. This lack is so marked as to suggest that his book can be of little value to either the military man or journalist.

Though correct data has long been available in unclassified publications in several languages, SOVIET ARMS AND SOVIET POWER gets wrong model numbers on four of the most important pieces of artillery, and on three of the four main flak pieces. The book has the KV-1 heavy tank being remodeled after the Finnish War to become the KV-2, whereas both were contemporaneous models, the II being a self-propelled gun version which was abandoned

The Reviewer

Jean Raeburn, N. Y.

Garrett Underhill was Chief Editor of the Military Intelligence Division during the war. He is a recognized expert on the Soviet Armed Forces.

after 1941. The standard cal. .30 wartime LMG, introduced in 1926, is described as "The .60 caliber light machine gun, . . . in existence since 1939."

It is regrettable that these and other careless errors, certainly indicative of low-grade research, characterize the whole book, SOVIET ARMS AND SOVIET POWER; and that so prominent a figure as Lt. Gen. Walter Bedell Smith has somewhat confused matters by writing equally commendatory introductions for both SOVIET ARMS and Colonel Ely's THE RED ARMY TODAY.

Colonel Ely's THE RED ARMY TODAY suffers from some of the same defects as Gen. Guillaume's book. Colonel Ely's book is weak on what went on in the early days of the war, on prewar history of the Red Army, and certainly on still earlier backgrounds. This weakness makes impossible balanced evaluation and full understanding of many current conditions and developments. It leads the Colonel to attribute to wartime or contemporary events matters which have their roots well in the past.

Background Influences

In his chapter on Horse Cavalry, the Colonel reveals his apparent lack of understanding of the effect of the Civil Wars on pre-World War I Red Army thought. Many students of the Russian military scene, including the Red Russians themselves, have considered the effect of this unusual Civil War experience as having a deep and almost catastrophic effect upon the pre-World War II Red Army. One could wish that the Colonel had delved into this matter of background influence; he might then have been induced to examining wartime and postwar developments, to see the better how Russian World War II experience might condition Soviet thought in a manner we might exploit.

Apparent lack of time for historical study seriously affects some of the Colonel's estimates. In dealing with the possibility of correction of wartime Red Army lack of training, technical education, and initiative in small units, he fails to grasp that the defects he singles out were those which have characterized Russian armies for centuries. In particular, they were noted at the Kiev maneu-

vers in 1936 by foreigners and Russians alike; they were made the subject of an intensive Red Army reform program after the revelations of the Finnish War of '39-'40—yet they cropped up again during the war. Knowledge of history would seem to indicate that solution of these seemingly chronic problems may not be so easy as the Colonel suggests.

Germany in the Pattern

Lack of knowledge of Germany's side of the war, and of good postwar material on the German military machine, also weakens a fine book. For armored folk, a serious defect is the failure to mention the Germans' lack of tank strength, in the list of reasons why the Germans failed in their 1941 assault. Colonel Ely does not understand that Guderian's scheme for use of armor, as employed in the West blitz in 1940, was modified so that panzer divisions could help round up the Red armies west of Moscow. There is no evidence that the Colonel is aware that in the 1941 attack Hitler and the conservative German military violated two of the cardinal rules of German armored doctrine.

Sometimes insufficient knowledge of both German and Russian forces gives Colonel Ely a double error. He rates the MVD troops as an elite force like the German SS. War Department publications during the war revealed the fact that the SS by '44 had grown to be a foreign legion; that only a few of its divisions were pure German—as they had been before the SS was cut to pieces in Russia in '42. The point made in these studies was that the Germans stumbled on an important discovery. SS Chief Himmler found that only the SS cadres had to be fanatics. Such a cadre could hold the rest in line, using a variety of carrot and whip techniques, like power and prestige, better treatment and fear. Other pamphlets, now declassified, describe how the NKVD (and now the MVD) worked on the same principle, drawing their cadre fillers from the normal military draft, as would any Red Army unit.

From the Horse's Mouth

Though not to the same degree as General Guillaume, Colonel Ely leans too heavily on Soviet sources. From this biased material—which he recognizes as such—he gets data which leads him to give armor's war record a few unmerited black eyes.

In telling how the Germans got stopped at Moscow, the Colonel writes:

"A great strategic error was made when large panzer forces drove into the swampy area north of Moscow, where such limited terrain as was suitable for armor was covered by numerous antitank guns and direct fire artillery pieces. Unable to maneuver, large numbers of German tanks were lost."

Repeated elsewhere in the book, this Soviet semi-myth greatly exaggerates the armor available to the Germans. Statements relating how the Russians shot up "III's and IV's in great numbers" in that action, and how "a large proportion of the German troops encircling Moscow were panzers . . ." fail to get across to the reader the worn-out condition of the German panzer divisions, which because of lack of motors and armor were hardly worthy of the name before the Battle of Moscow began. "Great numbers" is a most inaccurate term to describe even the total German tank strength before Moscow. Diversion of armor to the Kiev round-up in August-September, which the Colonel fails to mention, is generally recognized as one of the cardinal German errors. Other Western writers have never rated this Moscow business as significant—and their reasons appear to validate that rating. Compared to Hitler's major blunder of doubling the panzer divisions for the Russian campaign, but halving their tank strength, what went on panzer-wise at Moscow has no real significance.

Soviet Myths

Colonel Ely also incorporates the Soviet myth that the Germans were turning out armor in a big way. He speaks of the Germans' manufacturing Panthers in "great quantity" in 1943, though only 1,850 were built that year. Mention of "masses of Panzer V's" (Panthers) and "numerous Panthers and Tigers" gathered for the Kursk drive should not have been made without checking against German records. By the time that offensive opened, less than 300 Tigers had been built.

When dealing with the Kursk offensive and the Russian counterdrive which followed, Colonel Ely allows the Russians to get full credit for the decision to let the Germans attack first. He fails to give credit to the Allied High Command, and in particular to Britain's General Sir Giffard Martel (who was there to argue in person, after inspecting Russian Armed Forces), for persuading the Russians that their armor lacked the skill to strike while German armor remained fresh for a counterdrive.

Armor folk should watch all the book's tank points. Some emphasis is given to the Soviet myth that the T-34 medium tank first appeared during the Battle of Moscow—to the claim that this novel weapon's appearance was a big factor in turning the German blitz tide. Apparently the Soviets, like Hitler, believe you can get away with any whopper, so long as you repeat it often enough. But, the reviewer has before him a set of photos of T-34s the Germans captured in Kaunas, Lithuania; issued by Associated Press wire photo services on 3 July 1941, these and others of similar date prove that the Germans are right, when they say that they encountered T-34s in the first week of the war—over three months before the date the Soviets give.

Remarkable Performance

What is most peculiar is a quoted Soviet account of the T-34 debut (sic), which relates how forest-hidden T-34s knocked out German tanks at ranges of two miles. Considering the fire control equipment fitted to T-34s of the era, and the characteristics of the guns (even assuming that these tanks had the Model 1940 76-mm piece, of 2,200 foot-seconds muzzle velocity), the antitank fire of these T-34s is little short of fabulous.

As does Lieutenant General Bedell Smith in his book MY THREE YEARS IN MOSCOW, Colonel Ely picks up the bland Soviet lie that the Germans considered that T-34 superior to their Panther.* While the Germans did consider the T-34 the best tank in the world when they first

*(Gen. Smith in his book and magazine article on Russia, tells us that American artillerymen think highly of Russian artillery; yet Colonel Ely's book, to which the General has written a commendatory foreword, is full of excellent critiques amounting to a thorough debunking of the Soviet artillery myth. Our military should get together.)

met it, their acknowledged copy—the Panther—they rated (contemporary documents prove it) and still rate as the war's best medium tank. Figures on characteristics bear them out.

Lack of full appreciation of armor causes Colonel Ely to rate the T-34 too high as a postwar tank. The original characteristics—low ground pressure and high horsepower-weight ratios—are rightly underscored; but the effect on these ratios (and on the original low silhouette) of nine years of re-gunning and re-armoring is passed over. Apparently it is difficult to grasp why the old T-34 ain't what she used to be. The same comments apply to the boost given the heavy tank JS III (the last in ten years of KV's), which is about in the same boat as the present T-34.

Errors are also made in describing the original KV. It is mistakenly given a 122mm gun (like the Stalin's). The sources used belittle the KV, fail to give any idea of its importance in the development of armored war. "Slow and clumsy" hardly characterizes the way it could get around because of its broad tracks and high horsepower-weight ratio. Indeed, it's hard to see how the KV can be so rated, considering the characteristics of the praised Stalin—which has grown out of it. Greater knowledge of the KV and its development have caused the Colonel to modify the way in which the Stalins sweep down into the Middle East and across the Africa deserts; for the Stalin is heir to the cooling problems of the basic KV design.

Omissions in Armor

Regrettable omissions from the armor viewpoint include: heavy tank tactics; the role of heavily armored self-propelled guns in tank and mechanized divisions today; tank versus tank tactics and battle examples of tank vs. tank combat; consideration of communications; especially radio use in open warfare; the role of infantry in tank and mechanized divisions, and the effect of lack of armored infantry transport.

Infantry is somewhat poorly handled. Small unit tactics and technique are lacking. This section of the book could have been improved by a few diagrams of rifle companies and battalions deploying, and in defense and in attack. The value of such diagrams to military readers, now lacking such material, would have been far greater than rather vague text.

Perhaps because of the author's patent high standing as a field artilleryman, the Infantry is rather neglected, despite verbal recognition of its vital role. Absence of a semi-auto rifle in the Soviet Army is accounted for by having a Soviet officer say that the Ivans can't care for one. Since the Soviets repeatedly tried to introduce semi-autos—giving up only after the war started—this statement is wrong. We have the Soviet reasons for abandoning the Tokarev, and the one Colonel Ely gives is not among them—nor should it be.

A mythical infantry lieutenant is made to say that troops always wore valenki (felt boots) and a quilted uniform in winter. Actually, these items of clothing issue went to armored personnel. Infantry only got felt boots in the Arctic, or if on certain special assignments. The author does not seem to be aware that the Russians, starting in 1937, tried out various models of "company mortars" (like our 60mm), finally joined the Germans in abandoning that class of weapon. The M1927 and M1943 Infantry Guns don't even make the book, though the deficiencies of these pieces have worried the Russians for years.

Weapons and Velocities

Self-propelled artillery, though armored force weapons, are dealt with as if artillery—as are tank destroyers. The original TD—the SU 85—is left out; development of TD's starts with the SU 102. Treatment of antitank is not as sympathetic as that accorded to field artillery proper. The author does not seem to understand that both Russians and Germans did not particularly care for recoilless crew-manned weapons firing hollow charge (HEAT) rounds, because of their high trajectory. Russo-German war experience convinced both armies (which had recoilless artillery before we did) that moving armor could be hit easier, and at greater range, by flat-trajectory high-velocity guns. Such pieces require less fooling around with adjustments for range and speed of the target; give the target less chance to move after the trigger is tripped.

Both German and Red forces differentiated strongly between the main AT weapons (high velocity guns), and cheap light HEAT weapons for very local infantry defense. It is important to realize that the Reds tried and rejected the bazooka; that the Germans followed suit, favoring the simpler and better penetrating one-man throw-away Panzerfausts, a weapon that the Reds in turn took to.

Widespread Russian wartime issue of "arrowhead" antitank projectiles which have special characteristics is misunderstood, the AT ammunition issued to artillery being described as "shells" instead of shot.

Use of flak artillery in antitank defense is not mentioned, Flak both mobile and fixed (naval) is in fact left out, as is coast defense matériel. This omission is somewhat remarkable, considering the importance of protecting mobile columns against strafing, and the possibility of anti-Soviet forces having to assault some naval base (as we did Cherbourg). And one could wish that an Artilleryman like Colonel Ely had discussed the rather peculiar pair—the 122mm M1931/37 gun and 152mm M1937 gun-howitzer which by our standards are neither medium nor heavy artillery, but somewhere in between. There must be some tactical reason for their existence, but nobody has yet told what it is.

Designations

These and other errors and omissions should nevertheless not detract from full appreciation of accomplishment of an extremely difficult job. One could wish, however, that greater effort could have been made to check certain simple points. (The plate of the 152mm "heavy field gun," for instance, shows a kind of composite 122mm gun and 152mm gun-howitzer, but certainly not the M1935 152mm gun). Since the Soviets have such a long line of pieces in most every class and caliber, for the military it would have been well if some more definite designations had been used than, say, "76mm light field gun." (The Reds during the war had seven models of guns answering that description—six markedly different.) In that respect, this book is one with most all Army organizations. The author makes no apparent effort to

adhere to whatever official standard may already have been set.

Let us hope that subsequent editions are possible, in which corrections can be made. As things stand, what's wrong does not detract from the overall value of the work. The important lesson Colonel Ely has to teach us, is that the Russian masses are by no means as powerful as they might appear, if judged as if they were Western forces. Most of the errors and omissions would serve further to document the Colonel's already sound conclusions. To an officialdom which till recently thought the Soviet Army too big to fight, such overwhelming documentation might have seemed too good to be true. Instead of making the impression which it ought to make, the Colonel's book might be discounted. And this is no farfetched possibility, either: remember that Luftwaffe intelligence found that guile, rather than forthright presentation of documentation, was often the best way to "sell" a point of view they considered vital to German security.

A Unique Study

Now that Colonel Ely and his aides have produced a unique study on a foreign force (we could have used such a book on the Japs and Germans in '39 or '40—even '41), we may hope that the Department of the Army will encourage similar surveys—and particularly ones dealing in greater detail with various elements of the Soviet forces. Private enterprise and scholarship, history tells us, produce the best results in both public and private life. The great military writers have seldom if ever been created by official order.

This reviewer's own Army experience testifies to the difficulty of producing such a monumental work as the Colonel's. As the products of inevitable committee compromise and of a command hierarchy which usually hesitates to sanction a work with out-of-the ordinary ideas, official studies are hardly the kind to stimulate military thought. Nor are they necessarily accurate: command prerogatives, which are at best poor instruments to exercise executive authority over research and publication activities, often force research and writing groups to meet impossible deadlines.

Long Step Forward

Colonel Ely's book is a long step forward. And if we could get books of the same caliber right down into the hands of Regular and Reserve junior officers and noncoms—books dealing with specific arms and services, as well as with the over-all, we might be well on the way to winning any war with Russia, long before Stalin fired the opening gun. Unless we want to duplicate Hitler's experience, our minds, our tactics, and our matériel must be eminently adapted to deal with the specific problem of Russian minds, tactics, and matériel. Books like this are the best ways of bringing about such adaptation.

Instead of developing an hydrogen-helium atom bomb, let's get behind Colonel Ely—and see if there aren't others like him. Counselled by them—provided with the real dope from their work, we'd be able to have the relatively cheap, yet effective, defense we so badly need.

"*Somebody had to do it,*

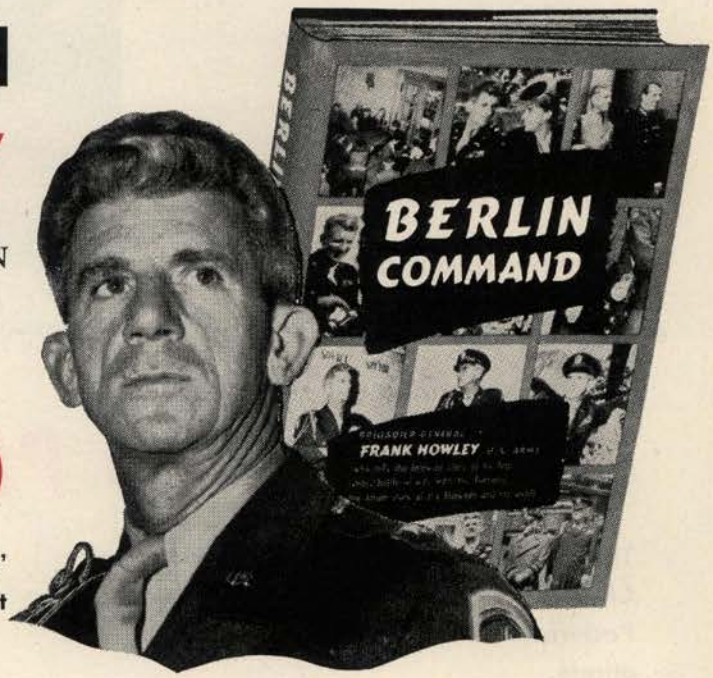
so I shook my fist in the Russians' faces,"

says **Brigadier General**

FRANK HOWLEY

U.S. MILITARY COMMANDANT IN BERLIN

in BERLIN COMMAND



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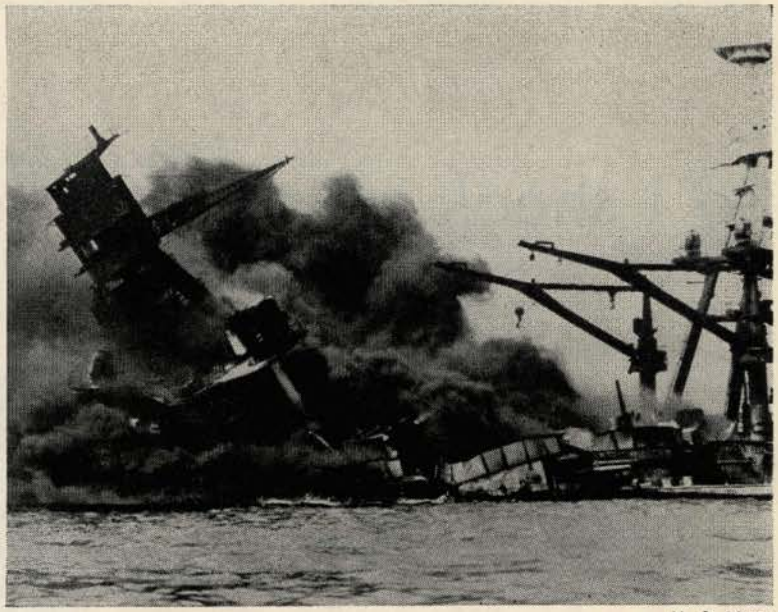

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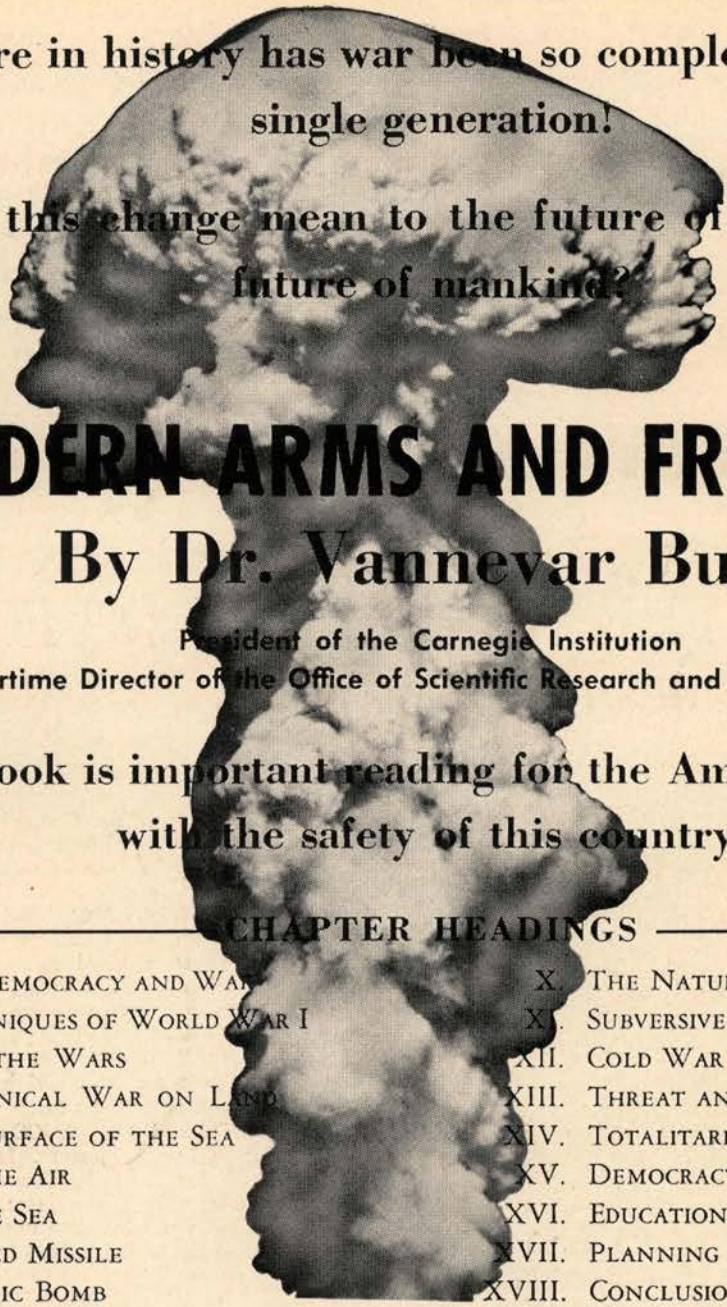

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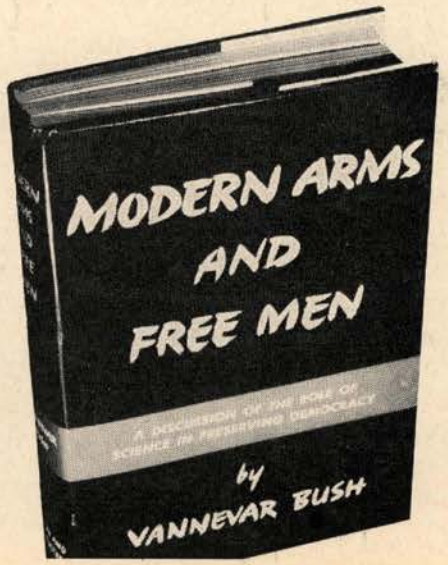

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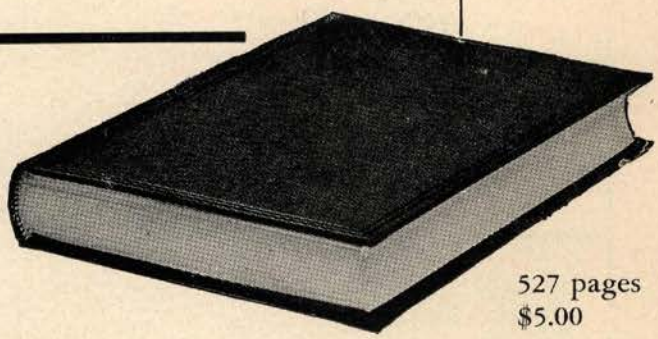

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CONTENTS

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OUR service journals found their origin in the desire, or need, of company grade officers and noncommissioned officers for a medium through which theory and practical experience might be exchanged which would complement the stilted language of the Field Service Regulations and the field manuals of the various arms and services. The greater the experience the more valuable the official manuals became, but the younger personnel have felt the need for more detailed discussions of the fundamentals of technique and their application.

Through the years the number of these journals increased until nearly every arm and service had its own periodical which set forth combat exploits and maneuver anecdotes from which lessons and pleasure are derived by Regular, National Guard and Reserve alike.

THE arms and services have treated their publications as house organs are treated in industry. They filled a need and were subsidized by the use of two or three regular commissioned and enlisted personnel to administer the office; accept subscriptions, solicit articles, edit and publish the magazine.

Should that subsidy, represented by appropriated funds in the form of pay of assigned active duty personnel, be withdrawn, the cost of production of these journals would increase substantially. Staffs would of necessity be paid from nonappropriated funds. Suggestion has been made that all combat arm journals of the Army be combined into one publication. This might very well have the effect of restricting the subject matter of armor for which space is now desirable in the present Journal, and might result in denying the publication of the very material which had built up the demand for these publications in the past.

In these days of cold war, we must look to a furtherance of those close battlefield associations between the Infantry, Armor, Artillery, Engineers, Antiaircraft, Tactical Air Support, etc., whose combined employment made our ground forces superior to those of the enemy in World War II. The nation as a whole, the services in general, and the Army must demonstrate a solid front if our way of life is to be preserved.

THE close association of Infantry, Armor and Artillery was so thoroughly demonstrated in World War II that it needs no further comment beyond the statement that we must continually strive for the complete integration of the Infantry, Armor, Artillery and, of course, the close support of Air teams.

The problems of developing Armor's great mobility and fire power to produce surprise and shock action in furtherance of the main effort are sufficiently stimulating to continue the demand for a separate Journal devoted to Armor. That the Association feels its obligation to continue publication of its Journal is indicated in the recent vote of the membership on the subject. This will require increased funds and effort on the part of all of us.

THE Executive Council of the Association has formulated a program to implement the desires of the membership. One of the measures will be an increased scale of dues and/or subscription rates, to be effective June 1st. It is estimated that with the income thus derived the Association will be able to continue publication of a high quality Journal, with a civilian staff if that becomes necessary, as well as to make annual contributions to the Armored Cavalry Leadership Tests, and carry on other worthwhile activities.

All subscriptions received prior to June 1st will be entered under the present rates. The new schedule of rates appears below.

The Editors

ATTENTION: New Rates Effective June 1st

Type	*One (1) Year*	*Two (2) Years*	*Single Copy*
Domestic and APO	4.75	8.00	.85
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IN THE JOURNAL

60 Years Ago

The Chief of Ordnance reports that all efforts to obtain a smokeless powder have been abortive in this country, and that American powder makers and chemists have not been awakened to the lucrative opportunity presented to them. The report then says:

"In view of the present status of the powder question it is not deemed expedient to produce a small caliber rifle for compressed powder cartridges. Such a rifle, however excellent in itself, would be inferior to foreign arms useing smokeless powders, and consequently, unsatisfactory to the army and the country at large. It is believed, however, that all the elements entering into the problem except the powder are ready for use the moment this powder is obtained. A .30 caliber rod-bayonet Springfield rifle has been made, and a rod-bayonet .30 caliber magazine arm is now in progress of construction in anticipation of the final acquisition of the much needed powder, so that no time may be lost in presenting for trial both single-loading and magazine small-caliber rifles."

50 Years Ago

One of the noticeable features of our military history is the necessity which has obliged us, in every war of any magnitude we have undertaken, to depend on the people at large, in whom resided a very slight knowledge of military affairs, for the majority of the officers, as well as the men who were to do the fighting. This state of affairs, unpromising as it appears, has fortunately not, as yet, led us into any great national disaster, though the historians tell us we were perilously near to the greatest in the earlier years of the Civil War.

Since that epoch, the government has committed itself to two measures, aiming to extend and popularize military training and discipline. It has built up our present fairly effective National Guard system on the slender-framework of the ante-bellum militia system, and has greatly extended and improved the system of military school training.

25 Years Ago

Mobility is the means to an end, the end being to apply fire power and shock at places most harmful to the enemy. Whether fire power or shock be used, mobility should be employed to place the cavalry at the enemy's place of weakness,—at his throat so to speak. This place is sought out by active reconnaissance; when discovered the cavalry moves against it with great rapidity. Such place may lie along the enemy's front and an attack delivered at that point at once may be more productive of results than one delivered elsewhere a half hour later; but generally the point to be struck is the enemy's flank or rear, and there the cavalry must expect to reap its full harvest.

10 Years Ago

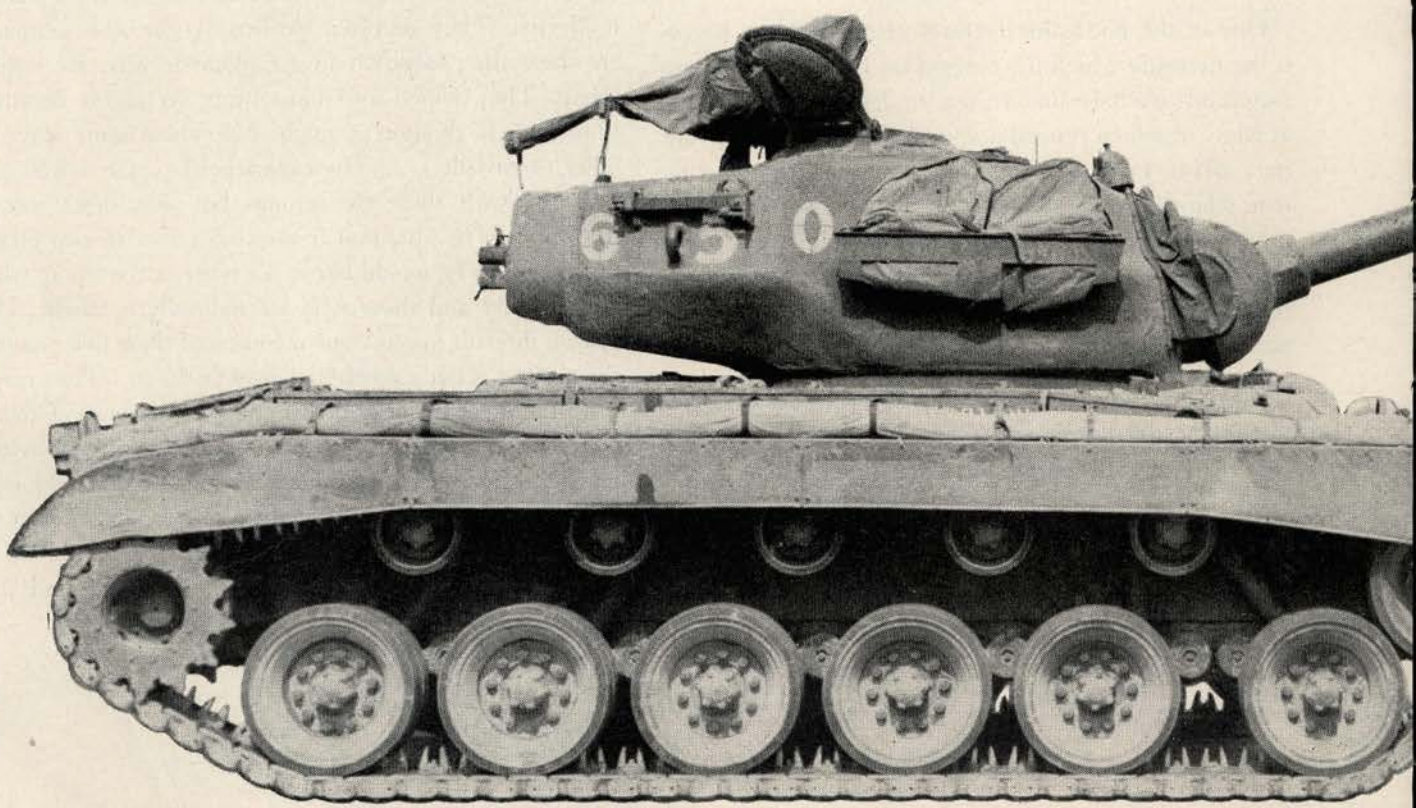
The Reserve Corps has been compared by one officer to a church congregation in which can be found all types. We have first the devout, or the zealots, those who have great faith and who put their convictions into practice. Their number is small, but in the Reserve Corps they are often the leaders. Interested in military affairs, they not only believe in the National Defense Act, but try to make it effective. They are often idealists. At the other extreme are those that, to put it in a diplomatic way, are indifferent. They joined and have hung on so far because they vaguely thought it might help them some way or other eventually. . . . The experienced pastor is well acquainted with these two groups but they don't worry him much. His attention is directed rather to two other groups which he would like to see more active—those who are too busy and those who are naturally apathetic. He finds it difficult to catalogue members of these two groups, they are so often a combination of both. . . . They comprise the great majority of his charges, but most of them are young, just getting started, busy making a living and with little time for other activities. If he could just keep them interested and get them to participate, even to a small extent during their early years, it would be a great step forward. At last report he hadn't found the answer.

by COLONEL G. B. JARRETT

Colonel G. B. Jarrett is an Ordnance Reserve Officer. During the early part of the war he had occasion to study armor on the scene in the Western Desert in North Africa. From 1942 to 1946 he was in charge of the Foreign Matériel Testing Agency of the Ordnance Department at Aberdeen Proving Ground. His hobby is the Jarrett Museum of World War History, located at Aberdeen, Maryland, and including items from both wars.

. . . the Combat Efficiency of Tanks . . .

. . . can it be expressed numerically?



THE combat efficiency of a tank should and can be expressed numerically. If the important parts of a tank are given honest values, based on the amount each contributes to the mission of the tank in battle, the sum of these values will represent its combat efficiency factor.

Before assigning values to the components of a tank, let me express an opinion on the combat role of the tank as a complete weapon. A tank is made to fight another tank. There are some who believe that tanks are not made to fight tanks, but rather to take on general missions of a land force where they would attack thin-skinned vehicles, field fortifications and personnel in the open. Undeniably that was true of WW I designs, but it is not necessarily true of those seen in WW II.

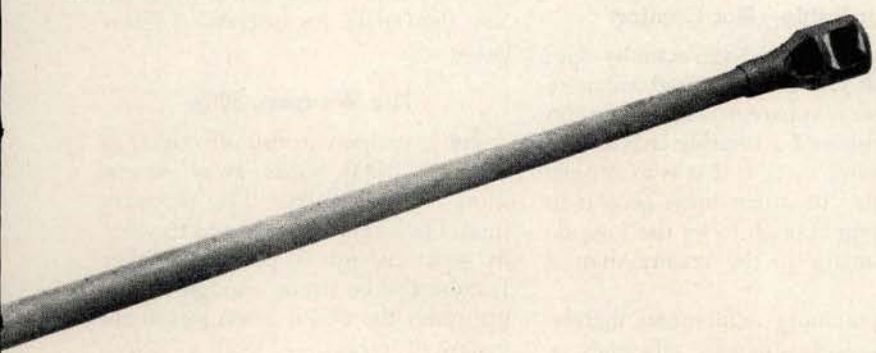
During WW II tanks were, on many occasions, actually used as armored field batteries, because they had cannon of 75-mm size or more. Undeniably they could put down a barrage as well as any other piece of the same bore. Some records may show that Allied tanks fired more HE than AP ammunition (if true, it could have been because the enemy or Allied commander either dared not commit his vehicles in tank-to-tank combat or because he did not understand tank warfare). Nevertheless, somewhere, sometime, the tank-to-tank battle is inevitable, and that type of combat is the true test for a tank.

Comparison Difficult

It is difficult, however, to make a direct comparison between one tank and another. One tank might have an excellent gun, with only a fair or even poor power plant. On the other hand, one might have well designed armor which is too heavy to permit full mobility. Again a poor power plant might penalize an excellent fighting tank, which otherwise had good armor and a powerful gun.

The Second World War saw many poorly designed enemy or allied tanks committed to action, and also saw hastily modified designs and other pathetic attempts to provide troops with vehicle-weapons. Some designs showed great promise, but there were practically no tanks designed, built and put into action that had all the desirable features of a fundamentally good tank. Professional opinion of requirements by the user often conflicted violently with those of designers and tank builders. Because of requirements, at times the finished tank is a compromise and becomes embarrassed in the final analysis due to some feature being overrated.

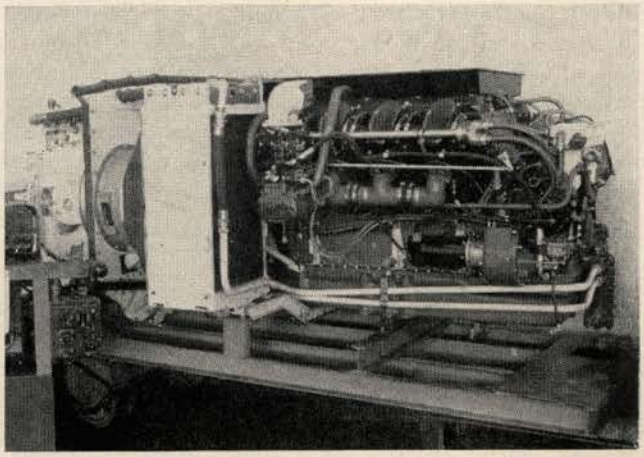
Few tank designers of WW II had learned their basic A B C's as combat tankmen. A classical example of a tank with a remarkably fine power system, but with inadequate armor and an underpowered gun was the M4 tank, better known as the Sherman. This had a 75-mm gun of low power which had great difficulty in seriously hurting the later German tanks. The armor of the Sherman was shot up with ease by enemy guns at varying ranges. The German Panther tank, on the other hand, by virtue of the arrangement, thickness and toughness of its armor, presented a difficult target. It had an unusually good power plant for a German tank, and it carried a gun capable of penetrating most any armor it encountered and at astonishingly long ranges. Its all-around performance was so efficient that it became a serious threat to



There is a general tendency these days to reduce everything to a mathematical formula. Why not the combat efficiency of our fighting vehicles? Our author is one person who thinks it can be done. He comes up with a method for doing it. The reader who disagrees with the percentages arbitrarily assigned the various components may substitute his own values—again arbitrarily—and apply them to this provocative theory. The findings are interesting, to both the designer and the fighter.

U. S. Army

FOR ARMAMENT: Gun and ammunition—30%.



U. S. Army

FOR MOBILITY: Power plant and suspension—30%.

Allied operations.

The German King Tiger, which carried a super 88-mm gun capable of delivering very heavy punishment, was protected by excellent armor that withstood battering from enemy guns, but it suffered from a most underpowered engine, and consequently had a poor maneuverability. While its gun could quickly wreck any tank sighted, it was only a matter of minutes until its great lumbering weight told on the engine. Actually because of power plant-maneuverability, the King Tiger was nowhere near as formidable as believed by most Allied troops subjected to some good propaganda.

The tactics devised for the Sherman tank were based on superiority in numbers. It could not hold its own, one to one, against most of the later German tanks. It conquered by sheer weight of numbers.

For Easy Handling

At the same time, one must bear in mind that had the Allied armies of 1944 had huge land giants for tanks, they could neither have produced them quickly, nor could they have logistically handled them easily from the factory to the Normandy beaches. Booms and cranes of shipping services are seldom capable of the efficient handling of 75-ton packages, like the King Tigers. Shermans were easily handled and were landed in unbelievable numbers on the beaches. Shermans were easily hauled to battle areas in the ETO, whereas some Tigers are known to have reached the battle areas in need of extensive repairs in spite of long rail shipments to conserve them.

In determining the most essential components of a tank, the gun and ammunition are certainly the most important and deserve the number one consideration.

Recalling early days in the Western Desert in Libya, some British Tommies insisted that a good gun, even on the tail gate of an unarmored truck (some were actually built by the British for the Libyan Desert), was better than the undergunned and thinly armored vehicles then current on both sides in the Desert.

For Battle—Not Comfort

While today no one actually suggests the tail gate-mounted weapon, the lesson is apparent. A fine weapon must exist, and a suitable chassis and engine must carry it if it is to survive the battle. Its armor must keep it in action long enough to let the tank do more damage to the enemy than it receives.

All remaining refinements merely, and hopefully, increase efficiency or crew comfort. The latter, some designers hold, makes for combat efficiency. This could be debated. Since the combat life of a tank is all too short anyway, the emphasis should be on increasing combat efficiency, not on turning a tank into a Pullman car. "Extras" at times can run the cost per ton of a vehicle far higher than is warranted.

Let us, then, rate these various factors, arbitrarily assigning a numerical value to each, and rating the perfect tank at 100%.

In a combat tank the weapon is vital. I have rated its importance as 30% of the whole. Mobility follows with another 30% of the whole. Armor is next, at 20%. To possess the best tank in the world, but not to have it at the front makes it worthless. Therefore tank logistics, or the ease with which the vehicle can be built and delivered to the theater of operations from the factory, rates the final 20%. This 20% of the desired 100% will later on be expressed in tonnage of the vehicle in question.

Let me take some actual cases now and show how we can rate numerically the combat efficiency of a tank. While the percentages given will be arbitrary and controversial, nevertheless, they make for interesting speculation.

The Weapon, 30%

For a weapon to fire effectively at a target 1000 yards away several things are necessary. The projectile should be heavy enough, and its velocity great enough to penetrate armor. It must also be strong enough to hold up under the abuse it receives at the instant of impact.

Consider the energy as that delivered in foot-tons at, say, 2000 yards, 1500 yards, 1000 yards and 500 yards, and assign them values of .12, .09, .06 and .03 respectively. These represent their share in the value of 30% given the armament part of our combat vehicle.

Obviously, serving the piece by a complete round will get shots out quicker than by separate loading. Thus, if our weapon were assigned a value of .06 because it had complete round loading, it certainly should rate only half that much by separate loading, or .03.

By conjecture, a stabilizer-equipped tank might enjoy .04 advantage, and if a range finder is added, an extra

advantage of .02 could be realized.

Short flight time for the projectile is essential. Any weapon in this day and age which does not exceed 3000 feet per second in muzzle velocity, for conventional projectiles, is certainly at a disadvantage. Thus, if under 3000 it can be rated at .03 while if exceeding 3000 it should certainly enjoy .06. During World War II most Sherman tanks had a 75-mm gun, which fired at 2050 feet per second, later a 76-mm gun firing at 2600 feet per second. The Panther 75-mm fired at 3280 feet per second. A vast difference in penetration performance and flight time is suggested by these figures, because the weights of the three projectiles involved were almost the same.

Mobility, 30%

Mobility embraces two important features, the power plant and the suspension. If either one is inefficiently associated with the other, any tank is badly handicapped. The first is the power plant, which in itself is broken down into a number of features, any one of which, if lacking in efficiency, can penalize the tank seriously. The second is the transmission-suspension-track system.

The power plant portion of our tank represents two thirds of the overall 30% assigned to mobility. Carrying it further, the ratio of horsepower to tank weight receives a value of .075. The speed of the tank rates .025.

The transmission is important. It deserves .025. Many older tanks are badly penalized by their inefficient steering and transmission systems.

The suspension is so important that a poor design can nullify the advantages obtained from an excellent power system. The Sherman in World War II had a fine power system, in fact the best of any enemy or Allied tank seen, but its tracks were inadequate and other far heavier tanks could easily negotiate difficult terrain, which would have left the Sherman mired. It was all too often road bound in many areas.

It is controversial, but this writer believes there is a lot of difference between spring and torsion bar suspensions. It is granted that good designs of either might well be near equal. However, torsion bar designs appear to offer more for efficient movement of a vehicle. Thus a tank with spring suspension is assigned only .025, but with a torsion bar system, it rates twice as much, or .05.

It is doubtful if one track design can meet all requirements of terrain conditions. Tracks, for the purpose of our discussion, might well be analyzed by ground pressure considerations. Give ground pressure a value of .02. Then the bite the shoe can get on soil might be .02 also. The ability of the shoes to take a good grip when the tank is climbing can be rated as .01.

It can be seen that the power plant and suspension are so closely related that actually they can hardly be discussed without considering them as a team.

Armor, 20%

The tank must have some sort of armor to protect the crew and equipment long enough to permit them to accomplish their mission. Speed alone will not necessarily achieve this, although the fast tank undeniably is harder to hit than the slower one. Actually, in many combat areas the terrain prevents tanks of either side from attaining any really good speeds, and it is entirely possible that speed actually does not favor one side or the other as much as some people think. It certainly does not if terrain reduces both antagonists to a crawl.

Armor, then, is necessary. To consider armor from the standpoint of inches of thickness alone is foolish. Adding armor by inches adds weight by tons, and before long the tank is so beefed up that it soon becomes a fort and mobility has disappeared. Under such circumstances, it could be, at best, a movable pillbox.

However, armor plate can be applied in such a fashion that the effect of thicker and more resistant plates can be achieved with less final weight. This weight saving can permit the tank designer to use a heavier or more powerful gun, possibly arrange for better ammunition stowage, and perhaps even a larger fuel capacity, with a consequently greater radius of operation. Certainly a number of advantages can be realized.

Toughness and resistance to penetration as found in the various types of armor—cast, rolled homogeneous, face hard, etc.—are also important considerations.

Necessary Risk

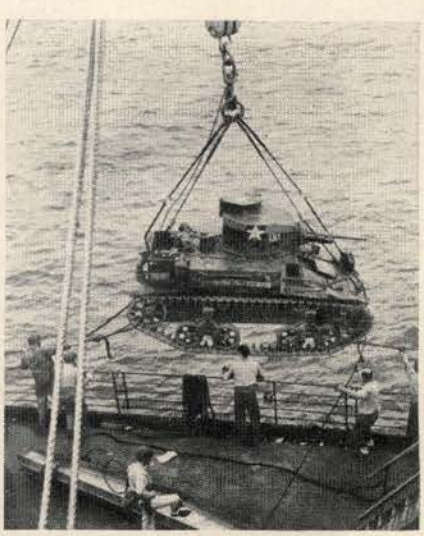
Vulnerability of the top, or roof, armor to air attack by direct hit either from a bomb, rocket or airborne AT gun has to be conceded. The chance of such a hit is not as positive as many may think. It need not be considered here. To adequately armor against this attack to any fine degree is relatively impossible.

The same armor considerations hold true on discussions concerning AT mines and defense against special tactics to be employed by defending infantry units.

No vehicle can be completely armored against all attack. Certain parts are more vital than others, and these must receive first consideration. As an example, it is obvious that the entire

U. S. Army

FOR ARMOR: Front and side—20%.



U. S. Marine Corps

FOR LOGISTICS: Produce and ship —20%.

Chart of Values Applied to Components of Tank

					Panther	M4 w/76	M4 w/75
1. ARMAMENT							
Value of .30	A. A Gun capable of a delivered energy at 1000 Yds. (Considering only AP Projectiles.)		(2000 ft/tons	.12			
			(1500 ft/tons	.09			
			(1000 ft/tons	.06			
			(500 ft/tons	.03	.050	.035	.020
	B. Rate of fire		(complete round	.06	.060	.060	.060
			(separate loading	.03			
	C. Fire Control		(if with stabilizer	.04	.000	.000	.000
			(if with range finder	.02	.000	.000	.000
	D. Flight Time		(over 3000 ft/sec. MV	.06	.060		
			(under 3000 ft/sec. MV	.03		.040	.020
			Total Value for Armament		.170	.135	.100
2. MOBILITY							
Value of .30	A. Power Plant (.20)		(H.P. wt/ratio	.075	.050	.050	.050
			(Reliability	.075	.075	.075	.075
			(Speed	.025	.025	.025	.025
			(Transmission	.025	.020	.0175	.0175
	B. Suspension (.10)	(Spring .025		.025		.025	.025
		(Torsion .050		.050	.050		
		(Track (.050	(Ground pressure	.020	.018	.019	.017
			(Shear	.020	.020	.015	.010
			(Climb	.010	.010	.006	.005
			Total Value for Mobility		.268	.232	.224
3. ARMOR							
Value of .20	A. Frontal (.075)		(Quality	.025	.025	.015	.015
			(Thickness	.025	.020	.010	.010
			(Obliquity	.025	.0225	.005	.005
	B. Turret Front (.075)		(Quality	.025	.025	.015	.015
			(Thickness	.025	.0225	.010	.010
			(Obliquity	.025	.020	.010	.010
	C. Side of Hull (above suspension) (.050)		(Quality	.010	.010	.006	.006
			(Thickness	.015	.0125	.003	.003
			(Obliquity	.025	.015	.000	.000
			Total Value for Armor		.172	.074	.074
4. LOGISTICS					47	35	35
Value of .20	To be expressed in tons for each equation						

frontal area of a tank is more apt to be hit by projectiles than the sides. The higher parts of the tank are more apt to be hit than the lower. A tank with lower silhouette will enjoy some small margin of safety as compared to one with a high silhouette. Most tanks can be disabled easily from the rear, and all are particularly vulnerable in their lower side plates, which house the suspension system (torsion bar suspensions, as a rule, are less vulnerable to projectile damage than spring types).

Quality, thickness and obliquity could be considered about equal in value, and will be assigned .025 *each*. This rating applies to the frontal area covered by the upper front plate (glacis) and to the front area of the turret. This is the part of the tank which must bear the brunt of heavy enemy attack.

The turret side offers a small surface, as compared with the side plate (sponson), and can be ignored. The sponson receives .01 for quality, .015 for thickness and .025 for obliquity.

Reducing These Ratings

Having assigned values to the various components of a tank, let me now turn them into equations and work out the relative worth of any tank. This answer, as far as a tank is concerned, would be of great value in staff planning.

If we take the armament value, and multiply it by the value of the armor plus the mobility, and divide this by the weight in tons, it provides a set of figures for each tank that can be compared, one to another. It is only fair that they should be, because sooner or later these tanks will meet one another upon the battlefield.

A tank without a gun is completely worthless, and if we multiply the gun value times mobility plus armor, this will give a value of zero, which would be correct for a weaponless tank.

On the other hand a tank with a good gun but with poor armor and poor mobility does have some value in combat, and by using the equation we do get some kind of value.

Armor, of course, could be zero and we still would have a sort of tank, for mobility would give it a rating.

A Combat Efficiency Quotient

To further elucidate this example,

> Development of tanks is being concentrated on a family of three: light, medium, and heavy. In the tank development program efforts are being made to improve gun performance, *i.e.*, increase armor penetration and accuracy in laying; to improve engines by increasing power and providing the maximum interchangeability of parts; and to provide improved armor protection.
>
> *General Devers' Postwar Report.*

the equation is shown this way:

$$\frac{\text{weapon} \times (\text{mobility} + \text{armor})}{\text{wt. in tons}}$$

= combat efficiency quotient.

Becoming specific, look at the accompanying chart, which shows the well-known Sherman tank with its 75-mm gun. Under armament the weapon rated .10. The mobility, which was good, though hampered by an only fair track, gave .224. Its armor was far from adequate and rated .074, while its weight, which from a logistics viewpoint allowed the U.S. to easily make, ship and land it in great numbers, was 35 (35 tons). Placed in the equation it looks like this:

$$\frac{.10 \times (.074 + .224)}{35}$$

= .085 combat efficiency.

Before the war in ETO was over, the Sherman tank had been improved considerably. It was issued with a much better gun, the 76-mm. In addition, the tracks were definitely better, increasing its potential threat to the enemy. Now watch the figures in this equation, and see them reflect the changed values.

From the chart, the improved gun gives .135 instead of .10. The armor

> Researchers are finding that under some conditions titanium is more resistant to penetration than is steel of equal thickness. Scale tests show that half-inch titanium plate can do as good a job as the best steel-alloy plate—maybe even better. And titanium is only sixty per cent as heavy as steel. This is important since considerable emphasis is being placed on the development of fast, strong, light tanks that can be carried in airplanes. Since the use of titanium instead of steel would effect a saving of four pounds in every ten, a tank made of the new material could be large and still be light enough to be airlifted.
>
> *Business Week.*

of course was not changed, and this figure remains the same, at .074, but the tracks affected the mobility favorably, although only slightly. This figure becomes .232. The weight of the tank remains unchanged and is again 35 (35 tons).

The equation now becomes:

$$\frac{.135 \times (.074 + .232)}{35}$$

= .118 combat efficiency.

Increased Potential

Neither Sherman in these calculations was given the benefit of a stabilizer because so few stabilizers on the Shermans saw action in those days. It is interesting to note, however, that *improving the Sherman's gun bettered its fighting potential surprisingly*. And, this, in spite of the fact that its armor was no better and thereby could not stop enemy projectiles any more effectively than the earlier Sherman. It is reflected in the figures at once.

Let us consider the Panther, probably one of the best all-around tanks built during the war by anyone, and certainly so by the Germans. They had no special problems in getting them to the front, and hence one big difficulty was removed from their logistical considerations at the start. However, they did build a tank that had tough front armor, did carry a very hard-hitting weapon, and because of its track design and excellent power plant, could maneuver very well, while weighing only 47 tons.

Let us fill out the equation once more, from the chart. The Panther gun figures out to be .17; its armor .172; the mobility, which was excellent, comes out at .268. The weight, of course, is 47 tones.

$$\frac{.17 \times (.172 + .268)}{47}$$

= .159 combat efficiency.

For the Drawing Board

This brief summary indicates that a system of analysis and evaluation can be developed and applied to a tank. Therefore, why not to a new tank, still on the drawing board? Could not the characteristics claimed by designers be put to the test? It seems logical to assume that those designs which came through with a poor combat efficiency rating, after careful analysis and evaluation as outlined here, should never be built!

Selection of officials to fill key civilian posts in the National Security Organization is a matter of great moment to the military and to the country. These top spots require men of great background and ability. An outstanding example of this type of public servant is Secretary of the Army Gordon Gray. He is young. He has a broad background. During his career he has well demonstrated his ability.

On February 6, announcement was made of the election of Secretary Gray to the Presidency of the University of North Carolina. He will be leaving government service sometime prior to September 1st.

As Assistant Secretary, Under Secretary, Acting Secretary and Secretary of the Army, Mr. Gray has been connected with a vital period in the military and defense planning of our country. His relation to these events inspires The JOURNAL'S *presentation of a brief biographical review with extracts from the record bearing on selected subjects.*

Gordon Gray, the Secretary of the Army, was born in Baltimore, Maryland, on May 30, 1909.

He attended Woodberry Forest School, Woodberry Forest, Virginia, and the University of North Carolina, graduating with a Bachelor of Arts degree in 1930, where he was President of Phi Beta Kappa. Subsequently, he studied at the Yale Law School where he received his LL.B. and was an editor of the Yale Law Journal.

He was admitted to the New York bar in 1934 and was associated with the firm of Carter, Ledyard and Milburn from 1933 to 1935. From 1935 to 1937 he was associated with Manly, Hendren and Womble in Winston-Salem, North Carolina, having been admitted to the North Carolina bar in 1936. From 1937 to 1947 he was President of Piedmont Publishing Company and Publisher of the *Winston-Salem Journal* and *Twin City Sentinel*. The Piedmont Publishing Company also operates Radio Station WSJS.

Mr. Gray was elected to the North Carolina State Senate in 1939 and again in 1941, giving up his Senate seat in May, 1942, to volunteer for Army service. He was inducted into the Army as a private on May 16th, at Fort Bragg, North Carolina, scoring the highest mark on the AGCTest ever scored at that post. He took infantry basic training at Camp Wheeler, Georgia. Attending Officer Candidate School at The Infantry School at Fort Benning, Georgia, he was graduated as a second lieutenant in February of 1943, and became Intelligence and Public Relations Officer at Fort Benning. He later attended Counter Intelligence School at Chicago, where he was outranked by 90% of his classmates, but graduated at the top of the class. Next came promotion to first lieutenant.

In 1944 Lieutenant Gray became Assistant Executive Officer at The Infantry School, was promoted to captain in March, and attended the Battalion Commanders and Staff Officers Course. He then went overseas, where he served on General Bradley's staff at Twelfth Army Group Headquarters. Returning to the States in 1945 he was separated from the service.

In 1947 Mr. Gray served a third term in the North Carolina State Senate. He was Chairman of the Senate Finance Committee and member of the Advisory Budget Commission for 1947-1949. He was also President of the Winston-Salem Chamber of Commerce.

Mr. Gray was nominated by President Truman as The Assistant Secretary of the Army and was sworn into office on September 24, 1947. In February, 1948, Mr. Gray was made responsible for the industrial mobilization and procurement activities of the Department of the Army and was the Army member of the Munitions Board.

Upon the resignation of the Honorable Kenneth C. Royall as Secretary of the Army on April 27, 1949, Mr. Gray became acting Secretary of the Army. On May 25, 1949, he was sworn into office as Under Secretary of the Army.

Mr. Gray was nominated by President Truman as The Secretary of the Army on June 7, 1949. He was confirmed by the Senate as Secretary on June 13th and was sworn into office on June 20th.

Mr. Gray was elected President of the University of North Carolina on February 6, 1950. *The New York Times* in commenting editorially on his selection said: "Mr. Gray, with his feet already firmly planted on the national stage at 40, has chosen to return to his alma mater for his career. One may be sure he has already established a rapport with its past, and that its future will be safe in his hands."

Secretary Gray

ON THE RECORD

On Unification

. . . the "Unification Act" extends and strengthens the American tradition of direct civilian control over military affairs.

. . . unification recognizes that our military policy can never be formed and carried out independently of the over-all national policy—that it must be carefully integrated with our national aims, our foreign policy, our economy, and in fact with every facet of our national and international life.

. . . unification is predicated on the obvious conclusion that land, sea, and air forces will seldom, if ever again, be able to operate independently of each other in an extended military effort. Thus, coordinated direction becomes essential.

. . . unification is a sound plan, and it is working. Under it, we have a better, more effective military organization than ever before in our history, and we are assured, as never before in our history, that our defense planning will be thoroughly integrated with our over-all national policies and objectives, and will be designed to support those policies and objectives.

At Chattanooga, Tenn., November 18, 1949.

We must give and take. There will inevitably be sharp differences of view based upon deep-rooted conviction. In matters as vital as those involved in national security, every point of view must be given the most weighty consideration. I believe that the present unification structure provides full means, and the present unification leadership has the full intention to insure ample consideration of all points of view. I believe that men of good will, who themselves believe in unification and practice it, can make unification work. *But there must be decision by the Secretary of Defense,* based upon the best professional advice available to him. This concept must be clearly understood and fully accepted.

At Miami Beach, Fla., October 22, 1949.

On Balanced Forces

The term "balanced forces" means forces balanced to the over-all requirements of the strategic defense of this nation. It means forces balanced with each other, not against each other—not forces balanced dollar-for-dollar, or division for destroyer, or any such arbitrary yardstick. We are working day and night to balance our forces—all of our forces—for maximum effectiveness at minimum expense.

This means, inevitably, that disagreements will arise among the services. Each has been assigned vital roles and missions, involving grave responsibilities. Naturally, each service is deeply concerned about its responsibilities, each wants to be sure it can do its assigned job, and each wants the finest possible weapons and equipment to work with.

However, sincere men have had to compromise their honest convictions as to what they should have, with what this nation can afford, and what fits best into the over-all strategic requirements. We are asking our services to do an awesome job with very limited facilities. Where inadequacies are involved,

serious risk is incurred, but this is a calculated risk which we must accept if we are to hold our national economy steady.

At Chattanooga, Tenn., November 18, 1949.

On Industrial Mobilization

. . . we can never again expect to have the breaks we had in World War II. Our salvation then was time—two years of general preparation before we were attacked, and another year of protection by our Allies after we were attacked, before we began to throw our full weight into the fight. But we will never have all of those advantages again. . . . .

[We must] . . . do everything in our power to increase our existing industry's flexibility and readiness for quick conversion to war production, whenever it might become necessary.

Obviously, the critical commodity that we are buying through such planning is not an item of war equipment, but time. Time is of the utmost importance on the outbreak of war, especially since any war that comes to us will come at a time and place chosen by the aggressor. We will not start a war; consequently, we cannot know when one may begin. On our ability to swing quickly into war production, whenever it becomes necessary, may rest our ultimate victory or defeat. . . .

We are all concerned today with effective waging of a lasting peace. A sound American economy, and a sound world economy, are essential to the constructive and progressive type of peace that we all seek.

A strong, economically healthy America is the greatest insurance in the world today against the occurrence of another world war. We must keep ourselves strong by practical preparedness. We must keep ourselves economically healthy by imposing reasonable limits on the time, money, and effort we spend for that preparedness.

This is a difficult job of balance; but it can be accomplished through the close cooperation of Government and industry, through effective, farsighted planning together; and through a vigilance and energy greater than we have ever before exerted in peacetime.

At Wilmington, Del., December 5, 1949.

On Selective Service

[Selective Service] is an invaluable asset to our national defense planning. Having such a law available to us means that we could, in event of sudden emergency, immediately call the manpower of this country to arms, thus eliminating the agonizing and possibly fatal period of waiting—estimated at at least 4 months—which might ensue if new legislation were required.

The Army has given ample proof that it does not intend to abuse such a law. When the present act was passed in 1948, it was to fill the gap between Army recruitment capabilities and the forces which Congress authorized us to produce. At the time of passage, we assured Congress that we would make every effort to supplement the draft by recruiting, with the intention of building, whenever possible, an all-volunteer Army.

Actually, the law was applied with very limited effect; for it acted as a spur to thousands of otherwise undecided youngsters, and their prompt enlistment following its passage raised our recruiting totals dramatically.

Now, by offering a release to those who were inducted under the law, as well as to those who enlisted for limited terms, presumably because of it, we are again keeping faith with the Congress and with the American people; and we will have accomplished the all-volunteer Army we sought. We earnestly recommend that, on this record of good faith, a selective service law be retained in effect indefinitely.

Extension of this law would constitute a further reassurance to our allies and friends throughout the world that we intend to maintain every possible precaution against disaster.

At Montgomery, Ala., October 25, 1949.

On Universal Military Training

. . . the Army . . . believes, with the President, that this country needs some form of Universal Military Training.

[Universal Military Training] is . . . for the benefit of the National Guard and the Organized Reserve Corps. The trainees would not at any time be in the Army. They would remain civilians throughout

their training. But we would thus provide a constant flow of basically trained young men into our reserve forces; and we would have a constant pool of trained young men in this nation to call into service through Selective Service procedures in the event of an emergency. Remembering the mass training problems of World War II, [it is easy to] imagine the tremendous saving this would be in time, money, effort—and lives. Young Americans have always stood ready to defend their country whenever they were needed. They have a right to be trained for this responsibility.

Universal Military Training of young civilians is a long-range insurance plan, putting into effect Washington's idea of "a citizenry trained in arms."

At Winston-Salem, N. C., January 20, 1950.

On Role of the Ground Forces In Modern War

However it begins, and wherever it spreads, we can only anticipate that any war in the foreseeable future will require large-scale land action of the most overwhelming and advanced type. The Infantry-Tank-Artillery team is recognized throughout the world as an essential element to any military success; and this team cannot approach full effectiveness until joined by adequate tactical air support—fighter and light-bomber elements, thoroughly trained in ground-support missions. Such a combination quite probably will carry the final and decisive stages of any war that we might fight for some time to come.

At Montgomery, Ala., October 25, 1949.

On the New Army

. . . the Army today is an outstanding part of the finest peacetime fighting force our nation has ever had. It is greatly changed from the [World War II] Army—a much smaller Army, of course, but also different in other, more intrinsic ways. We learned a lot about modern armies during the war, and we have learned a lot more since, in various and continuing studies and experiments. We are applying these lessons as fast as they are proven, and the results have more than justified the time and effort we spend on such matters.

. . . about 60 per cent of the Army officers on duty today are 35 or under, and . . . half of the enlisted men are 21 or under. As a matter of fact, the average age of the enlisted men is only 22, and that of the officers is 34.

This youthfulness makes for the vigor, flexibility, and imagination that are indispensable in an effective fighting force, and our Army has those qualities today to an unprecedented degree. . . . this is reflected almost every day, in hundreds of ways. . . .

As for discipline, the primary purpose of military discipline is to teach a man self-discipline—that essential ingredient of maturity and effectiveness in any activity and especially in the military service. By respecting our soldiers as individuals, by giving them the best technical and professional training, and by impressing them with the ideals and the missions of the Army, we give them self-respect, and a man with self-respect will quickly develop self-discipline.

. . . in the Army, [we are] active in community service. . . . we are serving our home communities, the American community, and the world community of nations, through our daily efforts.

At Winston-Salem, N. C., January 20, 1950.

On Civilian Components

. . . America must depend more than ever before upon its civilian components and [they] . . . must be more substantial, more thoroughly trained and equipped, and more immediately available than ever before in our history—and . . . they must be more completely aligned and coordinated with the active establishment than ever before.

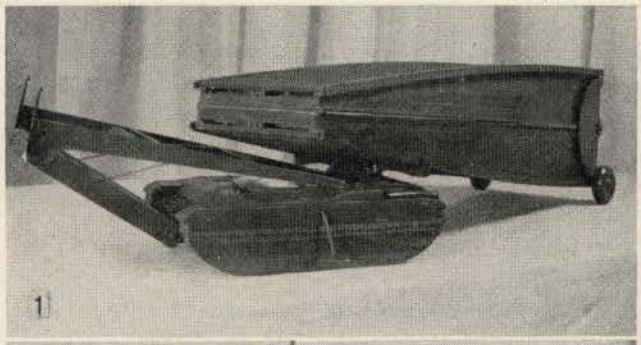
The Army, the National Guard and the Organized Reserve Corps, . . . are joined today as perhaps no other groups in the nation—joined by danger and death we have shared, by common experiences and common memories, and by common responsibilities, common interests, and common problems.

More than ever before, we are close-knit members of a family. Like the members of any family, we often disagree with each other. But we must never lose sight of our fundamental common objectives and our family responsibilities. We must always be ready, at a minute's notice, to drop any minor differences and join our strength into a hard-hitting force that can do its part in the unified team this country is depending upon for protection.

At Montgomery, Ala., October 25, 1949.

FOR ARMOR—A NEW

by MAJOR EDWARD R. ARDERY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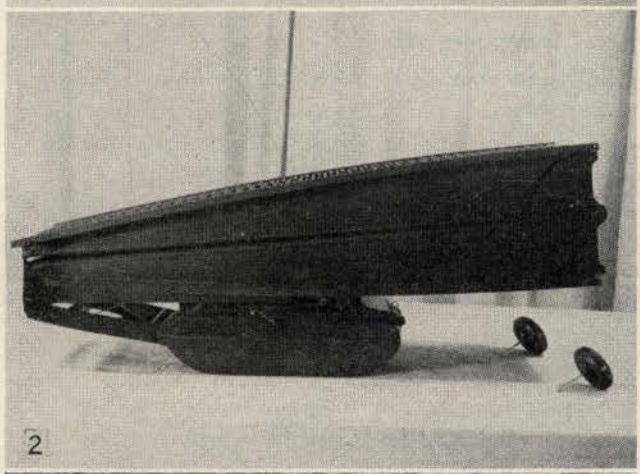
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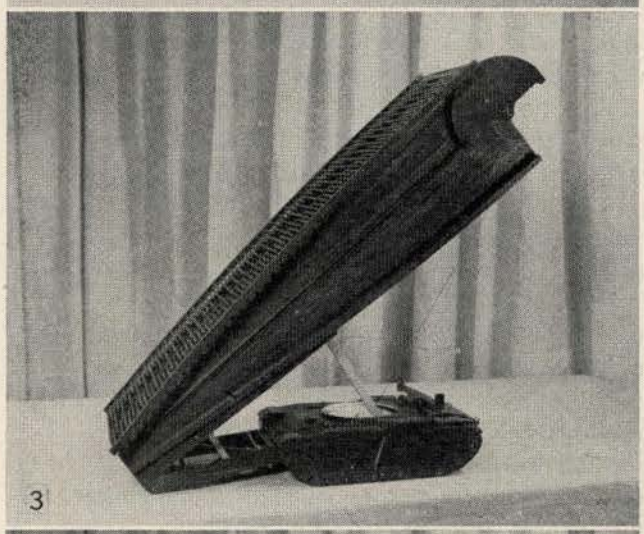
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THE accompanying sequence of photos shows a model of a new assault bridge designed by the author while at the Massachusetts Institute of Technology.

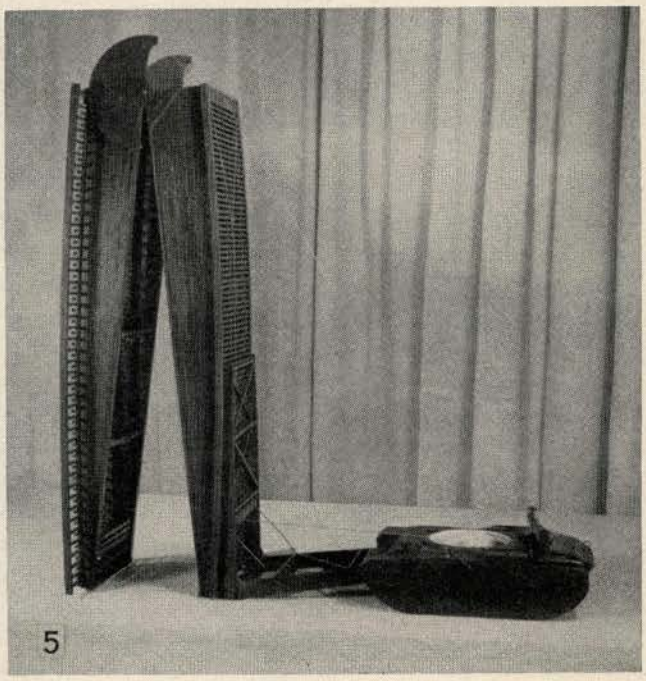
The purpose of the bridge is to span gaps up to 80 feet for vehicles up to 60 tons with a minimum of time and with personnel protected from enemy fire.

The bridge is to be made out of an aluminum alloy, and will weigh a little more than a third as much as steel with about the same over-all strength. It will weigh something less than twelve tons. All of its members are made from commercially available shapes and sizes except for the cast aluminum pin connection at the center.

The bridge has two main girders, rigidly connected 9 feet apart, with the top flange of parabolic shape; each girder is five feet high at the center line and diminishes to one foot at the ends. The bridge is hinged at the center of the span with the pin in the line of the lower flange, folding to a 43-foot length.

The flooring consists of I beams laid perpendicular to the girders. These I beams are about ten feet long with alternate beams connected rigidly to the two girders. The remaining beams are separated at the center and move outward to form the required roadway width of 13 feet 6 inches. The inner ends of these sliding beams are fastened to stringers that move with the flooring. There will be gaps of about nine inches between the I beams on the roadway outside of the girders, tending to keep the wheeled vehicles on the center of the bridge, where they belong. The flooring is forced outward in sections of twenty feet, each section operated by two screw jacks. With the flooring closed the bridge is about ten feet wide; when open, about thirteen and one half feet.

The bridge launcher is a medium tank without a turret and with various special attachments. The mobility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ASSAULT BRIDGE

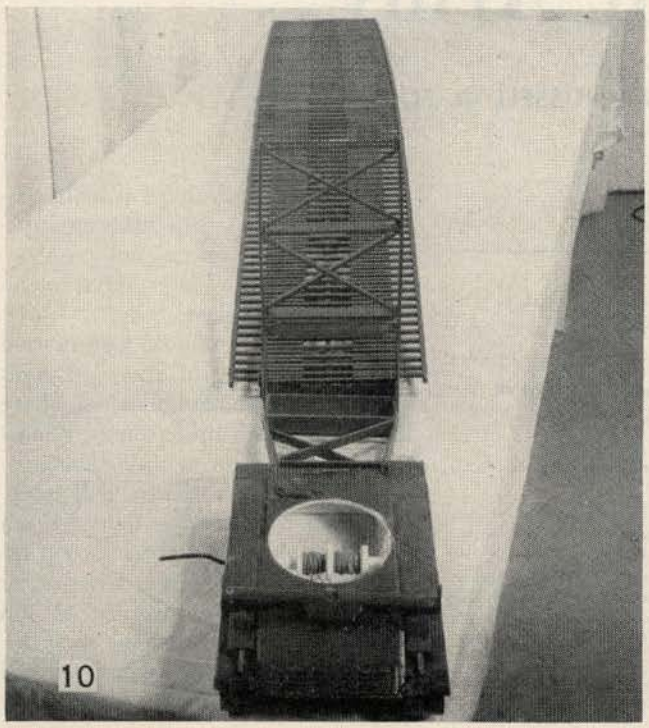
of the bridge and launcher is about the same as that of a medium tank. The bridge is normally carried in the position shown on the first photograph as a semi-trailer with an over-all length of about forty-five feet, a height of 12 feet, and a width of ten feet.

When word is received that the bridge is needed the unit is moved into a defiladed position close to the launching site. The bridge is then pulled forward, as shown in the second photo, onto the launcher. The traveling wheels are taken off, the flooring jacked outward to its final position, and the guide rails (not shown) placed. The height is then about 16 feet and the width about 13½ feet.

The bridge is now ready to be launched. The launcher moves up to the gap, "buttoned up" if under fire. The two hydraulic jacks force the rear of the bridge upward pivoting about the base of the boom (Photos 3 and 4). As the bridge nears the vertical, a cable is drawn in, opening the outer leaf of the bridge (Photo 5). As this leaf opens the entire bridge is lowered by a second cable in successive steps (Photos 6, 7, 8 and 10).

When the bridge is seated, the launcher backs away (Photo 9), and the bridge is opened to traffic without having exposed any personnel to enemy fire. Under most conditions the assault bridge can be replaced by a semi-permanent structure, using the standard practice of building the new bridge under the old without stopping the traffic until the flooring is ready to be put on. When the bridge is no longer needed, it can be picked up by the same launcher from either end.

This bridge, or some modification of it, when made available to the Army in general and the Armored Cavalry in particular, will enable our forces to cross much longer gaps with heavier and bulkier vehicles under enemy fire in a much shorter time than ever before possible.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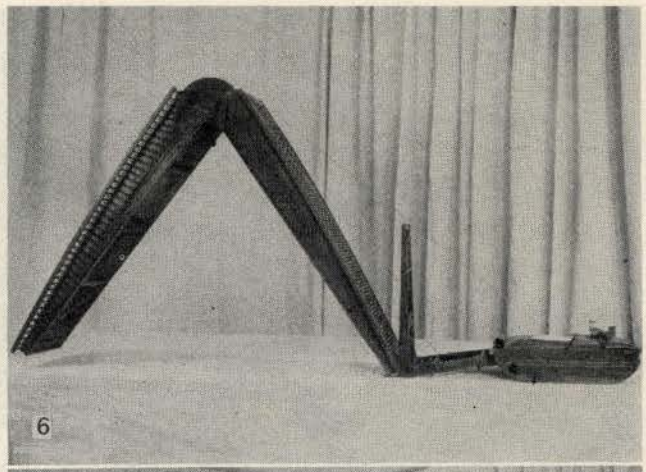
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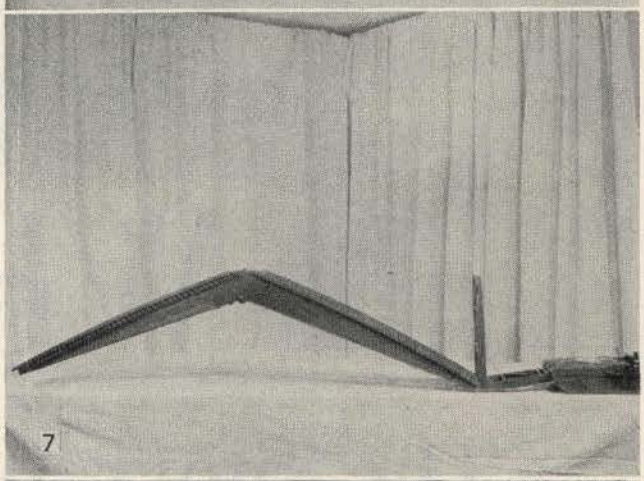
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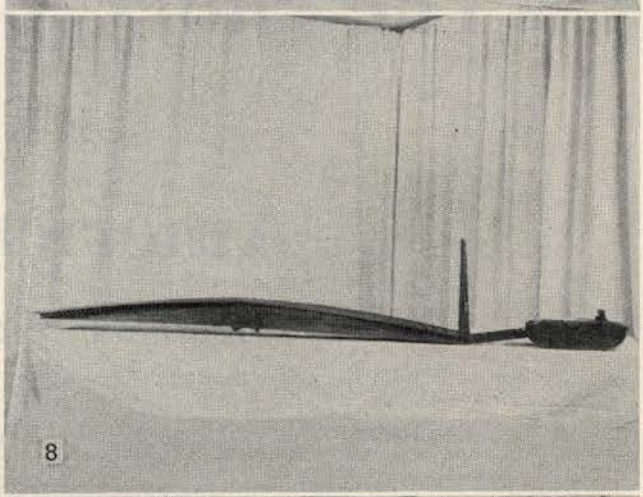
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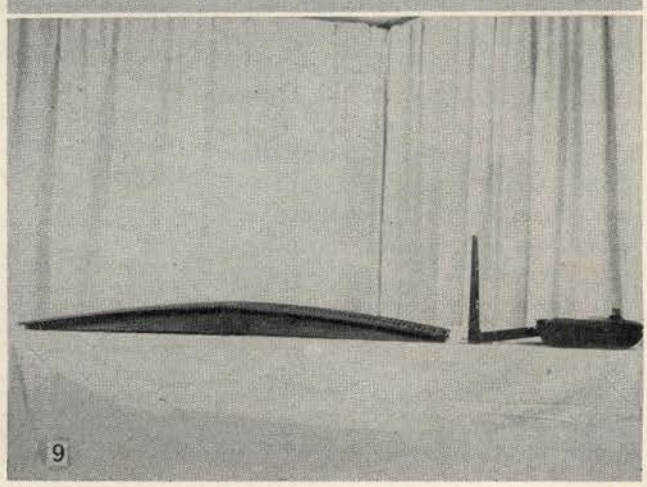
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WHY?

The Story of Information in the American Army

by LIEUTENANT COLONEL RUSSELL O. FUDGE

PART I

Introduction

INSTRUCTION in I&E policies, programs and techniques should be included in the training of all officers," the President of the United States was recently advised by his Committee on Religion and Welfare in the Armed Forces. The report of this Committee on "Information and Education in the Armed Forces" has again focused the attention of civilian and military on the country's greatest project for advancing understanding.

Only last summer, the I&E staff agency was elevated to the Office of the Secretary of Defense as the Armed Forces Information and Education Division. Now it operates, full grown, for the Army, Navy, Air Force, and Marine Corps under the policy control of the Chairman of the Personnel Policy Board.

Lieutenant Colonel Russell O. Fudge is Executive Officer of the Information Branch of the Armed Forces Information and Education Division. He held a similar position under Army and Army-Air Force Troop Information and Education Branches. During the war he served successively as instructor in the Department of Tactics at the Armored Force School, as staff officer in Intelligence and Operations with the 20th Armored Division, and overseas in the Pacific Theater.

The new staff division will continue to emphasize a training function as old as warfare—helping commanders answer the serviceman's spoken or unspoken "why."

Students of military history will not be awed by organizational changes or revised titles. Soldiers long have known that full understanding must precede execution of any mission.

Members of the Army will recognize in the title of the new division last year's Army-Air Force Troop Information and Education Division, or the Army's Troop Information and Education Division of the year before. Some of those who expected academic education to remain in the

All through history commanders have been interested in the attitudes, the motivation, the understanding of their men—". . . *theirs not to reason why* . . ." to the contrary notwithstanding. Here is an article tracing that interest through our military history, touching upon the attention accorded the little word WHY in periods of war from the time of Washington up to the present.

armed forces will be surprised that the World War II information program made the permanent team. Fewer will know that military commanders always have taken steps to keep their members informed, and that the only novelty is in dignifying this aspect of human relations with an official name.

Most readers have a vivid memory of 1941. The President, the Chief of Staff, and the Cabinet were desperately trying to warn of the threat to the nation in words which would prevent war hysteria. The people were disunited by isolationist sentiment, uneasy, and deeply confused over the need for mobilization. In August the House had extended the Selective Service Act by a vote of 203 to 202, yet that spring Yugoslavia, Greece and Crete had fallen to the Germans. Only a month before, American troops had been sent to Iceland. The public uncertainty and reluctance were reflected in the attitude of the bewildered draftees who already were receptive to criticism of anything military.

Low Prewar Morale

The morale of the newcomers multiplied the headaches of officers and noncommissioned officers, already harassed by lack of equipment and shortages of housing and training facilities. Attempting to run a nursery school while training for war had not been part of the leadership curriculum. The Army was not prepared to substitute on a mass scale a training program to correct the public's misinformation. The home, the school, the press, and the radio had not succeeded in crystallizing public opinion.

On 18 August 1941, *Life* magazine released a story on morale conditions in the Army which shocked the country. Few people in or out of the Army expected the bitterness and disillusionment from the soldiers which the writer reported. Flatly stating that 29 out of 30 privates interviewed in one location were rabidly opposed to the Army, anything connected with the international situation, the Chief of Staff, and the President, the article observed:

> There has never been a democratic Army in which the soldiers did not gripe and grouse. Armies are not run for the pleasure or comfort of their men. But in the U.S. citizen Army there is a rising tide of soldier discontent which goes beyond healthy griping. The Army itself and the press have been reluctant to stress this failure of morale, hoping it would disappear.

The report declared that 50 per cent of the men in one division had announced that they would desert after their year's period of service was over, and that "the word OHIO is chalked on walls of latrines, field-artillery pieces, and cars. It means OVER THE HILL IN OCTOBER." After itemizing some of the specific complaints of the soldiers, including the feeling that civilians are getting the best jobs, that nice girls in the areas where they were stationed were shunning them, and that they had been deliberately stationed near small towns with poor recreational facilities, the story summed up the case:

> The most important single reason for the bad morale of this division appears to be national uncertainty. As far as the men can see, the Army has no goal. . . . They do not want to fight because they do not see any reason for fighting. . . . Any goal, even if the men did not agree with it, would be better than none. . . .

The reaction to *Life's* report was as varied as it was emotional. Within a few weeks the magazine had received more than one thousand "Letters to the Editor," a response "unequalled in *Life's* history for length and intensity of expression. More than half were from draftees who confirmed *Life's* report by presenting additional gripes, complaints, self-commiseration and invective, which in cases bordered on violation of the Articles of War. . . ."

Among some of the letters received, a corporal complained about the use of his picture "as illustration to a story which certainly does not represent my views on the life in the service, and in which are quoted opinions of other soldiers which border on treason." Major General Robert S. Beightler, the Commanding General of Ohio's 37th Division, was assured by the editors in an open letter that it was not his division which had discredited the name of Ohio.

From gruff Lt. General Ben Lear, Commanding General of the Second Army, came a short, "If the morale is poor, it is only because the morale of the people is poor." The interviewer muffed an opportunity, for he was talking with one of many officers in the Army who had given serious thought to the morale of the draftees. Two months before, General Lear had directed his staff to make a study of methods for overcoming the general lack of soldier comprehension of

One of a series of four Bill of Rights posters produced by AFIE Division which won award.

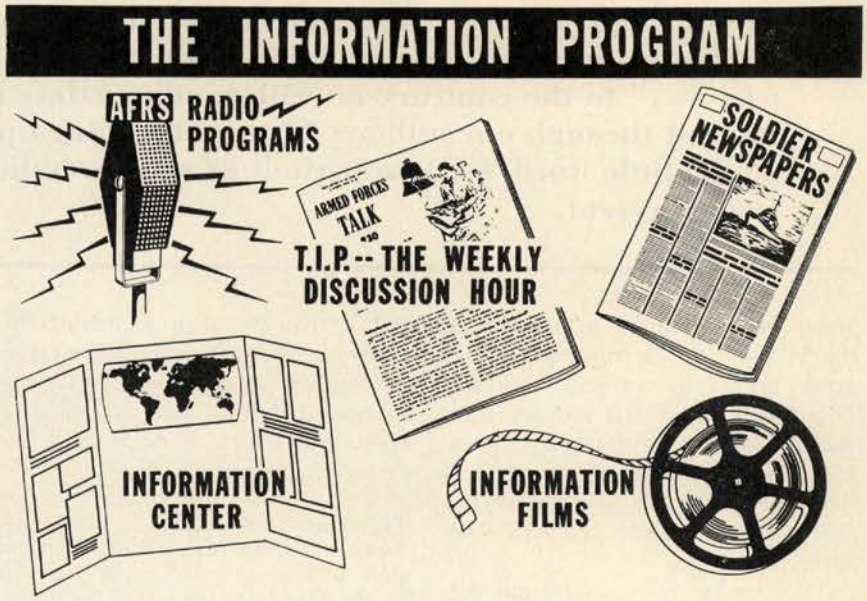
the reasons for the preparedness program. The study already had developed that the youth of the country needed additional education or information in such subjects as American history, government, and world geography. There was almost universal ignorance of the meaning of an American way of life.

"The uniform should not be an insulation against mental activity that isn't directly military," declared General Lear in requiring all his officers and men to participate in the Second Army Education Program. Inaugurated on 12 January 1942, the program was divided into two parts: the first furnished a background for an understanding of current events and included lectures on American history, world geography and trade, and the events leading to the war; the second comprised lectures on the Armed Forces of the United States which included also the Navy and the Marine Corps.

While General Lear was formulating his solution, Arthur Hays Sulzberger, publisher of the *New York Times,* had read the report in *Life,* and had found it hard to believe that the facts had been presented in their proper perspective. Convinced that the article had been prepared by a writer with no military background, he designated Hilton Howell Railey to dig out the facts of the Army's morale. Railey had been a field representative of the War and Navy Departments during World War I, had served as a captain on the General Staff with the Polish Army in the war with Russia in 1919-20, and was a Navy Reserve officer, experience which gave his publisher confidence in his maturity and judgment.

Digging for Facts

After covering a majority of the largest camps, the maneuver areas, and interviewing hundreds of officers and men, Railey submitted a written report instead of a feature newspaper article. In a postwar speech before the Army Information School, Mr. Sulzberger summarized the findings by stating that *Life's* account had been a "Sunday school version" of the real facts. The details of the low morale revealed by Railey were so shocking that the publisher decided to withhold the findings from the public, an act abhorrent to every



newspaper man and in itself sufficient proof of the seriousness with which the *New York Times* viewed the morale situation in the Army. Copies of the report were furnished to General Marshall, and Mr. Sulzberger discussed the findings with President Roosevelt.

Required Information Lectures

Among actions taken by General Marshall was a directive to the War Department Bureau of Public Relations to prepare informational lectures to acquaint the soldiers with the events which had compelled America to rearm. This was the beginning of the formal Army-wide orientation course of World War II announced to the Army by a letter dated 15 December 1941.

The Bureau of Public Relations appealed to the United States Military Academy at West Point for assistance, and that school furnished the bulk of the material from which the initial lectures were prepared. The course was organized into a series of 15 military lectures to be delivered by officer speakers, a day-to-day review of war developments from the news explained to the men by their company officers, a series of lectures on collateral subjects by civilian experts, and the distribution of literature and maps to camp libraries.

Every officer and enlisted man was required to attend these lectures before the first of April 1942, and the material was made available to the general public in book form. The topics finally selected for presentation emphasized the strategic development of the war as reflected in their titles: Two Worlds in Conflict, The Campaign in Poland, The Scandinavian Campaign, The Fall of France, The Battle of Britain, The Battle of the Atlantic, The Mediterranean Theater of War, The War in the Balkans, The Battle of Russia, The Path to World War in the Far East, The Battle of China, Latin America Facing a World at War, National Defense, and America at War. This was the beginning of what was later to become the core of the information program, the required weekly discussion period.

Motivation a Basis for Action

This was not, however, the first effort to inform troops of the need for their service. Able commanders always have known that to develop skill through training, the individual must first want to learn, that is, he must be motivated by an attitude favorable to the learning situation. Armies are perhaps the oldest mass institutions. It should not be amazing that military leaders have long applied practical psychology to influence the attitudes of their men. What should be more astounding is that their techniques have been so imperfectly analyzed that even today many military officers are skeptical of organized information programs.

Such a critical viewpoint is hard to rationalize in the Amercian leader, for the dominant idea of Americanism is that a working democracy requires objective facts to make reason-

ed decisions. The greatest dispenser of factual data to its own members in the United States is the Armed Forces; although this program is overlooked by those who persist in thinking of the armed forces as an autocracy, and have forgotten that the American military services are composed of individuals who inherited all the strength and weaknesses of the attitudes developed through the American social and economic system.

Faith is the Foundation

An attitude of faith in the causes of the nation and of confidence in its leadership is the foundation of military strength. Does it not seem significant that so much of the bedrock upon which a military institution exists is based upon the mental state of the individual? Discipline, honor, courage, integrity, decency—yes, patriotism also—are but names for mental images. Discipline is the attitude of the soldier which makes him willing and determined to carry out orders; courage is a state of mind, a result of the serviceman's own internal determination; morale is the mental viewpoint which the individual has toward his environment. Team spirit resides in understanding and belief in the goal of the entire fighting force.

There is no place in a modern fighting team for a moron. Today's soldier, sailor, airman, or marine must be a thinking individual. To be willing to sacrifice his life in war, a reasoning man must know and believe in the causes for which he fights. Effective training must begin with basic information and education which will stimulate this deep sense of faith.

Behavior Stems from Attitudes

A great leader, civilian or military, modern or ancient, was always a practical psychologist who deliberately sought means of inspiring his subordinates. This is frequently overlooked by those who think of the Armed Forces Information Program as a newfangled gadget. The surprise lies not so much in learning that early generals carefully considered methods of motivating their troops, but in observing that many otherwise intelligent men in the armed forces are immune to the conception that behavior stems from attitudes. All of these individuals would resent the suggestion that food be withheld from a soldier after his twenty-first birthday because he had reached full growth; a smaller number concede that no man has finished his education when he receives his college degree; but few indeed are those who thoroughly grasp the concept that actions may be systematically controlled through the individual's mental state.

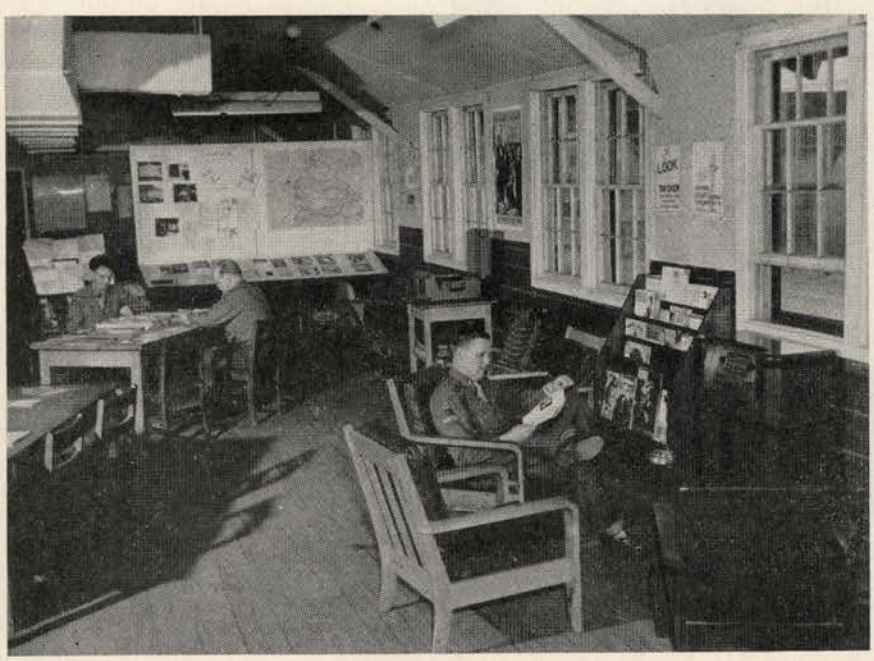
Before any man does anything, he must *want* to do it. This is simply a re-phrasing of the statement made above, but it is not as oversimplified as it first appears. Some of Genghis Khan's men probably did not relish the months on the hot Asiatic deserts and the years of separation from their families, but they went because the alternative was a slow death by torture. In the isolation of today's battlefield, such men probably would desert at the first opportunity; certainly they would shirk closing with the enemy when battle was joined.

Men have always fought for reasons which made a mental image in their minds. Men have always fought for physical, intellectual, or spiritual causes. They still do. In fact, it is doubtful if these three factors can be completely divorced in any analysis of why a given individual will risk his life in combat. The caveman bounced a boulder off the hairy skull of his neighbor and dragged another female to his cave. Even allowing for the varying standards of feminine beauty in a few thousand years, it is questionable whether this early warrior was motivated solely by the intellectual and spiritual attraction of his neighbor's wife. Nor is this article intended to suggest that civilization and modern techniques of motivation have done more than refine this drive.

Later fighters desired to be the chief of the clan, to obtain a better spear, pieces of gold, land, or other rewards. Such drives were primarily mental. Spiritual influences came much later, probably arriving with the establishment of the first religious sect and with the first conception of racial or tribal loyalty. As soon as a man began to fight for an ideal, his motivation became moral. The great crusades of the 11th, 12th, and 13th centuries to recover the Holy Land from the Moslems were the result of spiritual motivation.

Early Troop Information

Through the ages, appeals for men to fight in wars were couched more and more in terms of loyalties. Initially the Ruler was the State. Therefore, in terms of allegiance, loyalty belonged to the individual Prince. The oldest extant military treatise in the world, written about 500 B.C. by Sun Tzu, a general of Wu, states that one of the constant factors of war "causes the people to be in complete accord with their ruler, so that they will follow him regardless of their lives, undismayed by any danger." Sun Tzu did not overlook the



U. S. Army.

Company I and E Center, a key installation.

ability to reason on the part of his troops, for he admitted that a general could obtain unity of purpose in his army by such activities as penetrating deeply into enemy country to improve solidarity of the troops, and by confronting the "soldiers with the deed itself; never let them know your design. . . ." Much of what this wise observer had to say is true today. The great exception is the statement quoted above, "Never let them know your design," a philosphy still too often held by many leaders.

Generals always have given their men encouragement before battle, by word of mouth in earlier days, by written praise as armies became more dispersed, and by radio today. The choice of words has varied from the personality of the commander to the characteristics of the men to whom the appeal is addressed. The practical "Don't shoot until you see the whites of their eyes" inspired an attitude of cool resolution just as effectively as "Remember Pearl Harbor" aroused an inflamed mental state.

Vegetius, the Roman military writer of the 4th Century, was fully aware of the necessity for mental cohesion in an army, as shown in the following suggestion:

> A general may encourage and animate his troops by proper exhortations and harangues, especially if by his account of the approaching action he can persuade them into the belief of an easy victory. . . . He should employ every argument capable of exciting rage, hatred, and indignation against the adversaries in the minds of his soldiers.

In a letter to two friends, dated September 1643, Oliver Cromwell, that stern religious disciplinarian, wrote, "I had rather have a plain russet-coated Captain that knows what he fights for, and loves what he knows, than that which you call 'a Gentleman' and is nothing else."

Frederick the Great minced no words. "The man who does things without motive or in spite of himself is either insane or a fool," he flatly stated. The famed axiom of Napoleon that the ratio of morale to material is three to one has been remarked upon by General Marshall, who stated that he would change the proportion to six to one. Napoleon, however, belittled the influence of pre-battle lectures by generals, but suggested a more democratic concept—*Discussion by the troops*—in the observation that, "If speeches and arguments are at any time useful, it is during the course of the campaign by counteracting false reports and causes of discontent, maintaining a proper spirit in the camp, and furnishing subjects of conversation in the bivouacs."

Napoleon had suggested a democratic method of troop stimulation. American individualism could hardly expect to deliver raw militia who would not ask "why." Washington early accepted the principle, and thus established the tradition in the American Army, of keeping the troops fully informed of the issues confronting the country, instructing Col. Woodford in November of 1775 "to impress upon the mind of every man, from the first to the lowest, the importance of the cause, and what it is they are contending for."

Washington's General Orders

Washington's General Orders frequently consisted only of an exhortation to his troops. From his New York Headquarters, his General Order of 2 July 1776 was designed solely to inform his men of the reasons for the independence document then being drawn in Philadelphia.

The Order paving the way was followed by the General Order of 9 July which required the Declaration of Independence to be read to the American Army. The reading of important official documents was not unusual in any Army, but Washington directed that the "grounds and reasons" for the action of Congress would be explained to the men. This was the first required lecture by unit commanders on other than military subjects in the American Army.

On the 20th of August the General Orders were used as an information medium to counteract rumors that Lord Howe had made a proposal of peace, "calculated by designing persons more probably to lull us into a fatal security," a significant statement in view of the tendency of modern psychological warfare to use this identical technique. Of far greater significance, however, was the mention by a military leader of the mind of a common soldier as a weapon of war in a sentence whose latter half had been widely quoted: "He hopes therefore, every man's mind and arms, will be prepared for action, and when called to it, show our enemies, and the whole world, that Freemen contending on their own land, are superior to any mercenaries on earth."

U. S. Army

Secretary Johnson accepting medals of the Freedom Foundation awarded for a poster series and two motion pictures which were outstanding in "bringing about an understanding of the American way of life to our own people." *L. to R.:* Sec'y Johnson, Col. Centner, Maj. Gen. Spencer Aikin, Mr. Don Belding of Freedom Foundation, and Mr. Stanley Deruh, artist who painted the winning poster.

Throughout the Zone of the Interior fourteen civilian educational institutions offer the Armored Cavalry Course in the Senior Division of the Reserve Officers' Training Corps program. How popular is the Armored Cavalry ROTC schooling? What facilities exist? What are the problems involved? At the request of The JOURNAL, *here is a roundup of activity from the Department of Military Science and Tactics at the respective institutions. Half are included in this issue. The remaining half will appear in the May-June issue.* *(See Editorials, page 30.)*

Armored Cavalry ROTC Roundup

UNIVERSITY OF MASSACHUSETTS

Amherst, Massachusetts

THE present course of instruction in the Armored Cavalry Unit at this station is somewhat involved due to overcrowded conditions within the University itself which limit classroom facilities and cause some difficulties with class scheduling. This condition is expected to be somewhat relieved during the next year or two, however.

Our main difficulty is concerned with the lack of proper training areas for such activities as tank driving and indoor drill. Although we have been able to secure a reasonably adequate area for tank driving, it is such a great distance from the immediate school or classroom area that its use is precluded by the academic schedules of the students because of lack of sufficient time to cover the distances involved to and from the area.

At the present time our advanced Armored Cavalry students number thirty-one Seniors and eighteen Juniors. The two lower classes for whom the course is a mandatory prerequisite for graduation number ninety-five Sophomores and one hundred forty-four Freshmen. These latter two classes are fairly evenly divided between Cavalry ROTC and Air ROTC, with common courses taught to all Freshmen. The entire cadet corps is organized into one regiment with three battalions and eight companies. Cavalry and Air students are combined within units.

There appears to be considerable interest among the Advanced classes, as is to be expected since the Advanced course is elective. The Department occasionally conducts field problems during students' free time on week ends on a volunteer basis. These exercises have also evoked considerable interest on the part of the lower classmen as well as the upper classmen. The Advanced students are utilized as tank and reconnaissance crews and as umpires for control of the exercises, while the Basic course students are used as active participants in both friendly and aggressor roles.

Our supply of training aids appears to be reasonably adequate at the present time and no particular difficulty has been evidenced in procurement. There are several stationary aids which could be used to advantage if the Military Department could be assigned permanent classroom space for their installation. The same applies to the use of projection equipment which must be transported to and from classrooms by individual instructors, set up, used and immediately removed to make room for following academic classes—then set up again for another military class. This causes loss of time and is hard on the equipment itself.

All in all, however, our problems probably do not exceed the good points in the Armored Cavalry Unit. University officials bend over backward in their cooperative attitudes, and problems are ironed out as smoothly as possible.

NORWICH UNIVERSITY

Northfield, Vermont

The Norwich University Corps of Cadets consists of 420 Armored Cavalry and 120 Signal Corps students organized into a squadron of six troops and a band. Instead of the prescribed three hours a week of instruction for basics and five for advanced students, all are required to attend six hours a week. This permits the completion of the entire prescribed Department of the Army program, with additional time for branch tactics and technique.

For Armored Cavalry cadets outdoor firing with .30 caliber ammunition is conducted throughout the year on the Norwich Range, where second year men fire the M1 rifle course and the 1000″ light machine gun course as a supplement to the Weapons and Marksmanship course; third year cavalrymen use the coaxially mounted tank machine guns for 1000″ manipulation, observed fire procedure with frangible ammunition and a moving target course with tracer. The range is conveniently located adjacent to the campus, where no difficulty is experienced in getting the five M24 light tanks onto the range in any weather.

No serious training problems are encountered at Norwich. The splendid Armory and a recently constructed Armored Building have overcome the problems presented by above-the-snow-line training. The Armored Building provides for classroom space, storage, and repair facilities, and includes a grease pit. Arrangement of the building also permits the use of all vehicles as training aids in the classroom. The adjacent grounds provide for basic and difficult driving of tanks. There are also facilities for use of "The Tank Platoon," a student honor organization built around an actual platoon organization, and used for student functions and ceremonies.

Sufficient maintenance personnel are not provided under present Tables of Distribution to permit adequate maintenance of five tanks, a weasel, two trucks, and two jeeps. However, this difficulty is minimized by good maintenance support from Fort Devens.

Since radio communication is of such vital importance to armored units and shares an important place in the Cavalry ROTC curriculum, the presence of a Signal Corps ROTC unit at Norwich has been of great value to the Cavalry unit. The communications instruction room

and MARS (Military Amateur Radio System) clubroom, set up by the Signal unit and containing all the latest authorized equipment, have helped in teaching and interesting all cadets in communications.

Norwich is fortunate in having been authorized by the Department of the Army to conduct the only Mountain and Winter Warfare ROTC course in the country. This course, which is given to about one third of the Basic Armored Cavalry and Signal Corps cadets, is designed to train these future officers in skiing, snowshoeing, mountain movements and tactics, rock climbing, and operations in snow and extreme cold.

The training problem most difficult of solution at present appears to be that of determining for the subject "Leadership, Drill, and Exercise of Command" a grade which will accurately represent the qualities of leadership, ability to command, and proficiency at drill possessed by each individual cadet. Double the hours prescribed for this subject are sufficient only to train each to act as a part of a unit at drill and ceremonies and do not permit testing each as a Cadet Officer or NCO.

OHIO STATE UNIVERSITY

Columbus, Ohio

Cavalry ROTC instruction started at Ohio State University in Autumn 1947. Thirteen advanced students were enrolled shortly before the Autumn Quarter began. The enrollment figures have been increasing since that date, and at the start of this academic year (1949-50) twenty new students joined the Advanced Cavalry course.

Although there is a large Basic enrollment at OSU, there are over nine competing branches of the Armed Services which a student may elect in the Advanced Courses. Therefore, there is a considerable amount of healthy competition for the most desirable cadets. This recruiting job has been one of constant concern for the Cavalry instructors. Branch instructors of the services receive periodic help from their branches in the form of lesson plans, displays and special training aids, but the Cavalry receives T/A equipment only and has to beg or borrow any additional material. The Armored School has been most helpful in regard to specific requests, but a continuous program of support would be of even greater help.

Sophomores are receiving branch material instruction for the first time this year. This system is of aid in selecting, training and indoctrinating students for the Advanced Courses. Of the 185 Cavalry sophomores (largest Army ROTC enrollment) it is believed that about 30 will meet Advanced Course requirements.

Practical work is emphasized in Cavalry instruction in order to increase student interest and to train students for platoon leader's responsibilities. Student enthusiasm and interest are indicated by the many extra hours of volunteer work which are spent in maintaining and driving tanks and operating other equipment.

Aids used in Cavalry training include: three M24 Light Tanks; an M12 Tank Gunnery Trainer (used for subcaliber gunnery instruction on the cal. 22 range); the Field Artillery smoke puff terrain table; wheeled vehicles, models and cutaway parts for the motors course; all types of radios encountered in armored units; cal. 22 machine guns and rifles, as well as other weapons for the Sophomore Weapons courses; and about 50 scale model vehicles of different types for sand table problems in tactics. Homemade devices for gunnery and tactics instruction have aided instruction considerably.

VIRGINIA MILITARY INSTITUTE

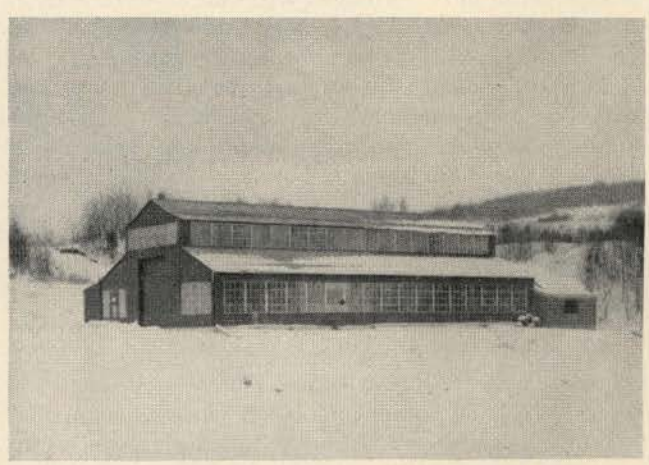
Lexington, Virginia

Army ROTC Courses offered at VMI consist of Field Artillery, Infantry and Armored Cavalry, of which Armored Cavalry has the largest enrollment, with a total of 168 as compared to 138 F.A. and 104 Infantry. This comparative strength speaks adequately for Armored Cavalry interest. In addition a total of 22 cadets who are not qualified for ROTC because of physical reasons, Marine Corps affiliations or non-citizenship attend Armored Cavalry Military Science classes. VMI requires completion of four years Military Science for graduation.

Principal training equipment consists of a platoon (5) of M-24 Tanks which are ample to fulfill needs for Gunnery, Mechanical Training, Motor Maintenance and Tank Driving Instruction. In addition sufficient wheeled vehicles are available for instruction and necessary transportation to training areas.

The normal ROTC training week at VMI consists of classroom training time of 5 hours for advanced students and 3 hours for basic students plus one formal inspection and review, two (2) forty-five-minute dismounted drill periods, one 30-minute dismounted drill period and one parade.

For indoor instructions the old Stables Building has been completely renovated and converted into classrooms. This building, which less than two years ago housed as many as 159 horses, now has in addition to necessary offices and supply rooms, nine classrooms with a seating capacity of from 25 to 60 each plus an auditorium with a capacity of approximately 250. Also it contains an artillery gun room of sufficient size to house the four 105mm Howitzers of the FA Section. This renovation together with the installation of proper lights and heat in the motor pool was made at a cost of approximately $40,000.00, of which the natural gas heating plant was the biggest single expenditure. A representative of Headquarters Second



The Armored Building at Norwich, constructed in 1946. It has a large classroom, storage space for the five tanks, two trucks, two jeeps and the Weasel, and a concrete grease pit.

An M-24 on the difficult driving course at Norwich.

Army has stated that he considers the facilities here to be the best in the Second Army Area.

Most field training for Advanced Course students takes place during weekly two-hour afternoon classes of which each advanced class has one period weekly. A 250-acre farm owned by VMI and approximately 1½ miles from the barracks offers ideal terrain for this training. In addition adequate training areas in the immediate vicinity of VMI exist for conducting field training during one-hour morning classroom periods.

Class strength for all classes other than First Year basics normally do not exceed 25 in strength except for subjects which are of necessity of a lecture type. First Year Basic students normally meet in groups of approximately 50 each.

Over and above regular ROTC Training the Cadet Armed Forces Club has shown a great deal of interest in receiving extracurricular Armored Cavalry instruction, particularly in Gunnery and Tank Driving. Also Preparatory and High School groups visiting VMI have demonstrated intense interest in demonstrations put on for their benefit. These demonstrations consist of weapons displays, tank rides and familiarization with the tank equipment together with a tour of all ROTC facilities.

The principal difficulty encountered with reference to training aids is the securing of up-to-date field manuals on gunnery and small unit tactics; however, it is believed that this will be remedied in the near future.

ALABAMA POLYTECHNIC INSTITUTE

Auburn, Alabama

The Armored Cavalry ROTC unit was established at the Alabama Polytechnic Institute in the fall of 1947. Other units are Field Artillery, Engineer and Signal Corps. The Artillery and Engineer units were at Auburn prior to World War II and were well established.

Armored Cavalry and Field Artillery students come from all schools of the college except the school of engineering. The engineering students are guided into the Engineer and Signal Corps units. The size of the units is balanced by the PMS&T and the Armored Cavalry has rapidly taken its place with the older units. There are presently 73 Armored Cavalry advanced students and 199 basic students. Three Armored Cavalry officers and one noncommissioned officer are on duty as instructors.

Vehicles now on hand are a Tank M4-A3, Tank M24, Scout Car M8 and a Half Track M12-A1. These vehicles are housed in a large hangar immediately adjacent to the main campus. A small driving range is being prepared for operation of the vehicles.

No real difficulties are experienced in obtaining the equipment authorized by current allowances.

UNIVERSITY OF GEORGIA

Athens, Georgia

The Armored Cavalry ROTC unit at the University of Georgia in Athens, replaced the Horse Cavalry unit established at the University November 17, 1919, thus marking another step in the history of military training at the University, which dates back to a period following the Civil War.

At the present time there are 216 students in the unit, of whom 74 are Second Advanced Course students who are expected to complete the prescribed instruction this year.

Three officers assisted by a similar number of noncommissioned officers authorized by the table of organization act as instructors for the unit. Each officer has a "teaching load" of approximately eighteen hours a week, exclusive of drill.

For drill training, the unit is organized into a battalion of three companies commanded by students of the second year advanced class. For all other training and instruction, each class is divided into sections of approximately twenty-five students.

Training aids and facilities available to this unit are comparable, and some are superior to those of units at similar type institutions. However, both training aids and facilities are limited in comparison to army schools. Projection equipment, limited numbers of Department of the Army Training Aid Charts, weapons, radios, trucks, tanks, etc., are available. However, "mock-ups," elaborate "subject charts," models, cutaway models, etc., are not available but could be used to a definite advantage. No range facilities are available for tank gunnery; however, tank driving areas and maneuver areas for small tactical problems are available.

Although practical instruction is limited at the university due to the facilities and other factors, the six weeks' summer camp provides the student with the opportunity to demonstrate and practice the theories and instruction received in the classroom. Since this camp is normally attended prior to the last year of instruction, the classroom training for the first two years is designed so that the student can derive the most benefit during the camp period, and thus provide a better background for the final year of instructions.

Student interest in the unit is apparent from the number of questions directed to instructors throughout the year in regard to training and equipment, the benefits that may be derived from the training, and the requirements for enrollment.

During the last three years more than 150 students have been awarded commissions in the Organized Reserve Corps and 15 of the students designated as Distinguished Military Graduates of the unit have been awarded commissions in the Regular Army.

The Ordnance Maintenance Battalion

by LIEUTENANT COLONEL FRANK M. MULLER

WHEN man first began to fight wars with weapons other than his fists, he found it necessary to delegate to some member of his group the task of gathering the stones, bones, and clubs he used as weapons. Later as bows and arrows, spears, and swords developed, he not only had to have people to supply the weapons and ammunition, but also people to make them and keep them in repair for his use on the battlefield. No matter what he called these people, they were his ordnance support. As time has passed, the tools of warfare have multiplied tremendously, and their complexity has increased with the advances of science and human ingenuity until today, the procurement, supply, and maintenance of our weapons has become of vital importance to success on the battlefield. As a result of historical precedent and other factors, the ordnance branch has become the responsible organization for the procurement, supply, and maintenance of most of our modern weapons and vehicles. Of course in the armored division this ordnance support is supplied by the Ordnance Maintenance Battalion.

Lieutenant Colonel Frank M. Muller is an instructor in the Logistics Division of the Command and Staff Department, The Armored School, Fort Knox, Kentucky.

Lots of Stuff

To appreciate the importance of this ordnance support to the armored division, consider for a moment a partial list of the ordnance equipment for which the ordnance maintenance battalion is responsible:

VEHICLES

Trucks	2,094
Tanks	373
Personnel Carriers	636
Total	3,103

WEAPONS

Artillery pieces	72
Machine Guns	827
Mortars	71
Small Arms	15,936
Tank Cannon	373

This list is of course by no means complete but it does give some idea of the size of the ordnance task in an armored division. Furthermore, the armored division ordnance service not only has the job of supply and servicing, it has to be able to perform these functions under all types of combat conditions. It must be organized to adapt itself to the tactical employment of the division.

Inasmuch as ordnance support is of such importance to modern warfare and to the armored division, we should by all means become familiar with the ordnance support provided the armored division. The Ordnance Maintenance Battalion, Armored Division, is organized under TO&E 9-65N, 2 August 1948, with the mission of providing storage and issue of ordnance general supplies, ordnance field maintenance support for all elements of the division, technical inspection of ordnance matériel, and administrative control of ammunition supply to divisional and attached units. It is a medium ordnance sup-

port unit, and in the field is reinforced and assisted by the heavy ordnance maintenance and depot companies of army ordnance service.★

The new ordnance maintenance battalion has a headquarters and headquarters company which plays an important part in executing the planning and supply functions. This company, as the title implies, contains the battalion headquarters and the headquarters company. The battalion headquarters is made up of the staff sections that command and administer the ordnance service of the division. It includes the office of the division ordnance officer, which contains the division ordnance officer, his assistant, and the automotive officer. This office is a coordinating and planning group.

The division ordnance officer is the commanding officer of the ordnance maintenance battalion and any ordnance units that may be attached to the division. In addition to these duties as commander of troops, he is a member of the division special staff. In this capacity, the ordnance officer advises the commander and the division staff on ordnance matters. Further, as a staff officer, he works with the G-3 and G-4 in determining requirements for and the distribution of ordnance supplies, including Class V (ammunition, explosives, etc.). The ordnance officer exercises technical supervision over ordnance training throughout the division, using inspection teams to make frequent maintenance checks.

Teamwork

The last war demonstrated once again the necessity for teamwork among members of a staff and this lesson applies to the division ordnance officer just as to any other staff officer. He does not operate in a vacuum, but works closely with other staff sections. Principally, the ordnance officer deals with the G-1, G-2, G-3, and G-4. With the G-1 he confers on personnel matters concerning assignment of ordnance personnel; with the G-2 on captured matériel and employment of enemy ordnance troops; with the G-3 on technical training and employment of ordnance troops, assignment of ordnance units, issue of critical ordnance matériel, and control of Class V supplies; with the G-4 on supply, recovery and evacuation, requirements for ordnance support, and explosive ordnance disposal.

Backing up the mobility, fire power and shock action of the Armored Division is the Ordnance Maintenance Battalion. The tremendous amount of equipment in the division must be kept in operation by this essential part of the team. Here is the story of how the organization functions in and out of battle.

The ordnance officer has a number of personnel in his office to assist him in his many duties. The assistant division ordnance officer, a major, often represents him at division headquarters, permitting the latter to divide his time between the staff section there and the remainder of the battalion. This assistant prepares plans for future operations, submits reports, and maintains liaison with the corps ordnance officer and commanding officers of supporting army ordnance units. He directs ordnance technical intelligence matters, collects and disseminates technical information on the capabilities and limitation of enemy matériel, and maintains liaison with army ordnance intelligence service teams.

Another assistant of the division ordnance officer is the automotive officer, a major. He is responsible for the supervision of organizational maintenance in the division. This he accomplishes by supervision of maintenance training, spot check inspections, annual ordnance technical inspections, and determination of serviceability standards. He is assisted by a motor inspector, a noncommissioned officer.

Also included in the office of the division ordnance officer are explosive ordnance disposal personnel. They may neutralize, remove, or destroy unexploded ammunition components, other than land mines and booby traps, normally, however, the actual neutralization or removal is effected by explosive ordnance disposal squads called forward from corps. In field operations the office of the ordnance officer should be located with the ordnance maintenance battalion in the division trains area.

Ammo

Another section under "headquarters" of the headquarters and headquarters company is the office of the division ammunition officer. Though actually considered a subsection of the office of the division ordnance officer, usually it is physically separated from that office and located at a point on the main route to the rear, forward of the division trains area and easily accessible to unit trains en route to draw ammunition. This is an operating office with necessary personnel to function on a 24-hour schedule.

The third section of the headquarters is the battalion headquarters. This is the command post for the battalion and in field operations is normally located in the division trains area with the ordnance maintenance battalion less any companies or detachments which are supporting or attached to other division units. The battalion headquarters has the usual command post personnel, including a major, executive and S-3; a captain, S-1 and S-2; and a captain, communications officer. In addition to the normal staff, there is a maintenance officer and an ordnance supply officer, both majors. The maintenance officer controls the production of the field maintenance shops, balances the work load between the maintenance companies, arranges for evacuation of unserviceable and unrepairable matériel, and controls the salvage and recovery section of headquarters company. The ordnance supply officer supervises the procurement and distribution of ordnance general items through the supply section of headquarters company.

The headquarters company proper has a company headquarters, a sup-

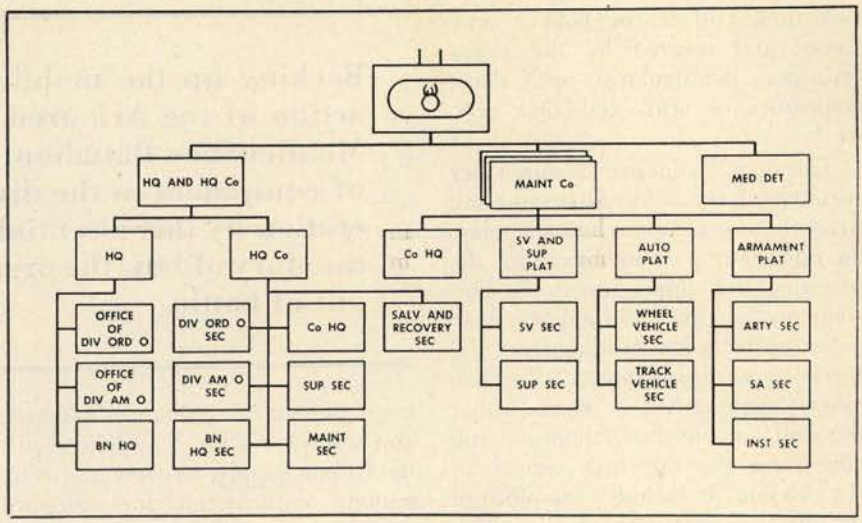
★Army ordnance service as organized in Type Field Army, July 1949.

ply section, a salvage and recovery section, and a maintenance section. The headquarters takes care of administration and operation of the company. The supply section issues supplies to the company maintenance section and to units, such as the division headquarters company, Armored Signal Company, etc., that are not assigned to a major command. In addition, the supply section combines the consolidated requisitions from the maintenance companies with its own expenditures and obtains replacements from the designated army supply point. The section normally carries half of a 15-day level of ordnance supplies for the support of the division. Fast-moving parts are usually received from the Army forward medium and heavy ordnance support battalions, particularly from the latter which contains two ordnance depot companies. Slow-moving items, except for vehicles and artillery, are drawn from the army ordnance depot; vehicles and artillery are obtained from the artillery and vehicle park battalion through the army forward heavy ordnance maintenance and supply battalion.

Salvage and Recovery

Of particular importance in combat is the salvage and recovery section. This is the section that operates the division ordnance collecting point for processing and evacuating recovered and captured ordnance matériel. By controlling the ordnance salvage and recovery operations of the entire division from one section, economy of men and equipment and proper allocation of work between the maintenance companies is accomplished. In addition to evacuating from division collecting points, the section assists division units in battlefield recovery.

The salvage and recovery section now contains the six M25 tank transporters, gigantic vehicles each capable of carrying 45 tons. Actually, evacuation procedures are handled according to the manner in which the division is employed tactically. There normally will be one division ordnance collecting point established in the division trains area. If the maintenance companies are operating separately in support of the combat commands there may be additional ordnance collecting points established



or unit vehicle collecting points may be used. But it is not normally advisable to use the tank transporters forward of the division trains area due to their size, weight, and need for first-class roads.

The last of the sections of the headquarters company, the maintenance section, provides organizational and preventive maintenance service for the company. Also, this section takes care of armament and vehicle maintenance for division headquarters company as well as companies and detachments located at or near the division command post and not attached to a major command.

Maintenance Company—The Work Horse

The work horse of the ordnance maintenance battalion is the maintenance company of which there are three, all identical. Each of these companies is so organized that it can function independently and furnish complete direct ordnance support to the combat commands. It is this triangular organization that provides the flexibility required for maintenance in the armored division. Normally these companies operate separately in support of a combat command except that sometimes a detachment from the company will suffice. When the division is not engaged or is in a static situation, the three maintenance companies normally operate under battalion control.

The organization of the maintenance company reflects the varied and complex amount of technical work that the battalion is called upon to accomplish in order to keep the armored division rolling. In addition to the company headquarters, which performs the normal housekeeping function, there are the service and supply, automotive, and armament platoons that maintain the vehicles, weapons, and fire control instruments. The service and supply platoon is really a supporting unit for the automotive and armament platoons; its service section furnishes a shop officer and a varied assortment of enlisted technicians—welders, blacksmiths, carpenters, and painters—and the supply section requisitions, stores, and issues parts, accessories, and supplies. The platoon also supplies the maintenance sections of supported units.

Automotive Platoon

One of the busiest components of the maintenance company is the automotive platoon. This organization, with its tracked and wheeled vehicle sections, directly supports the using organizations by repairing and returning all types of vehicles. The platoon has mobile shop vans to transport tools and provide closed shop space; its wreckers handle disabled vehicles. It is from this platoon that the automotive inspection teams that operate under the battalion automotive officer are drawn.

The armament platoon which provides maintenance for all types of weapons and fire control instruments used in the division is also, as a rule, busily engaged. This platoon's three sections—the artillery, small arms, and instrument repair—supply the necessary technicians and equipment to provide the proper repair and maintenance. They also provide personnel

for the armament inspection teams that operate under the direction of the battalion automotive officer.

The ordnance maintenance battalion, with its headquarters and headquarters company and its three maintenance companies, includes an impressive number of technicians of all types, and the best in equipment. But the tools and the "know-how" are not enough. The ultimate test is: can the battalion do the job in combat? How does it go about accomplishing this mission?

Combat Operations—Offensive and Defensive Situations

The organization is indeed flexible, designed to accommodate itself to the manner in which the armored division is employed. This flexibility based upon the self-sufficiency of the three maintenance companies is the key to its use in combat. Usually a maintenance company or detachment is assigned to support each committed combat command and may be attached, particularly in exploitation, to ensure better control and protection.

In fast-moving offensive operations, unit maintenance platoons evacuate vehicles, when they cannot effect repairs, to the combat command axis of advance, and report the location and condition to the supporting ordnance maintenance company or detachment. The ordnance support, moving forward, repairs the vehicles, or, if unable to do so, moves the vehicle to the division axis of advance and reports the location and condition. When constantly going forward, the field shops, like artillery, move by bounds, but unlike artillery, they have the problem of arranging for the completion of any unfinished work they are forced to leave behind.

The field shops must not be displaced so often that they cannot accomplish the work; yet they must remain within reasonable supporting distance of the fighting troops. If the field shops must move ahead, the unfinished work is reported to the battalion headquarters and is either completed by a non-committed maintenance company of the battalion or by the supporting army ordnance. If support is not available to the field shops from battalion or army, then a detachment will have to be left in the old area to complete the work. If a detachment remains, this often brings up the problem of protection for this service element which, in a fast-moving situation, might soon drop far behind.

But although it is usually desirable to be on the offensive, armored divisions find that sometimes they have to engage in the defense. This means that the ordnance maintenance battalion may operate differently to most effectively meet the demands of the situation. In a delaying action, movement of direct-support ordnance elements to the rear will be coordinated by G-4. As the battalion moves farther to the rear, it should put contact parties in immediate support of the troops. These parties should carry stocks of small-arms and artillery parts that may be installed within a reasonable length of time. The contact parties should be alert to salvage weapons from the field and ready to issue them or other serviceable weapons when they are needed. It will seldom be possible for these parties to make major repairs on artillery matériel, or vehicles. Recovery sections from headquarters company should be directed to retrieve any repairable equipment and should be held in a central location to accomplish this work.

In the sustained or position defense the ordnance maintenance battalion is usually able to operate as a battalion with contact parties in place of detachments or companies for support of the combat commands. However, when the division holds a wide front, it may be necessary to place the companies or detachments in support just as during offensive operations.

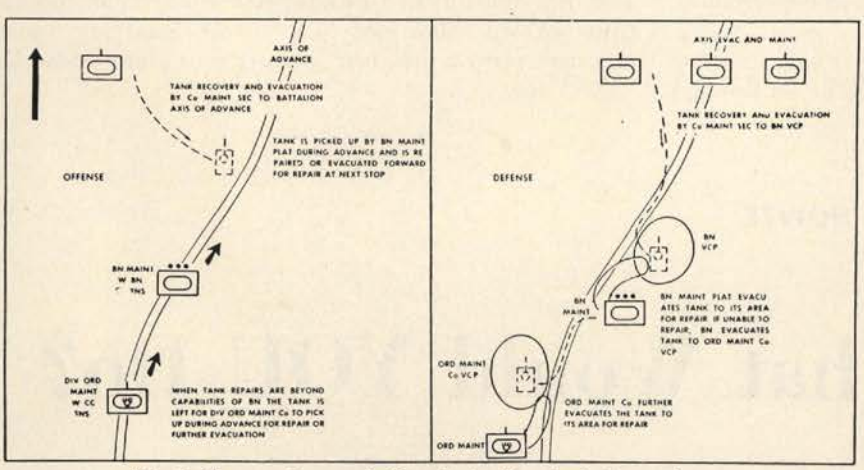
In the mobile defense, the supporting companies or detachments are held in the rear within the supported combat command perimeter of defense. The battalion, then less these elements, moves with the division trains.

In any type of defensive action or in the slow-moving offense, the maintenance platoons of the tank and armored infantry battalions will evacuate disabled vehicles, which they cannot repair, to the vehicle collecting point of the supporting ordnance maintenance company or battalion. When such evacuation is beyond their capabilities, these units receive assistance from the salvage and recovery section of the ordnance maintenance battalion if the situation will permit. When tank transporters are required, careful attention must be paid to the road net and condition of roads in order to prevent serious traffic problems.

Role of Armored Ordnance

In the normal corps organization as presently contemplated the armored division is the commander's knockout force. It achieves this status by virtue of its fire power, mobility, and shock action. The bulk of this mechanization—the guns, tanks, and trucks—are items of ordnance issue and ordnance is responsible for their maintenance. Certainly no one will deny the magnitude of this task.

War will become even more technical. Accordingly, ordnance service will become even more important. Training men to fill the jobs in the new ordnance maintenance battalion of the armored division is an essential peacetime job.



Tank Evacuation and Repair in Tactical Operations.

NOTE: Burned or nonrepairable vehicles are not recovered or evacuated but are left in place for evacuation at some future date by Army Ordnance facilities. Location is reported through channels.

try your hand . . . .

YOU command a reconnaissance platoon (see box) of a light armored cavalry regiment. The war, although a year old, has just reached this area; both sides are maneuvering for position, and a meeting engagement is probable. The regiment is screening the forward movement, on a broad front, of a much larger force.

The Squadron Commander, a gentleman who has the reputation of meaning what he says, gave you (at 0800 hours, near Naipur) the mission of moving ahead of the squadron at maximum speed to seize Jodhpore Pass. He elaborated on this mission as follows: "Now look here, laddie. You are new and your platoon is new, but I don't need to point out that Jodhpore Pass is the key feature on the Naipur-Ram Dass Road. The enemy has only light mechanized forces in this area (according to G-2) and he probably wants Jodhpore as bad as we do, and will race us for it. G-2 says advanced enemy patrols passed through Ram Dass just an hour ago.

"If you hurry, as I order you to do, you have a fair chance to get to Jodhpore Pass first. I am dispatching a medium tank platoon to follow you: it should get to the pass about 15 minutes behind you, and on arrival will come under your command. I'll also see to it that by the time you get to the vicinity of the pass the assault gun company will be in hasty firing position and ready to support you—and of course you have the Forward Observer along with you. The main body of the Squadron will follow you at an hour's distance. Now get along—and get that pass!"

When you, at the head of the main body of the platoon, reach the RJ at **D** (at about 0845) you hear a single heavy calibre shot up ahead, and see the vehicles of the advance party (your Scout Section) leave the road just short of **A** and duck into the woods at **B**. You halt the platoon, and together with your FO you join the advance party. There you engage Sergeant Jones in conversation, while trying not to look as scared as he does.

"That was a tank, Lieutenant," says Jones, "—a big tank, and just as we hit this little bridge he let fly—and missed by about an inch. There's a lot of tanks there, I bet."

"Where was the tank?"

"In those woods behind the hill at the right." (He points at **C**.) "I saw the flash of his gun."

"Did you see the tank?"

"I don't know—I think I did, yes."

"Did you see anything else?"

Reconnaissance Platoon:

Pl. Hq.	1—¼ ton	
Scout Sec.	4—¼ ton	2—Cal. .30 MG
Tank Sec.	2—Light tanks	
Rifle Sqd.	1—M44 pers. carrier	1—MG
		1—3.5 rocket launcher
		8—M-1 rifles
Support Sqd.	2—¼ ton w/trailers	1—81mm mortar

Tank Platoon

5 Medium tanks

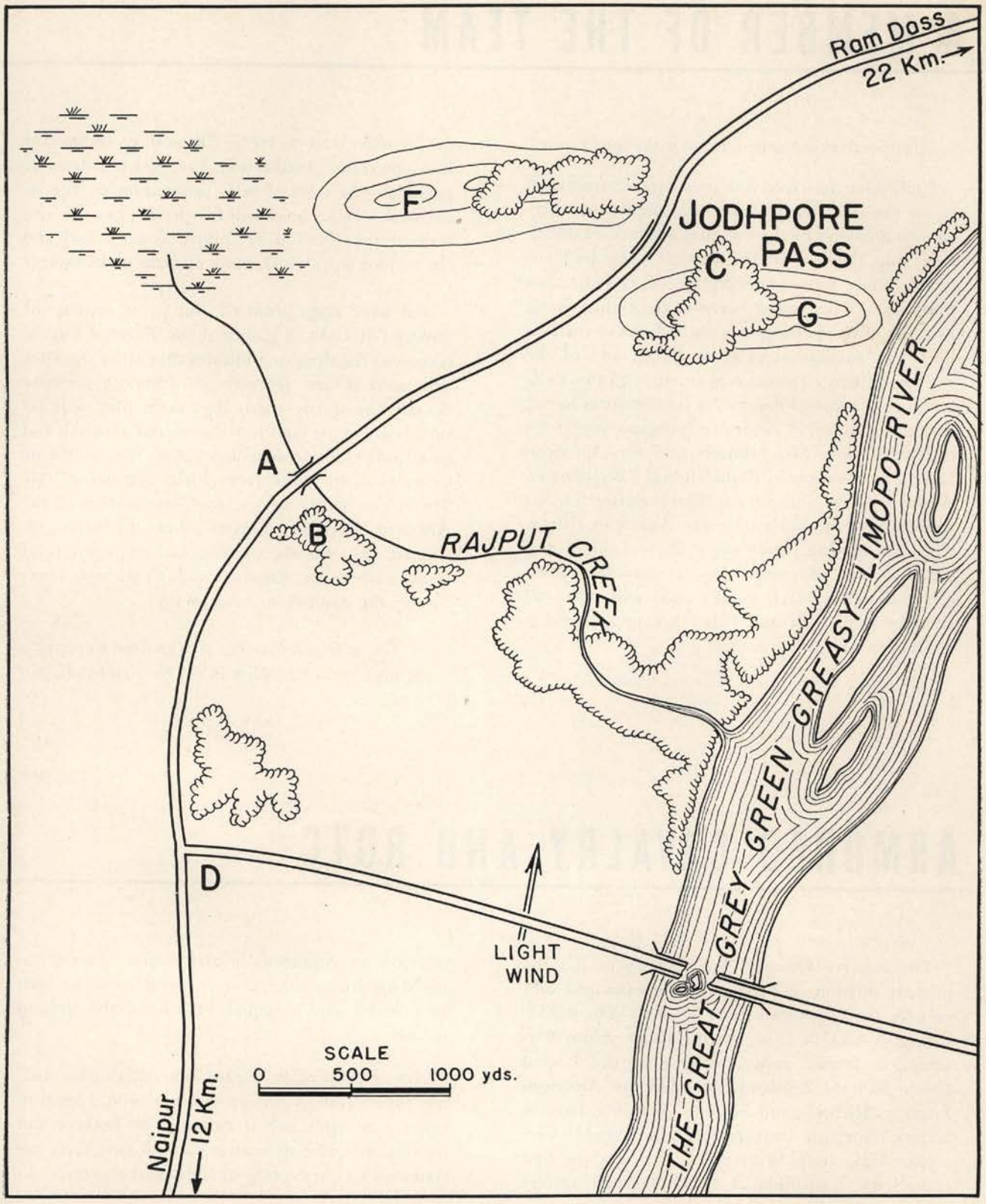
"No ——." Here the Sergeant apparently takes mental note of the last maneuver he attended in New Mexico and says rather formally, "Sir, I estimate the enemy to be one infantry company reinforced with tanks."

From **B** you can see the road wind through the pass to a point perhaps a mile beyond it; it is quite empty. Rajput Creek appears fordable with minor difficulty between the swamp and the river. The river is fordable nowhere, and neither is the swamp. The hills **F** and **G** appear traversable with difficulty by tanks; the rest of the terrain appears easily crossed. Your ears pick up the gratifying sound of a tank platoon (see box) joining your platoon near **D**.

And now. . . .

by COLONEL HAMILTON H. HOWZE

What Would YOU Do?



The general idea is *Hold 'em by the nose and kick 'em in the seat of the pants.* But how would you go about the nose holding and the pants kicking? Here is the first of a series of problems such as were popularized in The Journal in former years. For the author's solution turn to page 55 . . . after you have worked it out yourself!

A MEMBER OF THE TEAM

"Unify—to cause to be one; to make into a unit."

Unification has received considerable emphasis, to say the least, when it has been used with reference to activities of the national military establishment since the war. On the Services level, the Honorable Louis Johnson, Secretary of Defense, has this to say: "The Armed Forces of the United States exist for only one purpose—the defense of the Nation. The *unification* of these forces, and of the various civilian elements concerned, with functions relating to national defense, is fundamental to our national security."* And as a progress report on this unification, Mr. Johnson told the American Legion Convention in Philadelphia: "We have an Army, a Navy, and an Air Force worthy of our country and the pride of every American citizen. They are getting better every day—stronger and more efficient. Moreover, they are rounding themselves into *one team,* a team that will make all enemies stop, look and listen before attempting aggression across our tracks."

*The Second Report of the Secretary of Defense.

"To make into a unit." "Rounding themselves into one team." Unification. Let's get a little more personal—do a bit of self-examination on the individual services level—to be specific, can this one team idea, unification, be applied to our branch and the various units which make up Armored Cavalry?

The basic large armored unit is, of course, the armored division. A glance at the Table of Organization of the division indicates that all of the arms and services are represented. Physical presence doesn't necessarily mean that team play will result; however, it does in the armored division, and in all other armored cavalry units. We can do no better than to quote from Field Manual 17-100. The ink is hardly dry on this new edition of the Armored Division manual—thus the ideas expressed are certainly current. On the subjects of *Organization for Combat* and *Combined Arms Teams,* the manual has this to say:

"The armored division is organized to provide the maximum flexibility in the formation of com-

ARMORED CAVALRY AND ROTC

The Reserve Officers' Training Corps has the primary mission of producing commissioned officers for the Organized Reserve Corps. The ROTC idea goes back to 1819, when Captain Alden Partridge, a former superintendent of the United States Military Academy, founded the American Literary, Scientific and Military Academy, later to become Norwich University, at Northfield, Vermont. Aside from West Point, this was the first educational institution at which military studies were prescribed as a part of the curriculum.

Norwich University is today one of a whopping 421 institutions in the ROTC Senior Division. That is an imposing figure. On the other hand, Norwich is also one of a piddling 14 institutions carrying an Armored Cavalry course. This is astonishing in consideration of a combat arm which is a major and co-equal branch of the ground forces.

Armor's record in World War II, and its obvious future role in ground warfare, would seem to call for an appraisal of curricula by Reserve and institutional officials with a view to extending the Armored Cavalry course to additional sources.

Granted that the Armored Cavalry is highly technical in some respects, and requires the availability of expensive and sizable equipment, thereby imposing certain difficulties upon the military and the institution. But it seems a little out of propor-

bined arms teams. This flexibility is reflected in the combat command-separate battalion organization. Combat and service elements of the division are attached to or placed in support of the combat command for each operation.

* * * * *

"The armored division fights with combined arms teams of tanks, armored infantry, armored engineers, and armored artillery, supported, whenever possible, by combat aviation. Security and reconnaissance for these teams may be provided by reconnaissance elements. In the employment of these teams, the peculiar capabilities of each of the elements comprising the teams supplement those of the other elements. Cooperation and coordination between elements extend down to the smallest elements which may comprise teams."

Although the quotes above are from the 1949 Field Manual, it will be recognized that the idea of teams, team work, unity, unification has always been the doctrine in Armored Cavalry. The new manual is reiterating a maxim—something which has been axiomatic—a concept which proved itself from Tunisia to the Elbe; from New Guinea to Okinawa.

The Armored Cavalry can look with pride on its pre-World War II pioneer work at Fort Knox, in the formation of combined arms combat teams —which took first shape in the form of the old mechanized 7th Cavalry Brigade, and later in the justly famed armored divisions: it can take pride in the successful application of this concept in armored units in the last war, and in the reaffirmation of the concept as our latest doctrine. We feel that not only within the Branch but also within the Corps and Army we are out front in that picture which Mr. Johnson had in mind when he said— "a team that will make all enemies stop, look and listen before attempting aggression across our tracks."

tion to note that Armored Cavalry is the least available ROTC course among the combat arms, and is in a fair way of being the least available among all of the arms and services, ranking only sixth out of sixteen branch courses taught in our institutions of learning. It is outnumbered seven times by Infantry, two-and-one-half times by Field Artillery, and almost two times by Antiaircraft Artillery. Many more schools, colleges and universities offer Signal, Engineer, Ordnance, Quartermaster, Transportation, and Medical Corps courses than offer Armored Cavalry. With increased emphasis upon branch training in the instruction begun during the current academic year, it is even more desirable to see the addition of Armored Cavalry training to the schedule of selected institutions. This is necessary to insure a steady flow of trained second lieutenants to the three Armored Divisions and the many separate armored regiments and battalions in the Reserve, in order that this component can effectively carry out its important part in the defense scheme.

On another page of this issue is a roundup of activity in Armored Cavalry ROTC at half of the institutions carrying such a course. The remaining half will follow in the next issue. It is hoped that this information, touching upon popularity, problems and value of the Armored Cavalry instruction, will assist the interested sources in taking steps to bring Armored Cavalry into a more favorable balance in the ROTC program.



CAPTURED GERMAN PHOTOS









On file with the U. S. Army Signal Corps Still Picture Library is a valuable photographic record of the operations of the Nazi forces in World War II. Partially classified and captioned, these photos are the work of German Army still and motion picture cameramen. The collection was compiled by the German counterpart of our Signal Corps, and fell into Allied hands during the drive through Germany.

The photos on these pages show the German forces in action on many fronts. Undoubtedly they will evoke memories. The Journal hopes to bring the reader more work from this extensive source in later issues.

The advance of the 42nd Tank Battalion (reinforced) which took place between 17-20 March 1945 in the Rhenish Palatinate is a good example of the reinforced tank battalion in exploitation. This action illustrates the following points inherent to most exploitation operations:

- The necessity for carefully positioning the various elements of the team in the column in their order of probable employment.
- The necessity and advantage of speed of movement on exploitation.
- The value of armored engineer vehicles (tankdozers) in exploitation.
- The necessity of adequate tank-armored infantry communication.
- The necessity for transporting armored infantry on tanks in certain situations.
- The vulnerability of the flanks of tank-armored infantry column on exploitation.
- The effect of blown bridges over impassable streams on armored units.
- The need of portable bridging by armored units on exploitation.
- The necessity for rapid dismounted action by leading armored infantry elements when resistance and obstacles are encountered.
- The need for extensive supply and maintenance support.

The Big Picture

On the 7th of March the US Third Army sent its 4th and 11th Armored spearheads eastward. The 11th Armored broke through north of Kellberg the same day. Advancing northeast with increasing rapidity it reached the Rhine at Andernach on the 8th of March and linked up with the US First Army. The 4th Armored Division on its right drove seventy miles in 58 hours to seize Coblentz.

On March 15, the US Seventh Army attacked north through the Siegfried Line toward the Rhine. The 6th and 14th Armored Divisions of the Seventh Army pushed northeast, while the 4th and 11th Armored Divisions of Third Army drove southeast to meet them. The envelopment of these two US Armies decimated the German First and Seventh Armies, captured over 81,000 prisoners, and cleared the west bank of the Rhine south to Speyer.

The operation of the 11th Armored Division's 42nd Tank Battalion in the drive from the Moselle to the Rhine in the Spring of 1945 highlights the factors inherent to armored exploitation.

The Reinforced Tank Battalion in Exploitation

By LIEUTENANT COLONEL GEORGE B. PICKETT, JR.

11th Armored Division

The 11th Armored Division began its advance from the Moselle River near Bullay to Worms on the Rhine River on the morning of 17 March 1945. The zone assigned the Division for this breakthrough and exploitation was from 20 to 25 kilometers wide. It extended southeast from the Moselle River 40 kilometers to the Nahee River, then turned east for seventy kilometers to the Rhine and Worms. The Nahee, Glan, and Alsenze River lines had to be forced during the advance. The Division Commander, Brigadier General Holmes E. Dager, selected two routes to provide for mutual support, to follow ridges providing favorable avenues of armored approach, and to avoid towns and defiles to the maximum extent possible. CCA and CCB were each assigned one of these routes as an axis; CCB on the right. Although the passage of an armored division through an infantry division requires careful coordination, the uninterrupted movement through the 89th Division was assured by establishment of road priorities for the 11th Armored Division units, coordination of assembly areas for the armored division units with the 89th Division units, and closely controlled traffic. This coordination was accomplished at division level but time prevented coordination at Battalion and Company level.

Combat Command "A"

CCA of the 11th Armored Division was directed to attack southeast along its axis, to protect the left flank of the division, and to seize any bridges found intact over the Rhine. Brigadier General Willard A. Holbrook, CG of CCA, announced the following task organization for the operation:

TF AHEE
- 42nd Tank Bn (–C Co)
- Co A 63rd Armd Infantry
- Co B 63rd Armd Infantry
- Co A 56th Armd Engr Bn
- 2nd Plat Co A 705th TD Bn
- Btry A 490th Armd FA Bn

TF Brady
- 63rd Armd Inf Bn (–A&B Co)
- Co C 42nd Tank Bn
- Co A 285th Engr (C) Bn
- 1st Plat Co A 705th TD Bn
- Advance Btry 58th FA Bn

33d FA Brigade
- Hq 33d FA Brigade (–)
- 58th FA Battalion (–)
- 490th Armd FA Bn (–)
- 775th FA Battalion

Hq Group
- Hq Hq Co CCA
- Btry C 575th AA AW Bn (SP)
- Co A 705th TD Bn (–)
- Hq 33d FA Brigade (–)

CCA Control
- Tr A 41st Cav Rcn Sq
- Tr B 41st Cav Rcn Sq
- Trdwy Br Elm 56th Armd Engr Bn

CC Trains
- "A" Trains (Combat Trains)
- "B" Trains (Field Trains) of units
- Co C 81st Armd Med Bn
- Co A 133rd Ord Maint Bn

42d Tank Battalion

Just prior to this operation, on 7-8 March 1945, the 42d Tank Battalion had participated in the drive of the 11th Armored Division from Gerolstein on the Kyll River to Andernach on the Rhine north of Coblentz. The period 9 to 13 March had been spent in mopping up remnants of enemy resistance in the Plaidt, Thur, Nichernich, Kraft, and Andernach areas. The battalion was moved to Ettringen on 15 March for an extended maintenance period. It lasted exactly 32 hours. On the afternoon of March 16th the battalion was alerted for the move to Driesch in the vicinity of Bullay for the operation which is discussed in this article.

Personnel Shortages

The morale and combat efficiency of the battalion were at their peak although the tank companies were understrength in personnel, using for the most part four-man tank crews. Almost every tank was short a bow gunner. Company D, the light tank company, was short twelve tanks which had not been replaced since the winter fighting in the Bulge. The Battalion S-3 was new at his job.

The plan of attack for the reinforced battalion was both simple and flexible. Reinforced Companies (teams) were formed, and the units were arranged in the march column in the order of their anticipated employment. The task organization and order of march of the reinforced battalion was as follows:

Advance Guard (Team A)
- Company A 42d Tank Battalion
- Company A 63d Armd Infantry Bn
- Armd Engr Detachment
- Arty FO and team

Command Group
- Battalion Commander
- Battalion Executive Officer
- Liaison Officer from 490th Armored FA Bn

Battalion Reconnaissance Platoon
Co A 56th Armored Engineer Bn
Forward Echelon
Hqs Co 42d Tank Bn–(Mortars, Assault Guns, Machine Guns)
Battery A 490th FA Bn

Team B
- Co B 63d Armd Infantry Bn
- Co B 42d Tank Battalion
- Artillery Fwd Observer Team

Company D 42d Tank Battalion
Medical Detachment
Battalion Maintenance (Detachment Only)

March 17, 1945

The exploitation to the Rhine started in late morning, when the battalion began its movement into the Moselle valley. The front lines of the 89th US Infantry Division were passed at 1500. Troop A, 41st Cavalry, preceded the battalion until initial contact was made at Kirchberg at 1645, where a defended roadblock and an infantry position in the woods, three kilometers to the north, delayed the troops' advance. By 1800 the advance guard team under Captain Dale Howard had reduced the roadblocks and secured the high ground overlooking Kirchberg. Due to the lateness of the hour, CG CCA ordered the battalion to halt for the night. A perimeter defense was established around the village of Kludenbach, and the combat elements were resupplied. CG CCA and his

command group remained in Kludenbach at the CP of the 42nd Tank Battalion during the night 17-18 March. CG CCA directed that TF Ahee would resume its advance on the CCA axis at 0645 the following morning.

March 18, 1945

At 0645 the attack resumed with Company A, 42d Tank Battalion, and Company A, 63rd Armored Infantry Battalion (with 1st Platoon, Company A, 56th Armored Engineer Battalion attached) leading. The advance was delayed temporarily beyond Dickensheid by teller mines in the road. Captain Blackburn, the Armored Engineer Company Commander, was injured by a "schu" mine while supervising the removal of the mines, and was replaced by Lieutenant Fred Procter. The advance resumed as soon as the road was cleared. At 1025 the leading team approached Gemunden, which the Germans had organized for defense. The approaches to town were covered by mortar and machine gun fire; but not by antitank fire. This weakness in the German defenses enabled the leading team to enter the town with tanks leading, followed by mounted armored infantry. Once inside the built-up area, the armored infantry dismounted to clear the town. The leading team fought its way house by house through the town until they encountered a blown bridge at the far edge.

A ground reconnaissance and map study indicated that immediately beyond the next village, Gehweiller, the road entered a deep canyon, which extended to the Nahee River, a distance of about nine miles. Possession of the entrance and approaches to this canyon were essential for the successful accomplishment of the battalion mission. The TF Commander directed his executive officer to deploy Company B, 63d Armored Infantry Battalion, and advance astride the road to Gehweiller. After seizing Gehweiller, the dismounted advance was to continue to seize the heights at the entrance to the canyon. Company B seized Gehweiller without incident while Company A cleared out Gemunden. The main bridge in Gehweiller also was blown but the battalion executive officer found a place east of town where vehicles could ford the stream easily.

Into Kellenbach

During this reconnaissance for a crossing site, the Germans began to shell the town with two-gun salvos of 150mm artillery. Meanwhile, back in Gemunden a passable route to Gehweiller was located along which the tanks and halftracks started to Gehweiller. After clearing mines from another bridge in Gehweiller, the advance was continued to Kellenbach where once again a blown bridge was encountered. The approaches to town were covered by 150mm direct fire, mortar fire, and automatic weapons fire. Direct fire from the tanks of Company A, 42nd Tank Battalion, destroyed the two 150mm howitzers which were located on the hillside east of the road. The mortar fire proved ineffective, since the tank-armored infantry elements were in the canyon and the mortar shells were striking far up on the canyon walls. Company A, 63d Armored Infantry, cleared the town; the tanks could not support this attack since they were unable to deploy in the defile outside of Kellenbach.

Since the bridge in Kellenbach had also been blown by the retreating enemy, it was necessary to locate a crossing point for the vehicles. A ford was found about half a mile east of the blown bridge. Company B, 42d Tank Battalion, was immediately directed to cross the ford and prepare to move cross-country into Konigsau which was the next town down the canyon. The distance from Kellenbach to Konigsau was about a thousand yards as the crow flies but the road and stream meandered in such a winding course that the road distance was slightly over a mile. The attack on Konigsau proceeded without delay. Co B, 63d Armored Infantry Battalion, climbed the west wall of the canyon and advanced down the ridge line to seize the high ground west of the village. Co A, 63d Armored Infantry Battalion, waded the stream in Kellenbach and advanced astride the only road. Co B, 42nd Tank Battalion, moved cross-country to the ridge east of Konigsau to support the attack of both rifle companies by direct fire. The attacking force was commanded by the executive officer 42nd Tank Battalion since the Commander of TF Ahee and CG CCA were holding a conference in Kellenbach, discussing the numerous bridging difficulties along the route of the battalion.

Communications Difficulties

The attack on Konigsau illustrates the difficulty of having tank and dismounted infantry units converge on a common objective from different directions without adequate infantry-tank communication. As the advance progressed a large antitank and antipersonnel minefield was discovered east of the town, which was by-passed. Company B, 42nd Tank Battalion, arrived on the high ground east of Konigsau long before the dismounted troops. Company B, 63d Armored Infantry, had difficulty in advancing down the ridge west of Konigsau due to the difficult footing. The advance of Co A, 63d Armored Infantry, proceeded against no opposition until a large farmhouse about two hundred yards from town was encountered. The resistance was neutralized by tank fire of Company B, 42d Tank Battalion.

After firing on the position in this farmhouse, Company B started to move into Konigsau. Its advance was coordinated with the advance of Company A, 63d Armored Infantry; but the tanks pulled ahead of the infantry and the leading tank elements entered the town alone. The Company B tankers of the 42nd Tank Battalion halted inside the built-up area to wait for the advancing infantrymen, who soon entered and cleared the town. Company B, 63d Armored Infantry, occupied the ridge west of Konigsau while Company A, 63d Armored Infantry, cleared to the far edge of the town.

A Blown Bridge

Meanwhile a blown bridge in the center of Konigsau had halted the advance of the tank company. A ford beside the blown bridge proved passable to tanks, but not halftracks and wheeled vehicles. This situation was reported by the battalion executive officer to the battalion commander who directed the executive officer to continue the attack with the forces then in Konigsau. The executive officer requested that Company A, 42nd Tank Battalion, be sent forward to join forces in Konigsau.

The reinforced tank battalion was then divided into two parts. The tank and armored infantry rifle companies,

less their half tracks and antitank platoons, were in Konigsau. The Armored Infantry's vehicles, their antitank platoons, the headquarters vehicles of the 42nd Tank Battalion, and the battalion machine gun, mortar, assault gun, and reconnaissance platoons were back at Kellenbach or on the road leading into it. Company A, 56th Armored Engineers, was repairing the bridge in Kellenbach. The battalion executive officer in Konigsau directed that Company A, 63d Armored Infantry, mount the tanks of Company B, 42nd Tank Battalion, and proceed at once down the canyon. When Company A, 42nd Tank Battalion, arrived in Konigsau, Company B, 63rd Armored Infantry, mounted its tanks and the force moved out rapidly.

Heading down the canyon the force encountered a blasted mountainside about three miles west of Dhaun. Company A, 63d Armored Infantry, dismounted and advanced along the southwest side of the canyon wall in the direction of a castle. Captain Meggesin, the commander, immediately employed a tankdozer to start clearing the rubble. This vehicle more than proved its value during this period. It prepared ford crossings, filled craters, and pushed debris from streets and roads. In this particular situation, it cleared over five tons of rubble from the road. In about 45 minutes the road was open again. Lieutenant Colonel Ahee rejoined the leading elements about 1500 and resumed personal control of the action. While the tankdozer was clearing the rubble, a two-man patrol was sent forward down the road on captured bicycles to see what was ahead. This was the first and last use of bicycles by the battalion.

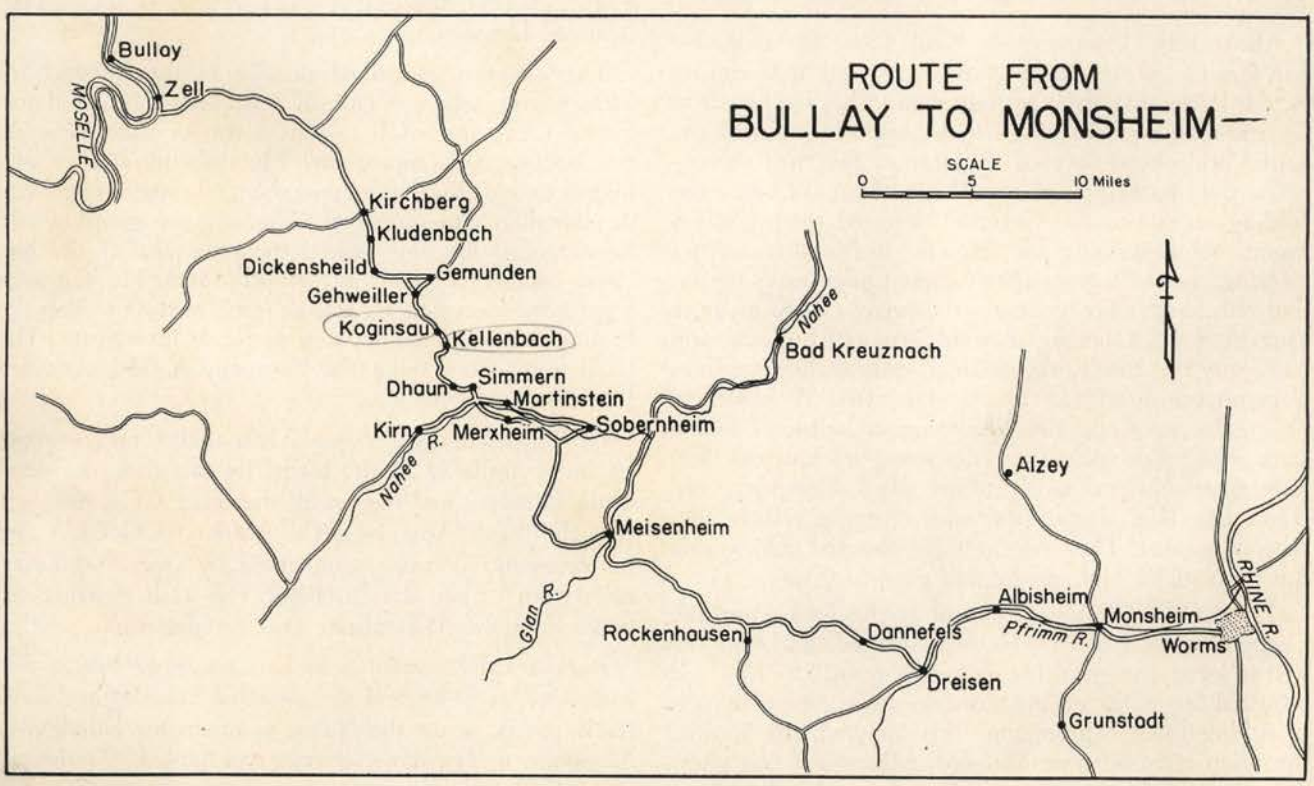
Securing Simmern

The leading elements resumed the advance at 1600. About one mile west of Simmern, another blasted mountainside and blown bridge was encountered. In his headlong flight the enemy had spilled a truckload of "schu" mines all over the road and shoulders with no effort being made to conceal them. While the engineers cleared these mines Company A, 63d Armored Infantry, advanced along the west canyon wall into Simmern. Captain Dale Howard reported the town secured at 1945. Company B, 63d Armored Infantry, meanwhile secured the high ground surrounding the blown bridge near Dhaun and protected Company A, 56th Armored Engineers, during the clearing of the mines and rubble and the repairing of the bridge.

March 19, 1945

In the small hours the road was cleared and the bridge repaired. The remainder of the reinforced battalion moved into Simmern. The day's advance totaled 16 miles. During the night, Company A, 63rd Armored Infantry, dispatched a patrol to reconnoiter the defenses of Martinstein and to determine if the bridge across the Nahee River was intact. The patrol had a fire fight with a German force and was unable to enter the town. It withdrew to Simmern, carrying two wounded, one of whom died on arrival at the Company CP.

The problem of seizing a bridge across the Nahee River appeared paramount to the battalion commander. The decision was made to rush the town of Martinstein with a fast, highly mobile force to seize the bridge and cut the wires leading to any prepared demolitions before the bridge could be blown. At 0640 four ¼-ton trucks of the reconnaissance platoon under Sergeant Hess, left Simmern and rushed Martinstein at top speed. The defenders appeared to be surprised by the onrushing vehicles; but just as the leading vehicle crossed the bridge, the Germans blew it. Hess was later awarded the DSC for this action. Although unsuccessful, this incident so completely confused the defenders that Co B, 63rd Ar-



mored Infantry, and Co B, 42nd Tank Battalion, advanced into the town against only slight opposition. Colonel Ahee sent this team to Sobernheim to seize a bridge over the Nahee which the civilians reported still to be intact.

At Sobernheim these Companies encountered heavy mortar and automatic weapons fire; but the tanks and the mounted armored infantry shot their way through town to the river. Here, to their chagrin, they found that the bridge had already been blown. The armored infantry then dismounted to clear the town. However, very few prisoners were taken since the main German defenses were found to be south of the river. The Battalion executive officer and Major Mitchell, 56th Armored Engineer Battalion, accompanied by a rifle squad, reconnoitered for a crossing site between Sobernheim and Martinstein without success. However, back in Martinstein, Lieutenant Colonel Ahee located a ford in the center of town which was passable to full track vehicles only. Reconnaissance showed that half tracks and wheeled vehicles could be winched across singly but only with great expenditure of time.

Scrapping at Martinstein

Throughout the morning Martinstein had been heavily shelled by nebelwerfers. Company A, 63rd Armored Infantry, had occupied the buildings adjacent to the river and engaged in a sharp fire fight with the German defenders who were occupying a factory building and a farmhouse on the opposite bank. Between Sobernheim and Simmern the south bank of the Nahee was heavily defended. The heaviest defenses seemed to be opposite Sobernheim and in the town of Merxheim. The movement of the leading tank-armored infantry team to Sobernheim had been unopposed; however the Germans later moved self-propelled guns into position at Merxheim and began to fire at vehicles moving between Sobernheim and Martinstein.

About 1300, Company A, 42nd Tank Battalion, began fording the river at Martinstein covered by Company A, 63rd Armored Infantry Battalion. This happened to be a unique river crossing for the tanks established the initial bridgehead covered by infantry fire, just the opposite from normal procedure. When the tanks began the fording operation, the Germans deserted their position around the farmhouse and retreated to Merxheim. After crossing, the tanks immediately came under heavy mortar and nebelwerfer fire jamming the turret of one medium tank. At 1230, Company B, 63rd Armored Infantry, and Company B, 42nd Tank Battalion, were withdrawn from Sobernheim in order to cross at Martinstein. When these companies were opposite Merxheim, a half-track and a tank recovery vehicle were destroyed by antitank fire. Lieutenant Knight, motor officer of B Company, 42d Tank Battalion, was in the tank recovery vehicle, but escaped unhurt. This was the third armored vehicle shot out from under him, yet he had escaped injury.

The CG of CCA was present at the ford when the German AT fire from Merxheim started, and was the first to locate the guns. He mounted an artillery M-7 and adjusted fire on the enemy guns, driving their crews away or killing them. Throughout this incident, the fording operation went on uninterrupted, although it was somewhat disconcerting to ford a river while a gun duel was in process only fifty feet away.

The reinforced battalion reassembled across the river and immediately assaulted Merxheim. The town was covered by overwatching tanks while Company B, 63rd Armored Infantry, assaulted and cleared the town. The German opposition to the river crossing disintegrated with the fall of Merxheim. The enemy survivors were observed fleeing into the surrounding hills. This success was dampened by the loss of the rifle company commander, who was wounded in the leg.

Once again conditions appeared favorable for a rapid advance. The battalion commander ordered all wheeled vehicles and half-tracks to be left in Martinstein until a suitable crossing could be prepared. Plans were made to provide for these vehicles rejoining the battalion.

Only scattered resistance was encountered after the capture of Merxheim. However, a race through the wooded hills in the direction of Meisenheim afforded several amusing incidents.

Friend or Foe?

The Germans had attempted to block the narrow road at several points by igniting ammunition trucks. By-passing a burning truck load of ammunition has its thrills. The failure of the burning ammunition trucks to slow down the advance prevented the Germans from being able to organize any resistance in the hills. As the battalion was climbing down out of the hills toward the plain surrounding Meisenheim, the most amusing event of the campaign occurred. The leading tank commander saw an armored vehicle running down the road in front of the advance guard. He reported a "German Tank" to his company commander and speeded up to overtake it. However it turned out to be a tank recovery vehicle, quite lost, from the 41st Tank Battalion of CCB, 11th Armored Division.

The advance continued rapidly to the outskirts of Meisenheim, where a case of mistaken identity almost caused CCA and CCB to start a war of their own. As the leading tank approached Meisenheim, freshly dug foxholes were observed around the road junction between the battalion and the town. The advance guard would have opened fire and rushed these outposts if the battalion commander had not stopped them. He had seen a partially concealed U. S. half-track in time to halt the leading team and send out a patrol to investigate. The CCB unit turned out to be Company A, 55th Armored Infantry Battalion.

CCB had actually by-passed Meisenheim and was about six miles northeast of the town. By this time the 42nd Tank Battalion had outrun all the other CCA units except the 490th Armored Field Artillery. CG CCA and his command group, accompanied by two light tanks, moved out to join the battalion. The 11th Armored assembled in the Meisenheim area for the night.

Back at Martinstein, a 96-foot treadway bridge was completed at 2140; and the wheeled vehicles and half-tracks started across the Nahee to rejoin the battalion at Meisenheim. The day's advance had totaled 17 miles, all

of which was made after the assault of the defenses of the Nahee River line.

March 20, 1949

The reassembly of the reinforced battalion at Meisenheim was delayed by remnants of enemy forces situated on the high ground south of the Nahee, who attacked the half-track and wheeled vehicle column about 0200. The road was covered by mortar and automatic weapons fire. Since the force which was rejoining had only the truck drivers and the antitank platoons of the armored infantry rifle companies, the movement of the column was considerably restricted, yet it reached Meisenheim in time for the battalion to resume the advance at 0700.

CCA followed CCB to Rockenhausen, where the reinforced battalion turned off through a dangerous gap between two high, wooded hills, to reach the outskirts of Dannenfels at 1105, where determined German resistance was encountered. Company B, 63rd Armored Infantry, immediately attacked with artillery support along the high ground on the south of the road leading to town. Tanks were unable to deliver effective fire on the German road blocks and antitank guns, due to the lack of approaches south of the town. AT fire covered the only approach into the north side of the town. Nevertheless the progress against the German defenses of Dannenfels continued. During the mop-up phase of this attack the 33rd FA Brigade placed a TOT on the town after the armored infantrymen had taken shelter in the cellars. When the fire lifted, the house-to-house fighting resumed at feverish intensity.

Converging on Dreisen

Soon after encountering the stubborn resistance in Dannenfels, the battalion commander directed Company A, 42d Tank Battalion, and Company A, 63rd Armored Infantry Battalion, under command of the battalion executive officer, to move by an alternate route through the hilly, wooded area southwest of Dannenfels, to seize Dreisen and protect the battalion's south flank. This force cleared Stalheim and contacted elements of CCB, 11th Armored Division, near Dreisen. Meanwhile Company B, 63d Armored Infantry, opened a hole in the defenses of Dannenfels and the two forces of the battalion converged on Dreisen, which was seized at 1500 without opposition.

The advance continued from Dreisen with Company B, 42d Tank Battalion, and Company A, 63rd Armored Infantry Battalion, leading. The battalion rushed through Marnheim and by 1547 had overrun Albisheim. At Marxheim a blown bridge and defended crossings of the Pfrimm River forced the battalion to take an alternate route just north of and parallel to the river. Between Marxheim and the next large village, Monsheim, was a long steep ridge on the German side of the river. As the battalion advanced rapidly down the road parallel to the river, a long column of vehicles, horse carts, caissons, and personnel was observed fleeing wildly in an attempt to cross the ridge to secure protection from tank fire. Although only the assault gun platoon halted and went into position to place 105mm direct fire on the fleeing enemy, each tank and half-track machine gun traversed right and fired on the enemy column. The carnage was terrible. Horses, carts, men, and equipment were blown to bits and scattered over hundreds of yards. It was the worst slaughter ever inflicted by the 42d Tank Battalion on the enemy during its entire combat career.

After knocking out the fleeing column, the advance continued rapidly to Monsheim, where another blown bridge was encountered. Company A, 63rd Armored Infantry, waded the Pfrimm and advanced dismounted into Monsheim to mop up. The battalion executive made a reconnaissance of the town and supervised the preparation for the defense. The battalion CP opened in Monsheim at 2330. The drive from Bullay to the Rhine was now complete. The day's advance totaled thirty-three miles in sixteen hours, bringing the total distance of advance of the three-and-a-half-day period to almost seventy miles.

German Order of Battle

The study of the German units encountered during this period gives a good indication of the German order of battle in the Palatinate. On 17th of March the enemy forces at Kirchberg consisted of kampgruppes from the 150th VG division. Most of the opposition consisted of roadblocks and a few mines. The opposition stiffened on the 18th and consisted primarily of defended roadblocks and AT fire from positions on favorable defensive terrain. Units encountered between Kirchberg and Simmern consisted of isolated battle groups of 159 VG, 179 VG, and 559 VG Divisions. Elements of Panzer Lehr Division, and the 6th Flak Bn (SS) were also encountered in small groups but did not display any organized resistance in depth. However, on the 19th of March, the Germans buckled down in excellent defensive terrain for a determined stand utilizing demolitions, antitank guns, panzerfausts, 4.7-inch rockets, nebelwerfers, and automatic weapons very effectively. Opposition to the battalion came from the 2nd Panzer Division, 5th Parachute Division, 6th SS Division "Nord," and kampgruppes (battle groups) from various Volks Grenadier Divisions.

Comparative Losses

The number of elements contacted during the advance indicates the confusion and chaos which armored units on exploitation can cause in hostile rear areas. This is further brought out by a comparison of losses of the 42d Tank Battalion with those of the Germans. The 42d Tank Battalion suffered a total of twelve men killed and thirty wounded during this operation. German dead were estimated at five hundred, and by actual count the reinforced battalion captured over sixteen hundred prisoners. This does not include prisoners who surrendered in large masses to elements following the battalion. Material losses were similar; the battalion lost twelve vehicles during this operation, namely, seven medium tanks, one light tank, three half-tracks, and one ¼-ton truck. German material losses were enourmous. Included were: fifteen tanks, twenty-two towed antitank guns, nine artillery pieces, twenty-two mortars, eight nebelwerfers, forty-one trucks, a hundred and twenty horses, and thousands of wagons, carts, staff cars, and motor cycles. These losses include only that equipment destroyed or captured on the axis of advance and do not include tremendous amounts of material abandoned by the enemy off of the battalion's axis of advance in his headlong retreat.

THE STORY OF SOVIET ARMOR

PART III - THE WAR YEARS - THE TANK

by GARRETT UNDERHILL

What happened in 1941, when Hitler pitted 4,100 tanks against Stalin's 21,000 to 24,000?

What was the effect on Hitler's drive into Russia, when—because of the inexcusable inability of the Wehrmacht to exploit open sources of intelligence—weakly armed and armored light and medium German tanks were surprised by revolutionary-type big-gunned Soviet heavyweight mediums and 52-ton heavies?

What did Hitler's panzers do for air cover, when Goering blandly assigned units with a T/O strength of about 1,280 combat planes—to buck Soviet air fleets incorporating 4-engine bombers (which the Germans didn't have), and totalling at least ten times the Germans' combat aircraft?

What navy support could German blitz forces expect on their Baltic Sea flank, when Stalin had a submarine strength of approximately 226 boats—some built in Leningrad under supervision of German engineers during the 1930s, others turned out under the aegis of the people whom many then thought to be the world's best sub designers and builders, the fine Italian hands of the Adriatico firm's engineers?

THE answers to these questions may have a vital bearing on present-day American policy. Recent widely featured newspaper and magazine reports—some implying that they have been "inspired" by sources within the Government, who have access to official intelligence—have clearly attempted to influence public and official opinion by bearing down upon the estimated quantitative superiority of the Soviet armed forces. A very widely syndicated column, pretending to give the figures with which Lt. Gen. Gruenther briefed Congressional leaders on behalf of the Joint Chiefs of Staff, has given Stalin's 1950 tank strength as 40,000—as against 7,000 for America. This 40,000 figure has also been relayed to the public by a national magazine which is reputed to reach an audience of 20 million people—and the mailbox of just about every national legislator. Much is made of the fact that the West has only "obsolete" armor, while the Reds have "the best heavy tank in the world"—the Joseph Stalin III.

. . . versus . . .

Other statistics list 1950 Red air fleets of 17,000 to 19,000 planes (including 300-350 4-engined bombers) to oppose an American air strength of 13,000—or 8,800 combat US Air Force and Navy planes (depending on which figures you take, and how you wish to define your terms). Officially sanctioned statistics give the Soviet Navy 270 undersea craft.

Since any force is of necessity the prisoner of its own history (and especially of its immediate past), any survey of the war years of Soviet armor should tell us a great deal about what we have to worry about concerning the Soviet forces today. Should we blindly assume that the Russians are Americans—that their technical, administrative, managerial skills are on a par with ours; that the Soviet system, based on centuries of Russian autocracy, can breed individual initiative even to the degree achieved in dictator-controlled but nevertheless basically bourgeois capitalist states, like Germany ?

Should we take fright from mere numerical strength—and try to impoverish ourselves to match it? Or can we find, by intensive study and analysis, that the American way—militarily developed—can be vastly superior to the Russian way, just as it is in civil life? Should we concentrate upon quality, upon ideas, upon our self-evident superiority in the human factor? We certainly ought to discover, by delving into immediate war history, whether that dread do-it-or-else doctrine that for a generation has ruled Russia, is able normally to breed minds as fit for vitally needed initiative in modern mobile war—as can the American way.

If anything can, a study of the war years should give us some reasonable idea of whether to continue to be fascinated with mere material strength (doubtless a legacy from our effort to create the World War II "Arsenal of Democracy"), or whether to devote more effort to the development of new concepts, new techniques, more field combat skills—and a way to convert our incalculable reserve of specialized civil skills and talent with a minimum of training.

The Story of Soviet Armor has been running in The Journal as a staggered series. The "Early Days" appeared in the issue of January-February, 1949. The "Middle Ages" (the 1930s) appeared in the issue of May-June, 1949. A complementing article titled *Backlight on Soviet Armor* appeared in the November-December issue of The Journal, and covered Russian war industry through the ages.

With this issue we begin publication of the "War Years." This part of the series will in turn be divided into sections on tanks, SPs, tactics and people. The first of two parts on the tank appears herewith, and will be completed in the issue of May-June. It is our hope that the series can be rounded out with a coverage of armored cars and armored trains.

—The Editors.

The way in which the Joseph Stalin III heavy tank is featured in official and press discussions of Red power, is ample indication that the story of Soviet armor can indicate that a violent reorientation of American thought is highly necessary. For just being "discovered" by Americans in 1950 is the "best heavy tank in the world"—the JS III.

Actually, the JS III is obsolescent. It appeared in battle in Poland in 1945. It is the fifth edition of a heavy tank which first appeared in 1940. Original design of that basic Soviet tank was worked out in Kremlin conferences with Stalin himself as early as 1938. The original tank, and the whole line of subsequent development, is revealed not just as the story of technical development. It's a vast and complex panorama involving Red inferiority complexes toward foreign power, the tendency of Stalin to interfere ruthlessly in minor armament matters, personalities within Soviet ordnance, the effect of Soviet official preoccupation with numbers rather than with quality, and the effect of resultant industrial efficiency upon the trinity of technical weapons characteristics, the ability of available manpower, and strategic and tactical concepts.

Originators or Imitators?

In Part I of THE STORY OF SOVIET ARMOR (Armored Cavalry Journal, Jan.-Feb., 1949), efforts of Soviet engineers of the 1920s to originate their own tank designs were outlined. As patriotic Russians and as men representative of a new political faith, they hardly wanted to be "slavish imitators" of the Western "capitalist" military and their industries. But however much an inferiority complex might cause them to strive to pioneer and try out the new, they lacked that element which (as was indicated in BACKLIGHT ON SOVIET ARMOR, (Armored Cavalry Journal, Nov.-Dec., 1949) autocracy-controlled Russian industry has lacked since Moscow's Grand Prince Vasili Vasilievitch first imported Italian artisans to make cannon in the 1400's. That element was practical know-how.

Part II (Armored Cavalry Journal, May-June, 1949) described how around 1930 the Soviet engineers reluctantly accepted basic tank chassis of foreign firms—and managed to produce them not only in great quantity, but also to make important modifications causing Russian tanks to rate as tops in the Spanish Civil War of 1936-39. It mentioned that, towards the end of the third phase of Soviet armor development, the Soviet engineers at last felt able to turn out their own designs: to capture that world leadership in tanks which had ever been their objective.

These designs were actually started before the returns from most of the "proving ground wars" were in. The Spanish Civil War, Russia's two brushes with the Jap Kwantung

Sovfoto

A Russian T-34/85 of the Dmitri Donsker Brigade.

Army, Russia's occupation of Poland in '39 (and her 1940 occupation of Rumania's Bessarabia province, and of the Baltic States), appear to have had slight effect upon the designs which were presented by Soviet tank engineers in the critical 1938 meetings in the Kremlin itself —in Stalin's own office.

Chief of State—and Ordnance

It seems that Stalin himself, like Hitler at a later date, had by this time assumed in effect a dictatorial role as sort of Soviet chief of ordnance. He seems to have had a two-way influence on Soviet armor —good and bad. The good effect seems to have been expressed in the power of absolutism to make engineers find the formula for the impossible. Stalin is stated to have demanded not superiority in fire power and armor (such as in France's tanks of the late 1930s), or designs giving speed and mobility at the expense of armor and guns (like British and American tanks of the 1930s period). Stalin demanded that the new Soviet line of tanks be outstanding in *guns, armor,* and *speed.* Besides being tops in the chief trinity of tank characteristics they were to have superior mobility (to get around difficult terrain), range sufficient for proper long-range employment of armored units, and to be proof against flash fires from gasoline-type fuels.

The all-powerful chief of the Soviet state in effect demanded a revolution in tank design—which would nevertheless enhance, not hinder, armor's "produceability."

He got it—in the now famous pair, the KV heavy tank and the T-34 medium tank. As one Soviet author has put it, Stalin urged his military "to face reality, and not lock [themselves] in shells of ossified dogma."

Apparently the Soviet engineers and the tactical specialists were not planning those "abrupt and drastic" changes which are said to have come out of the Stalin conferences. The engineers of the Kirov factory in Leningrad (the old Putilov plant) had worked out several test models of new heavy tanks, the blueprints and scale models of which they brought with them to the Kremlin. Like the T-35 heavy tank (which grew out of Britain's Vickers Independents of 1926), these had three turrets for cannon, and were fitted with machine guns to cover various angles.

The story has it that Stalin, dissatisfied, paced up and down. He took off one turret from a tank model, asked: "How much weight did I remove?"

"Three tons," was the answer.

"Use that weight to increase the armor," ordered the Great Dictator. "I don't see any advantage in multiple gun turrets."

At this point there seems to have occurred a smart, slick maneuver by the Kirov design department headed by the now-famous Hero of Socialist Labor, Maj. Gen. (by our rank system) J. Y. Kotin. In what may have been an offside play like the snake's suggesting eating the apple to Eve, Kotin remarked to Stalin that he happened to have a design at hand with plenty of armor, and only one turret. Stalin is said at once to have been interested. According to Kotin's bootlicking story, Stalin—inspired apparently by Kotin's suggestion—proposed a third design with a single big-gunned turret and still heavier armor than Kotin had specified. The meeting ended with Stalin ordering prototypes both of the multi-turreted model he'd modified, and the heavy suggested by Kotin and ostensibly improved by the Sphinx of the Kremlin.

"In a short time" both models of heavy tank were built—and the Kremlin revisited. As could have been expected, the Kotin-Stalin heavy was selected, and named the "KV," for Stalin's old Civil War crony and Defense Commissar Klementi Voroshilov.

Stalin fussed about the suspension; he didn't like the armored skirting used to protect it, felt it did little good, and yet its weight subtracted from armor protection on the main body of the vehicles. The military—perhaps only the design engineers—held out for the skirting (they'd used it on the older T-28 medium and T-35 heavy). The meeting ended with Stalin's demand for a new-type suspension.

Torsion Bar Suspension

The solution was the torsion-bar mount for bogies. By this time this simple sort of mounting had appeared (in 1932) on the German Dr. Ferdinand Porsche's famous racing cars. Dr. Porsche, close to Hitler, had pushed it for the most successful German medium tank—the *Pz.Kpfw. III,* which by the end of 1938 was showing off tank torsion bars in public, after going through a variety of unsatisfactory suspensions. According to the Russians, the KV with its broad 28-in. tracks could continue to move with one or more of its bogies out of action—thus providing it with protection by design, rather than by armor alone. It is significant that, at this time, Americans considered torsion bar suspension impractical because insufficiently developed.

Apparently the decision was made to put the KV heavy tank into pro-

duction before the suspension question had fully been worked out. Soviet sources give 1939 as the year the Kirov works began production; KVs are credited with being instrumental in the final drive which broke the Finnish Mannerheim Line, in February and March of 1940.

Substantiation of the Soviet accounts is afforded by Finnish capture of a heavy tank, usually incorrectly identified as a T-35 C. Clearly, this monster is one of the KV experimental models of which the Soviet armor historians write. It seems to be the one from which Stalin removed one of the three turrets—for it has a front 45mm gun turret, a high center turret with a 76mm gun. There's no 45mm turret in the rear, where one might be expected in a tank following the 1920s ideas about "independent" tanks, capable of breaking through and going on their own as rolling forts—with gun protection furnished all angles.

Gun Protection

The idea of a light antitank-type gun to "protect" medium-caliber weapons was preserved in France in the Char B's of the late 1930s, and in the American M3 Medium, which closely aped the French Char B. With characteristics laid down in June of 1940, this M3 Medium or General Grant had its 75 down in the front right of the hull—not high in a central position as in the Russian heavies and mediums of the 1930's. The 37-mm, smaller of course than the Char B's 47mm or the Russian 45mm, was high in a central turret.

This Soviet experimental tank, as captured in Finland, had eight bogies a side to the final KV's six. Uncertain German intelligence has given the length as a fantastic 32 feet. Very possibly the Finns never got a chance to get a good look at this tank—if it happened to be one which made an abortive Mannerheim Line breakthrough, and was soon recaptured by a more successful Russian attack. Anyhow, it is outwardly the same as a tank which appears briefly in the Soviet propaganda film on the Finnish War, which the Reds distributed to the West later in 1940.

The Soviets confess that it was the Finnish War which really taught them about armor in modern war. They noted that heavy tanks were

Sovfoto

Marshal Klementi Voroshilov, whose initials designate KV tank.

"fairly successful" when engaging wood, earth, and stone fortifications with powerful armament. They were made armor-conscious by observing how modern artillery of all categories can be effective in antitank roles. It was only in Finland that they recognized the lesson the world had drawn from Spain (where Russian 45mm antitank guns had been the prime teachers): that tin-plate tankettes and light tanks, with no more than .16- to .7-in. armor, were no go against antitank weapons in standard service throughout the world. Soviet armor historians also remark that the Red Army found that bulk was an advantage in tanks, because it afforded protection to accompanying infantry.

While the old T-28 medium tanks used against Finland certainly had bulk, none of the new series of tanks had. In these Soviet design followed German suit, putting great stress upon the protection afforded by keeping even big tanks squat. Low silhouette was also thought to make for easier concealment, making for better chances at surprise (especially in ambushes). In this respect the Soviets and Germans thought alike—though the Soviets do not appear to have created tanks that were quiet runners. (The Diesels of the standard Soviet armored vehicles of the new line smoked profusely—and still do—on starting; this seems a characteristic which hardly enhances concealment for surprise effect.)

The Finnish War may actually have brought home to the Soviets the above lessons, but it did so too late to change plans for their new line of tanks. For it will be noted that the little 5½-ton reconnaissance tank, the amphibious T-40, was armor-wise to be listed in the tin-plate armor category made obsolete by "proving-ground war" lessons. Yet this tank did not appear in service till after the KV and the medium T-34.

The main modification made at this time to the KV seems to have been the introduction of a more powerful 76mm gun—the M1940, which was also fitted to the T-34 medium. In

International

German troops examine a KV-2 tank against which their 37mm fire apparently had only scarring effect.

1941, just before the war, Stalin is said to have demanded a great increase in armor on the KV—double the thickness, without decrease in combat effectiveness in other characteristics. The design engineers opposed his suggestion, but a child can guess who wins an argument with Stalin when the onetime theological student has his mind made up. The result very apparently was the lot of 48-ton KV's which the Germans arbitrarily listed as the KV I B. These KV's had plates 1- to 1.37-in. thick welded to front and sides of the hull. Crudely bolted to the side of the turret plates were extra plates of similar thickness. The way the extra turret plates were attached suggests that the original armor structure was weakened. The thickness of plates on all the reinforced tanks the Germans captured indicates that Stalin did not get his way, for the standard armoring on hull and turret of the original KV was a millimeter short of 3-inches (75mm).

The Soviets do not appear to be very proud of this hasty improvisation, for pictures of it from Soviet sources are scarce. The additional armor was an emergency measure taken before the German 88's had distinguished themselves by shooting up heavily armored British Matilda infantry-accompanying tanks around Salum, in Egypt, on 15 June 1941—which was only a week before the German invasion of Russia.

Generous Tolerances

(Slide-rule enthusiasts with a passion for close tolerances are often confused by the widely varying thicknesses of armor given by those who have actually gaged armor thicknesses on different specimens of the same model of Soviet tank. It's apparent that the Soviets speed production by allowing armor manufacturers generous tolerances, so long as they do not go below a minimum. Despite metals shortages, wartime production allowed even wider variance. Naturally, castings vary more than plate. Hence, any definitive armor specifications for Soviet vehicles—if not stated as the Soviet GI line—are more or less arbitrary.)

The original KV (called by the Russians the KV, or KV-1; by the Germans, the KV I) probably was much affected by a strong autocratic

Sovfoto

KV's being factory serviced at Kirov Works in Leningrad, prior to evacuation. Note plate and cast turrets.

character like Stalin's. Compared to the hulking monstrosities like the T-35's and the Mannerheim Line tank, it represented a concentration of power and protection seemingly largely effected by a ruthless reduction in size of hull and turrets. The design certainly gave a far more efficient combat vehicle for the amount of steel and industrial effort. Weighing in at 46 tons, it managed to mount a more powerful gun than the German *Pz.Kpfw. IV* tank of 1941, (a 76mm M1938/39 30.5, then 41.5 calibers long, as against the German 75 of 24 calibers).

Defensively, the KV was also a most important jump ahead of the Germans. It had welded plate armor on hull and turret that was proof against anything up to 75mm antitank guns at all ranges (in the Russian estimate). The German Army was just issuing its new 50mm *Pak* 38 in 1941; the 75mm *Pak 40* didn't appear till the next year. That meant the KVs at first had only the 88's to fear—and even these often had a rough time of it.

What was perhaps more remarkable was this heavy's mobility, and what the Russians call "passability." During the war the point was often made in America that heavy tanks were less "mobile" than the mediums; the impression got around that the mediums could go where the heavier tanks couldn't. In their simple way the Red ex-peasant military, aided by trained Russian minds adept at theorizing soundly and with originality, figured out that a vehicle gets around because it has power, and because it's light on its feet.

The Russians, who previously had tended to take tracks in more or less the sizes used on the foreign vehicles they copied, now became very ground-pressure conscious. They led even the Germans. Pioneering in the field with the new line of tanks, they particularly distinguished themselves with the 28-inch wide tracks of the KV, which on a short length gave a ground pressure even on the KV 1 c (see below) of only 10.4 lbs. per sq. in. Our "mobile" M4A3 Sherman, weighing 20 tons less, rated at 12.5 lbs. The Russians claim that the KV could make 24 miles an hour, but it could make good a top of 21½—and do 20 cross-country. US tests with a new one kindly lent proved that in 1942 it could negotiate worse terrain than US tanks and TD's then extant—though it was bad in sand.

As evidence of over-all Russian efforts at ruthless standardization for production, the KV used the same Diesel as the medium T-34 of the new tank line. This V-2 was the outgrowth of a great Russian effort to get a proper tank engine, for engineers had been dissatisfied even with the 500 HP M-17 aviation-type engine developed to succeed the US Liberty. It is noteworthy, however, that the V-2, which began to come into service around 1940, was basically rated at 500 HP, like the earlier gasoline engine which it replaced. Thus, while doubling the radius of the vehicles to which the new Diesel was fitted (according to Soviet claims), and reducing the fire hazard (they still burned, though), the V-2 did not represent a Soviet effort to keep ahead of the game in horsepower.

Power Plants

However, the Soviets deserve full credit for pioneering in this field. The Germans, Diesel experts though they were, never perfected a standard powerful tank Diesel fit for service use; neither did the US—which had to resort to the unsatisfactory expedient of coupling auto engines to get 500 HP units for our principal armored vehicles. The Soviets thus accomplished in this 60-degree "vee"

12-cylinder liquid-cooled engine what the West could not, because the West hadn't prior to the war the time and money to perfect such a war tool. The Soviets did take time—and achieved at the special Kharkov Diesel plant something remarkable for Soviet Russia: an automotive development that wasn't adapted from some well-proven foreign design. (But a similar effort to develop a powerful aviation Diesel failed; it would seem that the engine worked out well enough for tanks, but not for planes.)

Soviet accounts don't usually mention one of the main reasons why they want Diesels: because of gasoline shortages, and the poor quality of the gas that is refined. In the Five Year Plan interrupted by the war, trucks and tractors were to be increasingly Dieselized, too.

To give the KV as much power as possible, the V-2 was fitted with bigger fuel pumps and injectors than used on the T-34. At 2,000 r.p.m., the V-2 was then able to deliver 600 HP. This nevertheless gave a rather low horsepower-weight ratio on the KV 1 c of 11.5 HP per ton, and meant that the consequent specified average road speed of 12½ to 15½ mph was really too low to work in company with the medium T-34. The medium could make 15½ to 18.7 on the average, according to the Red book.

KV Fittings

Although the 1930 series tanks had gone in for driver's episcopes and turret rotatable periscopes, the KV was even more luxuriantly fitted with vision devices. The turret had the usual two roof periscopes in front, plus an episcope on each side and over the rear. The standard DT 7.62-mm machine gun was mounted in a ball mount in the turret rear plate, while a pistol port guarded each side of the turret. There was a ball mounted DT to the driver's left, and an episcope for him—though he also had a port pierced in the plate in front of him, closed by an armor wedge. The tank had a five-man crew, and special tank radio sending and receiving radio.

Possibly also a fruit of Stalin's demand for extra armor were the KV 1 c's. The beefing-up of hull armor on this modification was a slick factory job. There was the extra frontal armor of the KV 1 b, but the basic side armor was upped to 3½ inches, in some places increased to 5.1 by an extra plate. The great feature of this tank was its cast turret, which not only gave a good ballistic shape for shedding projectiles, but also strengthened the turret base. Armor casting, which the Germans at this time did not go in for, had been under study for some years in Russia—like the tank Diesel. It is interesting that the then current West Point ordnance text (Hayes', of 1939) noted that armor castings were not yet practical—though the French were using them late in the 1930s. This KV 1 c mounted the M1940 76mm gun of 41.5 calibers, which was slightly more powerful than the 75 which appeared in 1942 in the M4 Shermans (2,200 foot seconds muzzle velocity vs. 2,030, with AP round). The Germans didn't catch up till their second season in Russia, when they put into the field their *Pz. Kpfw. IV's* with long (43 cals.) 75mm *Kw.K. 40's*.

A variant of the KV was the KV 2, hailed as very effective against the Finns' Mannerheim Line. It was a monster on a KV chassis, having a high turret weighing 12 tons and mounting a 152mm howitzer M1938 (or 1938/40) 20 calibers long. Also built but not discussed in material so far available, was a KV 2 armed with an 85mm tank version of the M1939 antiaircraft gun—the piece which later rearmed the KV and now arms the current T-34s. This gun hints at plans to use KV 2's as tank destroyers, a mission for which their skyscraper silhouettes hardly fitted them.

Kotin seems to have got quite a nice little power package into his KV, if its dimensions are compared with that of a US M4A2:

	Height	*Length*	*Width*
KV	8.9 ft.	21.8 ft.	11 ft.
M4	9.7 ft.	19.4 ft.	8.3 ft.

It can be seen at once that Kotin, thanks to the outside gage of Russian railways, made the most of the over 2½ ft. width advantage he had over US designers. On account of power limitations, he couldn't build up to the weight limits of the railways—which were 60 metric (66 US) tons for bridges. His railway width clearance was 10′ 11″.

If the KV heavy was a remarkable tank for its day, its mate—the T-34 medium—was more so. Outside of recounting that its design was produced in 1938 by the Komintern Plant's engineers, headed by A. A. Morosov, the Soviets are silent on its early history. Nevertheless, it is the tank which certainly betrayed design genius. It was the first to make full use of the principle that well-sloped armor adds greatly to its effectiveness. The front plate sloped at 60 degrees up over the driver, but was pierced on the left with the driver's hatch (fitted with periscope) and on the right for a ball-mount DT machine gun. The sides of the superstructure sloped at 41 degrees, the rear at 49 degrees. The armor was 1.8 inches thick—though original models had sides and rear a quarter inch thinner. The turret was shaped with sloping sides, but had a rectangular rear mounting a DT machine gun. The side plates dovetailed with the front. Cast turrets were fitted to the T-34 at about the same time as to the KVs. Turret armor was also 1.8 inches. Unfortunately, the turret had a rear overhang, leaving only a slit between the hull top and turret bottom. Into this slit the Germans found it convenient to slip teller mines (standard AT mines) or demolition charges. One such would blow the turret off—and did, despite a DT machine gun in the turret rear, and an episcope and pistol port on each side. Two rotatable roof periscopes were fitted. As late as 1941, some T-34s had the M-17 gasoline engine.

About the same time as the KV got a cast turret, the T-34 got one too. The change brought about some slight armor increases, the hull front increasing to 2-inches, and the turret to what must have been a minimum of 2-in. on the sides. However, this slight increase may only have been due to different procedures by different factories.

The 76mm M1940 gun fitted was slightly more powerful than the US 75. At first it appeared only in unit commanders' tanks, later wholly replaced the M1939 of 30.5 calibers. The armor on the US tank was about the same in thickness—though vertical on the sides (although there can be no doubt that US plate was always far better in quality).

The T-34 with cast turret compares interestingly with the US M4A3

Medium: designed in 1941, and appearing in 1942:

	T-34	M4A3
Combat weight	32 tons	32 tons
Width track	20-in.	16-in
Ground pressure	10 lbs per sq in	13.6 lbs
HP	500 at 1,800 rpm	500 at 2,600 rpm
Engine	Diesel	Gasoline
Road speed (Max)	32 mph (Russian: 29.4)	28 mph
Height Over all	7.9 ft.	9.3 ft.

The T-34 had remarkable mobility. Its power combined with broad tracks was most useful in fall and spring muds, and after summer rains had made the Ukraine fields quagmires. The T-34 was designed to negotiate snow 3 feet deep and so got on well in winter. (In Task Force Frigid exercises in February 1947, US heavy (now medium) Pershing tanks were overheating engines laboring through 30 inches of light snow.) Its version of the V-2 Diesel gave it a 15.6 mph road speed, according to the Russians, and burned ¾s of a gallon of fuel a mile going cross country or along bad roads. (Since most Russian roads are bad, this means in effect standard consumption.) Its dimensions were (outside those given) 19 ft. 4-in. long and 9.82 ft. wide—showing that Morosov, too, had width to play with to gain form and power. He managed to pack 77 rounds of 76mm ammo in the hull, plus 46 drums for the DT's.

A Great Impression

With its speed, mobility, gun power—and particularly the form of the hull—the T-34 made a great impression on the Germans. It completely outclassed their tanks, and resulted in the Panther 50-ton medium of 1943—whose form was obviously borrowed from Morosov's conceptions. When the Germans began to be impressed with the Sherman's qualities, they could think of no better compliment than to dub it "the T-34 of the West."

The T-34 was not a perfect tank. It was hard to drive on hard roads; its Christie fast suspension, inherited from the BT's, gave a rolling and unstable platform when going cross-country. It was of course most uncomfortable, but comfort is the thing Soviet tanks are made to do without. Transmissions do not appear to have been very reliable even when the Germans attacked, for there are photos of T-34s with spare transmissions secured by cables atop the rear. The original crew was 4, or sufficient for the mission of an armored force medium tank.

It is horrifying to consider that, when the 46-ton heavy KV and the 30-ton (original weight) T-34 were going into production in 1939, the US was procuring a 10-ton M-3 Light for its only "armored force" (the Mechanized Cavalry), and an 18-ton "medium"—both of which were armed with 37mm guns. Both had riveted armor and open slits for vision in combat. When the Germans went into Russia, they attacked with the 21-ton *Pz.Kpfw. III* (37mm or short 50mm) as their main medium, supported by 23-ton IV's with short 75's with 11-ton light II's with 20mm automatic cannon to fill out. The Germans learned fast, though. The Tiger—which appeared first on Lake Ladoga in November, 1942, Panther, and Royal Tiger were the direct results of the first meetings with the Russian wonder tanks.

When and Where?

Contrary to wrong Western ideas and Soviet fable, these tanks were encountered almost at once when the Germans attacked on 22 June 1941. Photos taken by the Germans and wired to America show that T-34s were picked up in Grodno, in Russian-occupied Poland. A mess of T-34s were overrun in Kaunas, the former Lithuanian capital, only some 300 miles from the Eastern Prussian border. The first German photo of a captured KV reached the US within a week of Hitler's assault on Russia. The strange thing is that in June and July the Germans on all fronts seemed to meet more KV-2's with their tower turrets, than KV-1's. But they ran into lots of KV-1's around Leningrad in October when closing in on the city—for Leningrad's Kirov Plant was where KV's came from.

There is utterly no truth in the Soviet story about T-34s turning the tide of the Moscow battle because they first appeared in that fight. This myth must be an attempt to make people forget—if they ever knew—that the new Soviet tank types, however revolutionary, and however much a headache for German armor and antitank, did not apparently have any effect on the German advance.

No Late Dope

That the Germans were not seriously affected is remarkable. The troops didn't know that any such vehicles existed as the KV's and T-34: there was nothing on them in the handbooks. But there should have been—had the Germans had good observers with the Finns, or good ways of getting dope from that front. There they would have picked up the KV's—or the KV-2 anyway. As for the T-34, it was exhibited to the American photographer Margaret Bourke-White at the Stalin Tank School near Moscow in May of 1941, on which occasion plenty of pictures were taken for *Life*.

Pictures were also taken then of the T-40 light amphibious tank—the last of its line, and the one which showed that the Soviets missed the lessons of the Spanish Civil War. This was being issued to units in 1940, like the companion KVs and T-34s. It weighed only 5½ tons, and had too light armor: .6-inch on the front and only a paltry .4-in. on the sides. It had flotation tanks, a four-blade water propeller, twin rudders, a motor to the right of its hull and the turret to the left. The turret mounted a 12.7mm D.Sh.K. machine gun (like the Army-Navy antiaircraft one) and a coaxial DT of 7.62-mm (in other words, a .50 and a .30, like our contemporary Cavalry Combat Cars of twice the weight and armor). It could make 27½ mph on land, and 4 in the water. The crew was only two. In 1941 when the tank saw service few if any radios were fitted, so the problem of how properly to use the tin can in its battle recon mission could never properly have been worked out.

(To be continued)

The Big Elephant Fight

An article in the last issue of The Journal reviewed war in the first half of the Twentieth Century. With Dr. Shaw's article we drop back to war in an earlier century. It's difficult to say what man has learned from history in the interim. Samuel Johnson said: *The present state of things is the consequence of the past; and it is natural to inquire as to the sources of the good we enjoy or the evils we suffer. If we act only for ourselves, to neglect the study of history is not prudent; if intrusted with the care of others, it is not just.*

IN the hectic Spring of 1918—it was on April 24, to be exact—there took place an epic fight, the first of its kind, between rival tanks. It was, in fact, probably the only occasion on which tank met tank during the first World War, at the Battle of the Lys, on the line between the Somme and the Ancre. German tanks, clumsy blackened AYV's, combined with captured, converted machines, broke through the British line southeast of Villers-Bretonneux, en route tactically for Amiens. South of the village of Villers, British heavy tanks dramatically counterattacked the swart gabled Noah's Arks of Ludendorff and "destroyed or dispersed" them. As stated, it was an "interesting" action quite unique in the initial Armageddon, and it stood out in the period between wars as something of special note: monster against monster, mass against mass. Such an action too was the "big elephant fight" at Raphia, in 217 BC. Let us consider it. . . .

In 323 BC, Alexander the Great died. His quick, short, and utterly phenomenal career had built a vast empire which stretched from the Adriatic Sea in the west to beyond the Indus River in faraway Hindustan, and from the Danube and the Black and Caspian Seas in the north, down to the upper Nile, Arabia, and the Persian Gulf in the south. Basically Macedonian, this imperium took in Greece, Egypt, Asia Minor, Syria, and the Near and Middle East, while it sought to Hellenize the whole in language, blood, and culture. It was a madman's dream come true, for East and West *did* meet, despite Kipling, and in very short order.

Alexander left behind him an imbecile half-brother, an illegitimate son, a legal but posthumous heir, and two unruly sisters, as well as his redoubtable mother, Olympias. For nearly a quarter of a century muddled attempts were made to hold together their congeries of tribes and nations, but this anarchic period finally ended at the celebrated Battle of Ipsus (301) in which a theoretical unity dissolved and independent, rival states took the place of the "unified" Alexandrine realm. Of these, the Big Three were Egypt under the family of Ptolemy, Syria and the East under that of Seleucus, and Macedonia proper (Alexander's home ground) under the brood of Antigonus—all three of them Macedonian generals. There were other Succession states as well, but these three chiefly interest the historian; of which the Seleucid and Ptolemaic kingdoms figure in the following paragraphs.

About the year 217 BC, with which we are concerned, the Seleucids ruled over Syria, southern Asia Minor, and the Tigris-Euphrates valley as far as a line between the Caspian Sea and the Persian Gulf, while further to the east they claimed a shadowy authority over territories as far as the Indus frontier. Their capital was the "Greek" city of Antioch. Meanwhile, the rival monarchy of Ptolemaic Egypt extended from beyond Cyrenaica, in the northwest, down to well below Thebes on the Nile, in the southeast. The Egyptian capital was at Alexandria, then the world's leading city in commerce and industry, science, literature, and the arts. In between Seleucid Syria and Egypt was a sort of "Alsace-Lorraine" of disputed territory, consisting of southern Syria, Palestine, and certain important Phoenician cities.

This area passed back and forth between the rival kingdoms, and in 217 belonged to Egypt, having been conquered by Ptolemy III. Under his less competent successor, Ptolemy IV, "Alsace" seemed a tempting bait to the young and aspiring Antiochus III of Seleucid Syria. Antiochus came to the Syrian throne in 224, and spent seven years in hatching his plans for the recovery of his "Strassburg."

It must here be noted that in both Egypt and the far-flung Syrian domain, the ruling, propertied, bureaucratic, and military classes were either Macedonian, Greek, or heavily Hellenized, and that this element was

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heavily reinforced by Hellenic colonists and settlers who had, with their families, camped down in the "conquered" East. Hence, the struggle between a Ptolemy and a Seleucid was a contest between two similar civilizations and two parallel military machines, in some respects perhaps even more "Greek" than the Greeks because many Near Easterners, in this era, felt the burning zeal of converts. The basic racial stock of Syria, of course, was semitic, while that of Egypt was hamitic, and considerably more likeable.

The armies of these diadochs, or Successors, were highly Alexandrine in their organization and composition. They had, as their nucleus, the phalanx square of heavily armed and armoured hoplites with their twenty-foot pikes. There were slingers, archers, and light-armed skirmishers called peltasts, who were essentially javelin-men. The hypaspists were more maneuverable phalanx troops, somewhat less elite than the "crack" hoplite formations. Heavy cavalry, including Lancer cataphracts with complete body and horse armour, were a decisive force. (These were remote ancestors of the medieval knight.) There was an artillery service, both siege and field, of catapults, ballistas, and battering rams, some of most elaborate pattern (they were to survive long enough to serve alongside of big guns, and against them, in Fifteenth-Century Bohemia).

However, the transplanted "Macedonian" armies of the Alexandrine pattern had deteriorated in morale a century after the Great one's death. There was an ever increasing number of mercenaries in the ranks. Field-fortifications were becoming more common, and the pikes of the hoplites were lengthened. The cavalry, so important and indeed decisive to Alexander, were becoming less valid and received a decreasing emphasis. And the battle-lines were constantly reinforced by—*elephants.*

Up Against the "Tankyderm"

Alexander had known the elephant reasonably well, and had rejected him, noble beast that he was! The great Macedonian had fought against pachyderms in Persian pay at Gaugamela (331), and had met them in 327 under the Indian King Porus, far to the east. Arrian says that here he feared his cavalry horses would not face the great varmints, so he crossed a river to avoid a head-on meeting. But Alexander considered that elephants were bulky and expensive, hard to get and unreliable, being creatures of moods. He never employed them, rejecting both medium and heavy "tankyderms," as Ludendorff, for the most part, rejected tanks themselves in the hard-pressed years of 1917-18.

But the diadoch generals and monarchs—the Successors—had no such scruples. According to Plutarch, Seleucus I ceded certain of his more easterly provinces to secure a herd of half a thousand trained elephants—"good animals and true"—and these happy warriors, under their skilled Indian mahouts, turned the tide on the decisive field of Ipsus, already mentioned. Here, apparently, the pachyderms decided a decisive battle of the world, Alexander's ghost notwithstanding.

Subsequently, that Seleucid, Antiochus I, checked the untutored Gauls with some sixteen elephants in Asia Minor (Galatia), and one can imagine the stupefaction of the later kilted, then trousered "mustachios," with their long claymores, on beholding the seasoned elephantine lines—somewhat the same effect as the horses of Cortes on the Mexicans in the early Sixteenth Century. Antiochus expressed a sense of shame for this dependence on his elephants and admitted, apparently, that they had become virtually "indispensable."

In the light of this elephant warfare, based on Asia and Africa, anti-elephant devices turned up. Sharp obstacles, to injure feet, were devised. A peculiarly atrocious notion was to grease herds of hogs, set them on fire, and drive them against elephant formations in order to rout the latter in panic. This—shame to relate—was a Grecian practice employed against Macedonian "diadoch" elephants, and happily was never especially successful. Seleucid elephants were last, perhaps, usefully employed against the Romans at the Battle of Magnesia in 190, where the legionaries defeated them. A thousand years later, Charlemagne trotted about the forests of France and Germany on one (the first seen in Europe in centuries), the gift of his friend at Bagdad, Haroun-Al-Raschid of "Arabian Nights" fame. . . .

Three Times the Pay

In the Seleucid army, at a high pitch of efficiency around 217, cavalry received three times the pay of infantry, and the necessary elephants were considered a "terrible" expense. The standing force totalled around 70,000, with headquarters at Apamea, near the capital at Hellenized Antioch. The horse-breeding and remount center was in Media, and metals came from the mines of the Black Sea. Equine Media was considered a special "key" province. The regulars were almost entirely Greek and Macedonian, recruited from the military settlements and from mercenaries. There were some Arabs on fast dromedaries (resembling, perhaps, Western Union messengers) and even some "ancient" and outdated scythe-wheeled chariots "fit for the Siege of Troy." The slingers were Thracians and Kurds, the archers were Medes and Persians, and the javelin-men were Lydians. The Macedonian-type phalanx, sixteen men deep, with its long pikes, was the military backbone of the whole. It generally contained about 20,000 hoplites. To swell the number of dependable men available for Seleucid military service, a certain number of Hellenized Iranians and Jews probably were included among the eligible settlers. Pay was highly important to this army, and gold became a peculiarly necessary sinew of war: *kein Geld, kein Schweiz!*

We now come to the Fourth Syrian War, and to the recurring "Alsace-Lorraine" Border problem. By 221, at the death of Ptolemy III, the once efficient Egyptian army had almost ceased to exist after a "deadening" period of twenty years' peace. His son, Ptolemy IV, was no genius, lazy and allegedly dissolute. He was much interested in religion (like the "younger" Moltke in 1914) and did not take either diadoch youngster, Antiochus of Syria, or Philip of Macedonia, very seriously. Instead, he built a Temple to Homer. His ruling he left to one Sosibius of Alexandria, a famous athlete and elderly criminal, as well as a financier. A noted political murderer, he was none the less loyal to his monarch, who was nicknamed "Philopator."

The war began in 219, Antiochus getting some help from traitors, with bribes and emoluments, and had he pushed on through the disputed border territory, Egypt would have lain almost prostrate before him. Instead, Sosibius bluffed the Seleucid into a four months' truce which he spent in winter quarters while he waited for the diplomats to gain him Palestine.

Sosibius had to raise an army in a hurry, and he did so. He rushed Greek and Macedonian mercenaries over from Hellas, called up the Hellenic settlers in Egypt, set up headquarters at Alexandria, and kept everything somehow secret. Sosibius even enlisted native Egyptians, who had not seen service for nearly a century: truly a novelty, and a very risky one, for a state belonging to the post-Alexandrine Hellenistic world. Actually, the wily and patriotic Sosibius enrolled no less than 20,000 hamitic brownskins in the great nuclear phalanx. Meanwhile, as the army drilled, the diplomats stalled and wrangled.

Chopping off their Water

Finally, Antiochus, later dubbed "the Great," perceived the dilatory ruse and ordered his army into southern Syria. In this area, and Palestine, the democratic forces appear to have favoured Egypt, while the aristocratic factions were pro-Seleucid. Again, the direct and obvious advance on Egypt was delayed, and there was a sea-fight off the Phoenician coast favourable to Antiochus. Philadelphia delayed him, but he finally captured this memorable stronghold by technological warfare: cutting its vital water-supply.

Having conquered Palestine, the Seleucid, with his Hellenistic hordes, was joined by Arab tribesmen (good hardly for more than scouts or screening) and by some important Egyptian deserters, including one of the two top-commanders of the newly raised Ptolemaic phalanx. By 217—and *here* is our date—the Syrian army found itself south of Gaza on the "true" Egyptian frontier: in fact, at the battlefield of Raphia. The year before this had seen, in the West, the outbreak of the Second Punic War, and the memorable crossing of the Alps by Hannibal and his African elephants, leading to Carthaginian victories over Rome at the Ticinus and Trebia rivers. The year after this (216) was to behold Hannibal's epic victory at Cannae: the triumph sought for by every general ever since—boxing one's opponent four-square, and then totally destroying his forces. The Trans-Alpine elephants were far from home; but so, too, were the pachyderms of Raphia, 175 in number, as we shall shortly see. . . .

As he approached Raphia, Antiochus the Great (so-called) had with him 60,000 infantry, 6,000 cavalry, and —most important of all—some 102 Indian elephants. His phalanx, approximately 20,000 strong, was almost completely Greek and Macedonian, or of Graeco-Macedonian descent. The Ptolemaic army totalled roughly 50,000 foot, 5,000 horse, and about 73 African elephants. And here is an item well worthy of note: the fancy phalanx formation contained only 5,000 Greeks, or quasi-Greeks, while perhaps 20,000 native Egyptians filled up the ranks to make it of standard size. The courageous though elderly Sosibius took command of the phalanx, in place of a prominent deserter (Ptolemaeus) already mentioned, and Sosibius and one Andromachus led it into action.

In the organization of the "mixed" Egyptian phalanx, an innovation in the Hellenistic world, Greeks and Macedonians apparently formed the two first ranks and the rear rank—the posts of honour in any such mass formation with its hedgehog, or *Igel,* formation. Ptolemy "Philopator" took supreme command of this quick-conjured army, and he was accompanied by his attractive and popular sister-wife, Arsinoe (an ugly habit of clean-cut Greeks turning to local oriental habitage).

The two armies faced one another south of Raphia: each with phalanx in the center, lighter infantry on either side, and horsemen on the wings in orthodox style. Ptolemy commanded the left wing (aided by the well-liked Arsinoe), while forty of the African elephants opposed some sixty Indian elephants of the youthful and lordly Antiochus. The pachyderms were backed up by the comparatively mobile hypaspists. On June 22, 217 BC, the action opened.

Arsinoe, like Mollie Pitcher, or Joan of Arc, perhaps, rode up and down the left wing, exhorting the troops to action, while the Africans trumpeted. Ptolemy's right wing drove the left wing of the Seleucids from the field, but—on the Egyptian left—the nippy little Indians drove the hulking (though outnumbered) Africans from their position into utter rout. Here was a sheer case of medium weights beating heavy weights and some military critics of the period must have expressed astonishment, for the contemporary "heavies" of Hannibal and Carthage, of course, were of African breed and training.

Here was the great intra-elephant fight, obviously comparable to the intra-tanker battle of long-after 1918. Elephants were accustomed to storming infantry, or scaring cavalry, but they were hardly used to fighting one another, especially when of different strains.

The great classical war correspondent, Polybius himself, supplies these further elephantine details of the Raphia elephant-fight:

Of the 175 pachyderms engaged on *both* sides, as noted, Antiochus' Indian beasts constituted a considerable majority. "Of the Egyptian elephants, *forty* were posted on the left where Ptolemy himself was about to fight, and the remaining thirty-three in front of the mercenary cavalry on the right wing. Antiochus placed *sixty* of his elephants under the command of his foster-brother, Philip, in front of his right wing, where he was to fight in person against Ptolemy. His remaining elephants he placed in front of his left wing under the command of Myiscus (one of the young men who had been brought up at court)."

The Battle Joined

Ptolemy and Antiochus "gave the signal for battle, and brought the elephants first into action. A few only of Ptolemy's (African) elephants ventured to close with those of the enemy, and now the men in the towers on the backs of these beasts made a gallant fight of it, striking with their pikes at close quarters and wounding each other, while the elephants themselves fought still better, putting forth their whole strength and meeting forehead to forehead. The way in which these animals fight is as follows:

"With their tusks firmly interlocked, they shove with all their might, each trying to force the other to give ground, until the one who proves the strongest pushes

aside the other's trunk, and then, when he has once made him turn and has him in the flank, he gores him with his tusks as a bull does with his horns. Most of Ptolemy's elephants, however, declined the combat, as is the habit of African elephants; for unable to stand the smell and the trumpeting of the Indian elephants, and terrified, I suppose, also by their great size (sic) and strength, they at once turn tail and take to flight before they get near them. This is what happened on the present occasion; and when Ptolemy's (greatly outnumbered) elephants were thus thrown into confusion and driven back on their own lines, Ptolemy's guard gave way under the pressure of the animals. Meanwhile, Antiochus and his cavalry rode past the flank of the elephants on the outside." Simultaneously, the elephants of the Egyptian right wing "did not even dare to approach those of the enemy." However, the cavalry of the Egyptian right proved completely victorious.

Spirit Over Bulk

With the Syrian right so successful and the Syrian left badly worsted, the two Hellenistic phalanxes interlocked, and that of Syria eventually gave way. They pushed and thrust with their long pikes and packed ranks in oblongs "swayed alternately by hope and fear." The then young and inexperienced Antiochus in this campaign had met defeat. He lost 10,000 infantry, more than 300 horsemen, and 4,000 prisoners. "Three of his elephants perished in the battle"—victoriously, be it noted—"and two died of their wounds. . . . Sixteen of Ptolemy's (unsuccessful) elephants were killed, and most of them captured." The Egyptian army lost only about 2,200 men and—"such was the result of the Battle of Raphia fought by the Kings." Antiochus did not live up to his pachyderms; Ptolemy outshone and outlived his. Here was a triumph for élan, and all-over nippiness, as against mere bulk. Both Egypt and Syria were depending on their faraway back-yards and jungle breeding-grounds, and the types they presented were extremely varied. Let us digress:

The heavy African "tankyderms" stood probably ten feet high and weighed perhaps five tons. Both male and female specimens carried large tusks. The Indian variety, on the opposing battle-line, stood perhaps eight or nine feet high, and weighed anywhere from two to three tons. The disposition of the Africander probably was more warlike, but the Indianer had a special attribute: at the tip of its eight-foot trunk was what might be termed a "finger and a thumb"—which enabled it to fetch, wield, and carry with great ease. The story goes (believe it or not) that some of these Indians were trained by their devoted drivers to cut, thrust, and parry with a scimiter carried by this almost human touch at trunk's end! At any rate, many were carefully armoured and, naturally, bore high towers which contained pilots and marksmen. Apparently, these Indic "mediums" outfought and outmaneuvered the cumbersome Africans, to the advantage of Seleucid as against Ptolemy. They had four toes on their hind feet as against three for the Africanders, and appeared better disciplined and more tractable. . . .

After the Indian beasts had broken the African animal kingdom (as noted), the Seleucid pachyderms proceeded to rout the Ptolemaic hypaspists and Antiochus himself outflanked the whole Egyptian left wing, to complete the disorder and carry it to its wild climax. Antiochus immediately lost his head and busied himself overmuch with pursuit. Meanwhile, the two central and nuclear phalanxes had not yet engaged, and Ptolemy wisely sought the shelter of his own heavy pikemen. The Ptolemaic phalanx, largely *native* Egyptian, under the royal lead, actually broke the Macedonian phalanx of Antiochus (a second surprise on the same field) and the Seleucid monarch perforce joined the general flight to Raphia. After that, he post-hasted back to his capital of Antioch—later to be celebrated in "Ben Hur"—but the "Philopator" did not press the pursuit or shout for a "total" peace. He merely took back his inheritance of southern Syria, Palestine, and the Phoenician coast cities: his "Alsace-Lorraine" of the place and time. Valiant, if murderous, Sosibius signed the treaty at Antioch, and the victorious army received its due of 300,000 golden coins. Ptolemy IV went back to Alexandria much as Eisenhower took to Columbia.

The "big elephant fight" was the keynote of the battle. But there was, too, a racial item to be recorded. The Ptolemy phalanx consisted of approximately eighty per cent native Egyptians, and it had defeated a rival phalanx which was supposedly nigh a hundred per cent Graeco-Macedonian in content. The natives had saved their Hellenistic rulers in Egypt; from Raphia on, they began to re-assert themselves in Egyptian politics and social stature. "Philopator" found himself changing in position from a Hellenistic *basileus* to a nativistic Pharaoh. Ptolemy IV, and his Graeco-Macedonian caste and colonies, had met defeat in victory. Meanwhile, the elephants chatted and gossiped (so Kipling would have it) among themselves. They rather preferred natives to Hellenizing Greeks. In fact, there is no case of an elephant, either Afric or Indic, being thoroughly Hellenized. Nor did the contemporary pachyderms of Hannibal learn Latin from their victims. . . .

Amidst the Rise and Fall of Empires

Eventually, the non-elephantine Romans defeated Hannibal, and at Zama (202) his elephants ran wild and disordered his array with fatal consequences. Then the Romans, turning eastwards, routed and finished the elephant lines of the diadochs. Macedonia proper came to an end in 146; Seleucid Syria in 64; Ptolemaic Egypt in 30 BC. All three once powerful Succession kingdoms became mere Roman provinces, and today they appear to be in worse shape than ever. Meanwhile, the elephants scoff, for they can live to a fabulous 150 years and see the rise and fall of empires, including that of the British in their Indic and Afric climes.

In another campaign, Antiochus III, called "the Great," recovered his "Alsace-Lorraine" from the son of "Philopator," Ptolemy V. And it was this "great" Antiochus who made the last serious use of elephants against the Romans who beat him at Magnesia (190): when the excitable lumberers threw his whole Seleucid army into distended disorder. For, like Tigers and Shermans and Stalins, elephants are temperamental; and hence were shunned by Alexander. At Raphia, in long-forgotten 217, they had their heyday.

The Department of Military Psychology and Leadership at the United States Military Academy is concerned with a subject as old as the army. What is the background of this important subject? How is it treated today at the Point? Here is an article prepared under the direction of the Commandant by the Director of this most recently established department at the Military Academy.

Psychology and Leadership at West Point

by LIEUTENANT COLONEL S. E. GEE

The Foundations

THE idea is prevalent in many quarters that a completely new and different concept of leadership is being taught today at the United States Military Academy by the Department of Military Psychology & Leadership. This is erroneous. The Department is relatively new but the concepts promulgated by it are as old as our army. They are the concepts that have been applied by our most successful leaders not only in the military but in all fields of American endeavor for many years.

The purpose of this article is to show something of the foundation upon which this newest of all departments at the Academy was built, the work currently being done by it, and the sources that have been drawn upon in its establishment.

First, let's examine the views on Leadership and Discipline expressed in 1879 by Major General Schofield, who said: "The discipline which makes the soldiers of a free country reliable in battle is not to be gained by harsh or tyrannical treatment. On the contrary, such treatment is far more likely to destroy than to make an army. It is possible to impart instruction and to give commands in such manner and such a tone of voice as to inspire in the soldier no feeling but an intense desire to obey, while the opposite manner and tone of voice cannot fail to excite strong resentment and a desire to disobey. The one mode or the other of dealing with subordinates springs from a corresponding spirit in the breast of the commander. He who feels the respect which is due to others cannot fail to inspire in them regard for himself, while he who feels, and hence manifests, disrespect toward others, especially his inferiors, cannot fail to inspire hatred against himself."

Even as General Schofield's expression echoes the sentiment of successful leaders, so do the words of a truly great soldier who did so much to aid General Washington. Baron von Steuben laid down the foundations for the regulations governing the army which have endured even until today. In 1779 his instructions to officers set forth the very principles of sound human relations, which we are endeavoring to teach today. These are his words:

"INSTRUCTIONS FOR THE CAPTAIN

"A Captain cannot be too careful of the company the state has committed to his charge. He must pay the greatest attention to the health of his men, their discipline, arms, accoutrements, ammunition, clothes, and necessities.

"His first object should be to gain the love of his men by treating them with every possible kindness and humanity, inquiring into their complaints, and when well founded seeing them redressed. He should know every man in his company by name and character. He should often visit those who are sick . . . and procure them besides such comforts and conveniences as are in his power. The attachment that arises from this kind of attention to the sick or wounded is almost inconceivable. . . .

"INSTRUCTIONS FOR THE LIEUTENANT

"He should endeavor to gain the love of his men by his attention to everything which may contribute to their health and convenience. He should often visit them at different hours, inspect into their manner of living, see that their provisions are good and well cooked, and as far as possible oblige them to take their meals at regulated hours. He should pay attention to their complaints and when well founded endeavor to get them redressed; but discourage them complaining on every frivolous occasion."

General Douglas MacArthur, in his Annual Report of the Superintendent of the United States Military Academy, 1920, had the following to say:

"My assumption of the command of the United States Military Academy synchronized with the ending of an epoch in the life of this Institution. With the termination of the World's War the mission of West Point at once became the preparation of officer personnel for the next possible future war. . . . The problem which faced the authorities was, therefore, this: Have new conditions developed, have the lessons of the World War indicated that a changed type of officer was necessary in order to produce the maximum of efficiency in the handling of men at arms? West Point, existing solely as a source of supply and a feeder to the Army, if a new era faces the latter, must of necessity train its personnel accordingly.

"Careful analysis yielded the following conclusions: Until the World's War armed conflicts between nations had been fought by comparatively a small fraction of the populations involved. These professional armies were composed very largely of elements which frequently required the most rigid methods of training, the severest forms of discipline, to weld them into a flexible weapon for use on the battlefield. Officers were, therefore, developed to

handle a more or less recalcitrant element along definite and simple lines, and a fixed psychology resulted. Early in the World's War it was realized to the astonishment of both sides that the professional armies upon which they had relied, were unable to bring the combat to a definite decision. . . . War had become a phenomenon which truly involved the nation in arms. Personnel was of necessity improvised, both at the front and at the rear; the magnitude of the effort, both of supply and of combat, was so great that individuals were utilized with the minimum of training. In general result, this was largely offset by the high personal type of those engaged. Discipline no longer required extreme methods. Man generally needed only to be told what to do, rather than to be forced by the fear of consequence of failure. The great numbers involved made it impossible to apply the old rigid methods which had been so successful when battle lines were not so extensive. The rule of this war can but apply to that of the future. Improvisation will be the watchword. Such changed conditions will require a modification in type of the officer, a type possessing all of the cardinal military virtues as of yore, but possessing an intimate understanding of the mechanics of human feelings, a comprehensive grasp of world and national affairs and a liberalization of conception which amounts to a change in his psychology of command. This standard became the basis of the construction of the new West Point in the spirit of Old West Point."

In spite of the attempts that were made in the period immediately following World War I, to incorporate such subjects as logic, psychology, sociology and philosophy into the West Point curriculum it was not until January 1946 that any positive action was taken to do this. At that time General Dwight D. Eisenhower, in his capacity as Chief of Staff, U.S. Army, wrote a letter to the superintendent of the Military Academy which stated in part:

"A feature that I should like very much to see included in the curriculum is a course in practical or applied psychology. I realize that tremendous advances have been made in the matter of leadership and personnel management since I was a Cadet. Nevertheless I am sure that it is a subject that should receive the constant and anxious care of the Superintendent and his assistants on the Academic Board and these should frequently call in for consultation experts both from other schools and from among persons who have made an outstanding success in industrial and economic life. Too frequently we find young officers trying to use empirical and ritualistic methods in the handling of individuals—I think that both theoretical and practical instruction along this line could, at the very least, awaken the majority of Cadets to the necessity for handling human problems on a human basis and do much to improve leadership and personnel handling in the Army at large."

The Missions

As a result of the foregoing, the Department of Military Psychology and Leadership was established and it is a going concern today. It has two primary missions; first to conduct a progressive four-year course of instruction in human behavior and the techniques of handling men; second to administer the Aptitude for the Service System at the Academy. In connection with the first mission it conducts a short orientation course for the Plebes which is designed to acquaint them with the history and traditions of West Point and to condition them mentally to accept the military. Early in Third Class Year a course in basic psychology is given. This course is conducted during Academic hours and in section rooms. It is comparable to the Sophomore general psychology courses given in our better colleges and universities. It employs a standard academic text written by an outstanding, recognized psychologist. Some of the topics covered are personality, individual differences, intelligence, motivation, emotions, control of emotions, reactions to conflict, adjustment, sensation, perception, learning, and social problems.

During Second Class Year the emphasis of the instruction moves from general principles to practical applications. To do this a course is given which stresses leadership within the Corps of Cadets. It is an effort to prepare the Second Classmen for their duties as First Classmen in administering and leading the Corps of Cadets. A Military Instructor Training Course is also given during the last two months of Second Class Year. Here again emphasis is on the applied—the practical application of educational psychology.

Practical Application

As a part of his work, each cadet is required to prepare and make three separate presentations. First he gives a 15-minute lecture to the other members of his section, then he conducts a 30-minute conference and lastly a 30-minute directed discussion. Each cadet is required to make a written critique of each of these presentations within his section. In addition, one cadet is called upon to give an oral critique of each presentation. This is probably one of the most popular courses at the Military Academy and is completed just prior to the time when the Second Class will have to assume their duties of instructing the new Plebes, the Yearlings at Camp Buckner and the recruits in Training Divisions. In First Class Year the course is designed to acquaint the cadets with proven leadership techniques within the service in order to facilitate their preparation for their roles as 2nd Lieutenants in the Army and Air Force.

Much of this instruction takes the form of role playing in which the cadet takes the part of an officer and the instructor takes the part of a soldier. Situations from real experience are presented and the cadet is required to give a solution to the problem. Typical of these problems may be one in placement in which a soldier is reporting to his new outfit and the officer is required to receive him and assign him a job. The soldier role may be played as that of an old, married enlisted man, with a family, returning from overseas. Again the problem may be repeated with a soldier who is a young, irresponsible, antagonistic individual. These shifts are made mainly for the purpose of demonstrating to the cadets that no two cases can be treated alike, but that each must be solved individually and on its own merits. Many other subjects are covered during First Class Year, such as psychological warfare, panic, crowds, mobs, public relations, fear, and the civilian components. This completes our first mission.

The Aptitude for the Service System was first started with the Class of 1944. It is designed primarily to do

five things: (1) determine those cadets who possess outstanding leadership ability and who deserve positions of responsibility within the Corps of Cadets; (2) identify those cadets who are weak in leadership and determine their specific weaknesses in order to give them effective help in attaining the high standards of the Corps; (3) provide an impartial hearing and evaluation of any cadet who, after receiving special assistance over a reasonable period of time, appears to be unable to meet the requirements of the Corps, or is misplaced in the military profession, and must therefore be considered for discharge from the Academy; (4) provide the Department of Tactics with a source of information and data on leadership, this information to be used to improve methods of evaluating leadership and of developing it in cadets; (5) give each cadet experience in observing human behavior and in evaluating individuals in terms of leadership and other military attributes. To accomplish these five purposes the Aptitude System is separated into two principal phases: one the measuring or rating phase, the other the counseling and guidance phase.

The first phase or the rating phase of the system requires each cadet to rank all of his classmates in his company (about 25 cadets) in the order of his best judgment of their relative leadership ability. He also rates the members of the other three classes in his company in their own class groups in the same manner. Each Tactical Officer also rates the four class groups of cadets in his company. Thus each cadet is ranked in relation to his class not only by his own classmates but by all other cadets in his company, about 100 in all, and by his Tactical Officer. The resulting ratings are combined in such a way as to give a single rating for each cadet. This rating is known as the cadet's composite Army Standard Rating. Company and Class orders of merit are arrived at from these ratings and proportional parts are awarded on the basis of these Army Standard Ratings.

The second and by far the most important phase of the Aptitude System is that phase in which Tactical Officers make use of the information from the ratings and from all other sources available in an effort to help each cadet who is dangerously low in aptitude to improve himself. At the time of the rating each rater is required to describe the typical behavior which occasioned his placing the last two or three cadets in that position. These descriptions of behavior which occasion such ratings are used by the Tactical Officer in combination with his own observations of the cadets' activities to provide the basis of interviews, advice-giving and other efforts to bring about an improved rating for the subject cadet. In this phase the Tactical Officer is ably helped by the Staff Psychologist, U.S.C.C., in those cases where such help is indicated.

Unfortunately there are a few cadets who seem to be unable to reach the minimum standards considered essential in a cadet. The cases of such cadets are given every consideration and a system of officer boards is set up in an effort to determine all the factors. If these boards decide that it is highly improbable that a cadet will ever measure up to the minimum requirements they may recommend to the Commandant that he be considered for discharge from the Academy for lack of aptitude. The board can not so recommend, however, until it has observed and counselled the cadet for a minimum period of six months. The Commandant forwards his recommendations on such cases to the Superintendent who makes his recommendations and takes his action as President of the Academic Board. Those cases which are recommended by the Academic Board for discharge must finally be acted upon by the Department of the Army.

It is believed that the Aptitude for the Service System is an important factor in the maintenance of high leadership level in the Corps and that it necessarily protects the Government from spending time and money on unsuitable officer material At the same time it protects cadets from entering a career for which their abilities are not best suited and from which they would probably receive little satisfaction.

Subsidiary Areas

The Department of Military Psychology and Leadership also has several lesser missions. It administers the Plebe Sponsor Program. In this, officers of the post, outside the Department of Tactics, agree to take some plebes, usually three, and sponsor them. The objectives of the program are:

a. To associate each cadet with an officer, outside of the cadet's normal official contacts, with whom he can develop a social and semiofficial relationship and from whom he can, when there is need, get informal advice and information.

b. To help the new cadet adjust himself to army life and to contribute to his feeling of security and friendliness by providing a relationship with an officer on duty at the Academy—a relationship which is easily accessible and friendly, rather than formal and official.

An additional responsibility of the Department is to prepare and review many of the service publications dealing with leadership. Lastly it is required to direct the preparation of leadership training films and furnish the technical advisor for their production. At present, work is being done on a series of four such training films. This work requires almost the full time of at least one officer.

The Department has been fortunate in the type of officer that has been assigned to it. All of these officers have a commendable war record. It is believed that officers who have proven themselves in combat are the most effective ones to teach leadership. All have had graduate work in civilian educational institutions. There are Army Officers, Air Force Officers, Marine Officers, West Point graduates and non-graduates included within the Department. The Associate Director is a civilian with a Doctor's degree in psychology. He has a background of approximately 25 years in the clinical and teaching fields.

In arriving at its present stage of development, the Department has drawn heavily on the personnel methods employed by industry; on civilian institutions and civilian educators in this field of endeavor; and on the proven experiences of our military leaders and the records of our American units in combat. Detailed studies have been made by members of this Department, by actual internship, of the personnel policies and procedures of the American Telephone and Telegraph, Chase National Bank, Baldwin Locomotive Works, Standard Oil Company of New Jersey, and Firestone Tire and Rubber

Statement of Military Personnel Policy

By The Secretary of Defense

Success in modern war requires of the Department of Defense the maximum effective management of one of our most valuable national assets—the men and women of our Armed Forces. To this end the following objectives of a military personnel policy are stated:

1. Development of professional competency through policies that provide for the efficient utilization of human aptitudes, interests, skills and physical characteristics.

2. Development of a high state of morale through competent leadership at all levels.

3. The Department of Defense requires from each serviceman:

- Unswerving devotion to the United States in accordance with his oath of allegiance.
- Respect for constituted authority.
- Diligent performance of duty.
- High standards of personal conduct.
- Respect for individual dignity and integrity.
- Development of his own potential abilities and of those who come under him.

4. Service in the Armed Forces is the highest form of public service. It requires curtailment of individual freedom more severe than that required of civilians and commitment to immediate participation in military action if the situation demands it.

5. Therefore, it will be the military personnel policy of the Department of Defense to:

- Afford the highest mental development through military training in accordance with the highest standards of military skill;
- Offer opportunity for spiritual and moral development;
- Promote physical well-being through the provision of food service, medical care, clothing, equipment and shelter;
- Provide adequate remuneration during a military career and a measure of economic security upon its honorable completion;
- Render all practicable assistance to provide for the general well-being of dependents of military personnel;
- Provide readily accessible guidance on personal problems;
- Provide opportunities for advancement with encouragement and inducement to take advantage of them;
- Insure opportunity to increase individual ability by appropriate training and education;
- Provide information on citizenship, American ideals, and current events to the end that each man realizes his personal responsibility for the general welfare;
- Afford a variety of opportunities to engage in wholesome and interesting recreational pursuits during off-duty time;
- Provide adequate periods of relief from military duty.

6. The application of the policies enunciated above is intended to accomplish the following:

- Develop in the individual man and woman of the Armed Forces the maximum effective military competence, and
- Develop in the individual man and woman of the Armed Forces enhanced personal dignity and self-respect.

Company. The records of at least a hundred other organizations have been studied in detail.

Consultation with such educational institutions as Harvard, Yale, Princeton, Ohio State, University of North Carolina and Columbia has contributed immensely to this program. Many individual educators have willingly contributed their time and effort to this program, particularly Dr. Edwin G. Boring, Head of the Department of Psychology, Harvard University. He has been and continues to be a leading advisor.

All histories of American combat units have been studied and the lessons have been applied to our program. The Personnel Research Section of the Adjutant General's Office has conducted considerable research for the Department which has been of great value in the establishment and administration of the Aptitude for the Service System. The personal advice of several hundred successful combat leaders in World War II has been sought and applied to the program.

The very essence of this course in leadership is to provide for the orderly integration of all the forces at command to the end that the newly graduated Lieutenant will be keenly aware of his great responsibility in his dealings with others in the service; will be sympathetic and understanding without being hypocritical or insincere; will be firm and unyielding in his enforcement of regulations and authority without being intolerant or arbitrary; will lead men through meriting their confidence and respect rather than through the use of the threat of punishment; and will be human and natural in his dealings with juniors, contemporaries, and seniors alike.

Our concept of leadership training was ably stated by General J. Lawton Collins in his message for Lincoln's birthday on 12 February 1950 in which he quoted the words of Henry L. Stimson as follows: "You have been brave, but not brutal; confident, but not arrogant; and you have welded the tremendous military potential of this country into a great fighting machine without having sacrificed the rights of the individual." Then General Collins commented as follows: "When Mr. Stimson retired as Secretary of War in September 1945, he summoned General Marshall and his principal military assistants for a few personal words of farewell. It was my privilege to be present when he spoke these words. I shall never forget them, and I feel they are particularly appropriate today.

"To me they sum up the responsibility that military leaders in a democracy owe to the nation, as well as to the citizen-soldiers who are in their care while serving the colors.

"Discipline in our army cannot be founded upon a mechanical and uninquiring subservience, but instead must have as its keynote a respect for the rights and responsibilities of the individual. Therefore, the American soldier must be led—not driven. To be led, he must thoroughly understand what he is called upon to do, and why.

"I am confident that an army based upon a sound discipline with respect for the rights of the individual will never fail this nation in time of need. I am equally confident that our nation, based as it is upon this same respect for the rights of the individual, will always produce that type of army."

Central Intelligence Agency

THE Central Intelligence Agency was established on September 20, 1947, pursuant to section 102 of the National Security Act of 1947 (Public No. 253, 80th Congress). The Director of Central Intelligence is the head of the Agency, which is under the direction of the National Security Council. The Agency is charged with coordinating the intelligence activities of the Government, in the interest of national security.

The law specifically provides that the Agency shall have no police, subpoena, or law-enforcement powers, or internal-security functions. However, the Director is responsible for protecting intelligence sources and methods from unauthorized disclosure.

U. S. Navy

Rear Adm. Roscoe H. Hillenkoetter
Head, Central Intelligence Agency.

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The series of briefs on the various elements in the national defense structure, of which this is the fourth, includes agencies within and outside of the Organization for National Security. There is no particular order to their appearance, which is more or less guided by the availability of material, including photos, to allow full presentation. Appearing thus far have been the over-all chart of the Organization for National Security; the Senate and House Armed Services Committees.

Solution to What Would You Do?

1. I would discard at once Jones' estimate of "a company of infantry supported by tanks"—you have little idea of what opposes you, except that it is probably not strong. In view of the urgency of your mission you have no time to find out details.

2. I would give fragmentary orders as follows:

To the F.O.: "Your target is the forward slopes of Hill **F**, with particular attention to the woods. Register now and lay fire down good and heavy when you see the attack (which will start on my signal, a green flare) come out of the woods near the mouth of Rajput Creek."

To the Scout Section: "One squad remain here in observation, and at the same time maintain liaison with me by having a quarter-ton and messenger accompany me. The other squad will select a good tank crossing of Rajput Creek, near its mouth, report its location to me, and guide the medium tanks across."

To the Support Squad: "Go into positions in the woods (near **B**)—register and take under fire the reverse slopes of Hill **G**. Lift your fire when tanks reach Hill **G**. You will receive further orders from me at about that time."

To the Tank Platoon: "You are the main effort—you will attack Hill **G**, crossing Rajput Creek near its mouth, form up in woods on far side, and on my signal (a green flare) move rapidly to objective. On attaining objective do not cross the crest, but await my orders. I expect to join you there."

To the Tank Section: "Join the Scout Squad at woods at **B**—go into careful position, and when attack jumps off (on my signal, a green flare) engage by tank and MG fire the forward slope of Hill **G**—plaster it. Lift your fire only as medium tanks mask it."

To the Rifle Squad: "You are the reserve, and will follow me, mounted. I will follow the tank attack in my jeep."

(From page 28)

news notes

Changes in Army Staff Organization

Recent changes in the organization of the General Staff of the Army has brought a redesignation of the Directors of the Army General Staff Divisions as Assistant Chiefs of Staff, and the consolidation of two of the present five General Staff Divisions. Under this arrangement, the heads of the remaining four Staff Divisions are retitled along familiar lines, as Assistant Chief of Staff, G-1, Personnel; Assistant Chief of Staff, G-2, Intelligence; Assistant Chief of Staff, G-3, Operations, and Assistant Chief of Staff, G-4, Logistics.

Heretofore there have been five General Staff Divisions, designated respectively as Personnel and Administration, Intelligence, Plans and Operations, Organization and Training, and Logistics. The two Staff Divisions consolidated are those which have been known as Plans and Operations, and Organization and Training.

Another redesignation has changed the title of the present Deputy Chief of Staff for Plans and Combat Operations. For brevity his title will now be Deputy Chief of Staff for Plans.

The Troop Information and Education Division and the Public Information Division, which have heretofore been separate staff agencies, have become parts of the Office of the Chief of Information. The Legislative Liaison Division of the Staff has been given separate status.

The functions of the Special Services Division of the Staff were absorbed by The Adjutant General.

The Secretary of the Army said the announced changes are not major in nature, but merely constitute another step resulting from the Army's continuing Management Improvement Studies.

Secretary Gray added that some economies will result from the change, although these will not be substantial.

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First Armed Forces Day Will Be Observed On May 20

The first Armed Forces Day will be observed throughout the Nation on a community level, on May 20.

The third Saturday in May was selected by Secretary of Defense Louis Johnson, and approved by President Truman, as Armed Forces Day to replace the days formerly observed by the individual services.

Community observances, locally sponsored, will mark the 1950 recognition and appreciation day for the armed services. "Teamed for Defense" has been designated the official slogan for the day.

Familiarization of the public with the state of the nation's defense will be emphasized.

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Karl R. Bendetsen Sworn in as Assistant Secretary of the Army

Karl R. Bendetsen of Aberdeen, Washington, was sworn in on February 2nd as Assistant Secretary of the Army. Secretary of the Army Gordon Gray administered the oath of office.

Mr. Bendetsen was appointed Assistant Secretary of the Army on January 24. Previously he had been Special Consultant to the Secretary of the Army. Mr. Bendetsen served as a colonel in the Judge Advocate General's Corps of the Army during World War II. He served in the European theater of operations from August, 1943, until July, 1945—initially as a member of the Combined Staff which planned the Normandy invasion, later as Deputy Chief of Staff of the Forward Communications Zone in Normandy, and thereafter with General Bradley's 12th Army Group.

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Army to Establish Airborne Center At Fort Bragg, North Carolina

Establishment of an Army Airborne Center at Fort Bragg, North Carolina, was announced today by the Department of the Army. The center is expected to begin operations within the next two to three months.

Broad concepts of airborne operations will be developed at the new center in close cooperation with the Air Force and Navy. Current joint airborne doctrines are to be studied with emphasis on tactics and training and Army requirements for transport aircraft. Tests and utilization of special airborne weapons and equipment will also be evaluated.

The Airborne Center will be an agency of the Chief of Army Field Forces, and will have three major departments: Department of Joint Airborne Doctrines, Tactics and Techniques; Department of Joint Airborne Training and the Department of Joint Tactical Evaluation and Testing of Airborne Equipment. Existing facilities at Fort Bragg will be used.

Major General William M. Miley, present Commanding General of the 11th Airborne Division, has been selected as Director of the Airborne Center.

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Navy Process Quickly Converts Sand Beaches Into Paved Highways for Amphibious Landings

An inexpensive method of quickly converting sandy beach strips into paved highways for amphibious landings on enemy shores has been developed by the Navy Bureau of Yards and Docks in cooperation with a Princeton University scientist.

The method, a chemical process which hardens beach sand within two to three hours, was developed at the request of the Marine Corps with the aim of reducing heavy loss of life in any future landings on enemy beaches.

Tests have demonstrated that sand hardened by the process can support the weight of a slow-moving jeep within two hours and a seven-ton truck in three hours. After 24 hours a truck with a gross load of 13½ tons made repeated runs without affecting the surface.

The material used in the process is plentiful and costs less than 16 cents a pound.

The new beach stabilization method is a mixing and densification process performed in a single run over the sand with ordinary road-building equipment. The operation can be completed at a forward speed of 12 feet a second, with the width depending on the capacity of the road equipment used.

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USAF Fighter Groups Receive Specific-Mission Designations

The United States Air Force announced it has changed the basic designations of its fighter groups to indicate more clearly the primary mission of each group.

Orders have been issued reclassifying USAF fighter groups as fighter-interceptor, fighter-bomber, fighter-all weather and fighter-escort units.

The mission of the fighter-interceptor groups is to serve as local defense weapons or defense against enemy bombers or attack aircraft.

Fighter-interceptor aircraft are characterized by very high rate of climb, high speed, and relatively short endurance.

The fighter-bombers will operate within enemy territory against enemy aircraft and ground targets, and in close support of surface forces.

Fighter-all weather aircraft are required to operate during inclement weather and at night. The planes are equipped with latest type radio and radar navigational aids to permit missions under adverse weather conditions.

The mission of the fighter-escorts will be, as the name signifies, escorts for bombers. The group will have long-range aircraft and will be required to operate deep in enemy territory.

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Armory Construction Authorized For Army Organized Reserve

A $10,000,000 armory construction program, designed to provide training space for Army Reserves in 21 states, was announced recently by the Department of the Army. The program is part of the Department of Defense plan to train and equip officers and enlisted men of the Army's Organized Reserve Corps.

Construction of the armories will be supervised by the Army Corps of Engineers. To meet the requirements of Army commanders having jurisdiction, and to achieve maximum utilization of appropriated funds, building of the facilities will be standardized to house organizations of two, three, four and five units each.

Present plans call for the construction of 21 armories on federally owned land under the jurisdiction of the Department of the Army, or on land upon which the government holds long-term rights. Lump sum contracts will be let through competitive bids except where clearly impracticable or where contrary to the best interests of the government. Four armories will be acquired through the purchase of existing buildings and facilities.

Additional armories will be constructed if building costs permit the added work under the $10,000,000 ceiling set for the program.

The armories to be constructed are listed below by Army Commands and cities:

Second Army: Youngstown, Ohio; Pittsburgh, Pennsylvania, Louisville, Kentucky, and Charleston, West Virginia.

Third Army: Charleston, South Carolina, and Winston-Salem, North Carolina.

Fourth Army: Houston, Texas, Baton Rouge, Louisiana, Little Rock, Arkansas, and Albuquerque, New Mexico.

Fifth Army: Chicago, Illinois (2), Kansas City, Missouri, Omaha, Nebraska, Peoria, Illinois, and Grand Rapids, Michigan.

Sixth Army: San Jose, California, Salem, Oregon, Logan, Utah, Olympia, Washington, and Fort MacArthur, California.

In addition to armories to be built, purchase of existing buildings and facilities is planned for the First Army at New York City; Second Army at Reading, Pennsylvania, Third Army at Nashville, Tennessee, and Fifth Army at Kansas City, Kansas.

◇ ◇ ◇

Guided Missile Fired Successfully From Navy Ship in Pacific

An AEROBEE high-altitude sounding rocket was recently successfully fired in the Gulf of Alaska from the Navy experimental guided missile ship USS *Norton Sound*.

The rocket reached an altitude of approximately 45 miles. During most of the ascent, instruments in the nose of the AEROBEE recorded cosmic ray research data which was telemetered back to the *Norton Sound*. The data will be analyzed by Johns Hopkins scientists at the laboratory in Silver Spring, Maryland.

The firing was under the scientific direction of Dr. J. A. Van Allen, of the Applied Physics Laboratory, Johns Hopkins University, who stated afterwards that the firing "appears to be the most successful AEROBEE operation to date."

While the average altitude of AEROBEE firings has been about 70 miles, the weight of instrumentation reduced the altitude in this experiment. The AEROBEE rockets were developed by the Navy's Bureau of Ordnance.

◇ ◇ ◇

Army to Institute Improved Organized Reserve Corps Program

Secretary of the Army Gordon Gray recently announced that the Army will institute a modification of the present Organized Reserve Corps program. He declared that changes which will be put into operation will result in "material improvement in the efficiency and readiness of the Reserve." It will take about three months to accomplish necessary steps incident to establishment of the program.

Secretary Gray stressed that full details of the plan will be available to Army commanders about April 1, by which time it is planned that all administrative details and implementing directives will be completed.

Summarized briefly, the new organization will set up an Active Reserve, an Inactive Reserve, and an Honorary Reserve. The Active Reserve in turn will include an Organized Reserve and a Volunteer Reserve. The Organized Reserve will be made up of personnel in units needed for mobilization, plus those individuals needed upon mobilization to augment the Regular Army units and staff agencies.

The Volunteer Reserve will consist of individual officers and enlisted men needed for expansion of the Army of the United States in event of emergency. This group initially will include currently organized training units. The Honorary Reserve will be made up of personnel of long service who request such assignment. The Inactive Reserve will consist of personnel who can not or do not desire to participate in the Active Reserve, but who will be subject to call in case of emergency despite their inactive status.

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Army Field Forces Establish Civilian Components Division

General Mark W. Clark, Chief, Army Field Forces, has announced the establishment of a Civilian Components Division of the Army Field Forces staff at Fort Monroe, Virginia, to supervise the training of the National Guard, the Organized Reserve Corps and the Reserve Officers Training Corps.

The action was taken in recognition of the importance of the training of these components to national security. Brigadier General William B. Bradford, wartime Assistant Commander of the 27th (New York) Division and formerly Chief of Staff of the 33d (Illinois) Division, will head the AFF Civilian Components Division.

Unified direction of civilian component training is designed to assure close coordination in the preparation of plans and programs and the conduct of training inspections pertaining to the National Guard, ORC and ROTC.

and features

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Major General Robert W. Grow Named Military Attaché to Moscow

Major General Robert W. Grow, Commanding General, Fort Devens, Massachusetts, has been selected as Military Attaché to Moscow, U.S.S.R., the Department of the Army announced recently.

General Grow will replace Major General John W. O'Daniel, who has been the Military Attaché in Moscow since July, 1948. The exchange will take place later this year. General Grow will arrive in Washington about March 15, prior to his departure for Moscow.

During World War II, General Grow commanded the 6th Armored Division, which led attacks in the Normandy, Northern France, Ardennes-Alsace, Rhineland, and Central Europe campaigns.

ARE YOU WELL INFORMED?

Answers on page 64

1. The U. S. recently severed relations with a Soviet satellite country bringing to two the number of countries in that category which we do not recognize. Name the countries.
2. The following men hold the position of premier in the Soviet European satellite states: Enver Hoxa, Vulko Chervenkov, Petru Groza, Istvan Dobi, Antonin Zapotocky, Joseph Cyrankiewicz. Of which country is each man premier?
3. In the forthcoming third volume of his memoirs, Winston Churchill describes the circumstances surrounding the Atlantic Charter. Where, when and by whom was it signed?
4. At Bankok, Thailand, several weeks ago Dr. Philip Jessup presided over a conference of American diplomats including those who represent the U. S. in Seoul, Rangoon, Karachi, Colombo and Saigon. Of what states are these cities the capitals?
5. The U. S., Britain, France and the Netherlands outlined a program to raise the standard of living in their Caribbean territories. Name the nations to which the following territories belong: Curacao, Guadeloupe, Jamaica, Martinique, Virgin Islands.
6. U. S. Forces have held maneuvers recently in Alaska, Hawaii and Puerto Rico. Can you name the dates each became U. S. possessions?
7. Bills granting statehood to Alaska and Hawaii are before the Congress. Their passage would require rearrangement of the flag. What is the present arrangement of the stars?
8. Of the eleven members on the UN Security Council, one is China, a permanent member. The remaining ten are equally divided on recognition of the Chinese Communist and Nationalist regimes. Name the five nations which recognize the Communists, and the five which recognize the Nationalists.
9. One of the points raised against King Leopold III in the recent Belgian national referendum on his return to the throne was his surrender of the Belgian Army to the Germans. Do you recall the date of the German push against the West which led up to that surrender?
10. An international marriage put Bechuanaland much in the news recently. Where is it?
11. The President of France has just completed a state visit to Britain. What is his name?
12. The French have completed a treaty with the Saar on a fifty-year lease of Saar coal mines. To whom did the Saar belong between the two World Wars?

the Cavalry Regiment of Today

U. S. Army.

The Assault Gun Platoon of the Armored Cavalry Regiment Light.

U. S. Army

The Reconnaissance Platoon of the Armored Cavalry Regiment Light.

U. S. Army

The Tank Platoon of the Armored Cavalry Regiment Light. Units shown are from the 2nd Battalion, 3rd Armored Cavalry Regiment.

IN a recent article you had an opportunity to absorb some of the history and background of one of our famous Cavalry Regiments. There were presented the major steps in the evolution of this regiment from the leather pounding doughboy of the late 1840's to the tank jockeys of 1950. Though brief and unadorned it has been a story of progress, of valor and of adherence to ideals that is typical of the cavalry of both yesterday and today.

Let us now turn from the past, on which we all too frequently prefer to dwell, and consider the present and the future of the cavalry unit. For instance, let's consider *any* cavalry regiment light armored—let's take it apart and see what it is made of, what makes it tick and what it can do. Let's conjecture a bit about its future.

This new regiment might appropriately be dubbed the composite of all the desires of armored cavalrymen who fought in the last war. Shortly after the war a Board of Officers consisting of those best qualified and most experienced in this field of warfare was called to meet and make recommendations concerning what an Armored Cavalry Regiment of the future should be like. As a result of this conference it was determined that the unit should be versatile, flexible, highly mobile, heavily armed, lightly armored and reasonably self-sufficient. From this conference and the analysis later conducted by the War Department came the Tables of Organization and Equipment of the regiment as it is now known.

Very briefly, the regiment consists of a headquarters and headquarters company, a service company and three reconnaissance battalions, each battalion containing a headquarters and headquarters company, three reconnaissance companies, an assault gun company, and a medium tank company; a total of 151 officers, 31 warrant officers and 2,662 enlisted men.

Some of the major elements of equipment of the regiment are as follows: 8 liaison airplanes, 72 light tanks, 51 medium tanks, 18 assault guns 105mm, 97 armored utility vehicles, 492 motor vehicles, 1006 carbines, 167 machine guns, 495 submachine guns, 130 rocket launchers, 27 81mm mortars, 723 pistols, 818 M1 rifles. There are approximately 700 radios of various types within the regiment.

What can this organization be expected to do? The basic concept of the regiment was that at all echelons the organization should incorporate organically the team of combined arms found so successful throughout World War II. A study of the organization of the reconnaissance company will reveal that the reconnaissance platoon, which is the basic functional element of the regiment, fulfills this requirement. It has a scout section, a tank section, a rifle squad and a support squad or Armored Cavalry, Infantry and in the support squad a mortar for Artillery. There are 27 such platoons within the regiment. Again in the battalion, which can be a self-sustaining tactical unit or task force by the attachment of certain headquarters and service elements, we have the reconnaissance company's cavalry, infantry squads, the tank company and the assault gun artillery.

The regiment is a self-sufficient tactical and administrative organization. It has the capabilities of supplying

The author wishes to express thanks for the kind assistance of Lt. Col. Charles Dayhuff, Capt. R. L. Westbrook, and Capt. W. H. Collier in the preparation of this article.

itself under normal operation up to a distance of approximately one hundred miles. It has a powerful artillery battalion by combining the three assault gun companies. It is completely mobile and it is by no means restricted to roads, one of the outstanding features of the regiment being its unusually high cross-country mobility. To complete its self-sufficiency and to assure unimpeded forward progress its two weaknesses must be supported by attachments, namely, engineers to bridge impassable defiles and ordnance to support the limited maintenance capabilities.

The planned usage of the regiment envisages the assignment of one such regiment per Corps and one for the Army or four to each Field Army. There seems to be no limit to the combinations for employment of these regiments under the Army, extending all the way from operating the entire four under Army control down to attaching one to Divisions for special purposes. As an element of the Corps troops the regiment is normally provided logistical support by Army but even without this logistical support, the regiment is able to perform any mission which would normally be assigned, for short periods of time.

Under normal conditions it will be employed to execute security and reconnaissance missions which most effectively exploit its characteristics. However, it is a convenient contingent force in the hands of a Corps Commander to permit economy in the employment of divisions for purposes of exploiting local advantages. It is also the nucleus for forming a very powerful mobile task force by the attachment of artillery, engineers, armor or infantry.

While the regiment is organized, trained and equipped to engage in either offensive or defensive combat, mounted or dismounted, or a combination of both, its primary potentialities are best brought out when employed on the offensive.

As a security force it can be employed either in advance of or on the flanks of a maneuver force, in advance of or on the flanks of a stationary force, filling a gap or for counter reconnaissance. It can be employed for limited periods of time, to secure and hold terrain features. It can be employed for liaison and contact between two larger moving or stationary commands or it may be used as a mop-up force in rear areas.

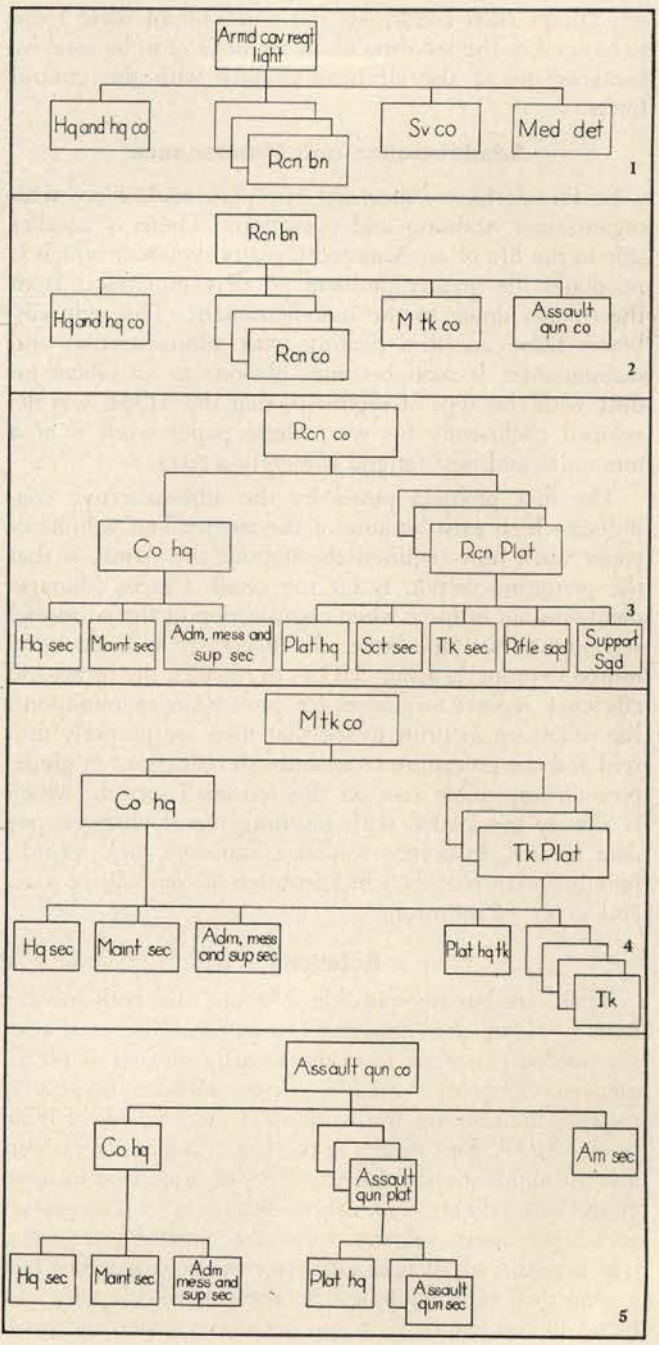
Under its reconnaissance mission it may well be used to cover the advance to contact, or to make route, zone or area reconnaissance. When we speak of reconnaissance in this sense it should be pointed out that reconnaissance performed by the regiment is a reconnaissance of force. It fights to get its information and is capable of very strong offensive combat for this purpose. No longer is the "sneak and peep" theory of reconnaissance the criterion of the cavalry.

Some of the other offensive operations not fundamentally classified as security or reconnaissance on which the regiment may be used to good advantage are penetration, exploitation of a break-through, and pursuit.

On the defensive the regiment may again, due to its versatility, be employed in a number of ways. It can be employed on an extended front characterized by little depth or it can cover a considerable front and be organized in considerable depth. Another mission for which the Armored Cavalry Regiment is ideally situated is that

by **COLONEL SAMUEL L. MYERS**

The modern cavalry regiment is a striking force of great power and versatility. It has a large quantity of equipment—and a large number of problems to go with it, not the least of which is maintenance. But the problems roll back, levelled by the overwhelming compensation springing from service in a unit that holds the imagination.



of covering a withdrawal or fighting a delaying action. It is altogether possible that the future will see great use made of Armored Cavalry anti-airborne defensive operations. With the extremely high mobility and tremendous fire power of this organization it appears, at present, the most ideal force to engage in this type of activity.

There are many other special operations for which the regiment appears to be ideally organized, including deception, feinting, desert operation and amphibious operation. But there is one which is in its infancy, so to speak, which appears to have tremendous possibilities and which bears brief consideration at this time. This element is the participation in airborne operations. The regiment is presently engaged in training to move as much as possible by air. Tables have been completed to move all but the tank elements at the present time and with the development of bigger and better airplanes it is felt that the time will soon come when the entire regiment can be moved by air. Under such conditions it should be an ideal force to be used in the securing of an air head or to be used by breaking out of the air head to link with the ground forces.

Administration and Maintenance

So far we have concerned ourselves exclusively with organization, training and operations. There is another side to the life of an Armored Cavalry regiment which is no doubt the greater problem of all commanders from the colonel down to the first lieutenant. This side embraces those activities dealing with administration and maintenance. It soon becomes obvious to an officer on duty with this type of regiment, that the TO&E was developed exclusively for war where paper work is at a minimum and post fatigue is merely a term.

The first problem posed by the administrative conditions which exist because of the tremendous volume of paper work now required throughout the Army, is that the personnel section is far too small. Career Management was not in force when organization of the personnel section was set up. Now, the necessary interviews required to properly assign MOS's to recruits, the forms and efficiency reports to process for promotion examinations, the follow-up in units to see that men are properly utilized and the procedure to accomplish reductions in grade, pose an impossible task on this too-small section, which is already overloaded with morning report changes, pay data records, insurance statistics, transfers, sick records, immunization records, administration of competitive tours and so on, ad infinitum.

Solutions

There are but two possible solutions and both involve stealing from other important functions. One is to take the needed personnel from the security platoon of Headquarters Company, which is a poor solution because it requires the training and working of men outside of their proper MOS. This results in the loss of a security platoon and the elimination of the possibility of promotion in some of the career fields. The other solution is to take experienced personnel soldiers from the subordinate units, which results in lowered efficiency in the companies and a great deal of unhappiness on the part of company and battalion commanders. It appears that a peacetime readjustment is necessary to adequately compensate for the peacetime volume of paper work.

Another perennial problem with the cavalry commander is the matter of vehicular maintenance. This regiment is very heavily equipped with both tracked and wheeled vehicles, there being 246 of the former and 492 of the latter. To care for this mass of equipment there are authorized 56 wheel mechanics and 104 tank mechanics as well as one driver per vehicle. If all these men were present all the time, if none ever got sick, if none ever went on leave or AWOL, if there were no demands for schools, if the post did not have vehicles to drive and no drivers for these vehicles, if there were no parades—well—maybe these drivers and mechanics could perform all the maintenance that should be done. But the above enumerated commitments do and always will exist, along with many others. Consequently a great deal of ingenuity is required to keep these gasoline drinking mounts in proper condition.

Driver and organizational maintenance are as important to the tank as feed and shoes are to the horse. If maintenance is not organized and controlled, and scheduled periods are not conducted, equipment will inevitably lapse into a state of disrepair which will take double the time and personnel to rectify. Those familiar with a tank will know that it requires as much or more attention than the horse.

Balance

So what can a unit commander, beset with a perpetual absence of nearly a fourth of his command on out-of-regiment activities and faced with a training requirement in hours per week almost equal to the number of hours available, do to insure proper maintenance? The alternatives are few. Usually it is necessary to compromise with training and to work more hours. It is perhaps the rule rather than the exception that more than 40 hours per week are utilized; in at least *one* instance the average time per man to accomplish all the *must* work is 50 hours per week. This is not felt to be too great a demand on a soldier's duty time but it does result in the need for a very high state of morale particularly on posts where other troops adhere closely to the 40-hour week.

As for the compromise with training to get the desired time for maintenance, this is a problem which must be worked out at the time with the next higher headquarters. It may be that the regiment is well versed in some of the subjects which require a specific number of hours per week or month and in such cases the higher headquarters is usually glad to modify its requirement in favor of maintenance. It is often the case that a higher headquarters will reduce the required time for such things as organized athletics on the grounds that the tanker gets adequate physical hardening in the performance of his normal duties (and he certainly does).

Whatever the solution to any or all of the problems of a unit commander, an Armored Cavalry unit is a constant challenge to one's adaptability, imagination and versatility.

Remote in mode of transportation from the elephant days of Hannibal and the horses of more recent days, the armored cavalry regiment carries on the common role of mobility and shock action. It is still used in the same manner taught by George Patton. We still *"hold them by the nose and kick them in the seat of the pants."*

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SPECIAL PREPUBLICATION PRICE ADVANTAGES

ON THE STATE OF THE UNIVERSE

MODERN ARMS AND FREE MEN. By Vannevar Bush. New York, Simon & Schuster, 1949. 273 pp. $3.50.

Reviewed by
GEORGE FIELDING ELIOT

It is not enough to say that this is a book by a great scientist about the scientific aspects of modern war. It is certainly that, but it is far more than that. It is a book by an American citizen who believes with all his heart in our free society, who sees that it is in danger and who yet has faith that "the aspirations of free men . . ., if we keep our strength, will become realities."

The writer's scientific training has endowed him with a clear-thinking mind; his experience as director of the Office of Scientific Research and Development has revealed to him the strengths and the weaknesses of the free society in war. He thinks the strengths are far greater than the weaknesses, and on this he builds his hopes for the future. But he warns that lack of attention to the weaknesses may destroy us in an unguarded hour. "It will not do to bungle through, in the type of contest we are now engaged in, or which the future may produce."

One outstanding, perhaps decisive advantage of the free society on which Dr. Bush lays great stress is in the field of scientific progress. In the police state, there can be no free flow of scientific information, especially of critical review and of comparison with the work of scientists in other lands. It was formalism, political control by "medalled nincompoops" and lack of free criticism which ruined the German atomic project so that it "never got to first base."

The military reader will find fascinating and highly valuable reading in those chapters of the book in which Dr. Bush deals with the wartime development of weapons and offers a glimpse of the battlefields of the immediate future. Dr. Bush thinks it likely that the defensive may be again in the ascendant in land warfare. New antitank weapons, land mines and the proximity fuse may combine, he feels, to re-create conditions of stalemate as between powers reasonably equal in resources when it comes to land fighting.

Likewise he is inclined to think that improved radar, jet fighters and particularly the ground-to-air guided missile may eventually spell the doom of the big bomber and of air offensives on the scale of World War II. He considers that our greatest danger from A-bomb attack at present is likely to come from offshore submarines rather than from transoceanic bombing planes. He sees the role of the Navy as lying particularly in the anti-submarine field.

He does not, however, fall into the error of counselling a defensive attitude. Indeed, he believes that for the present our chief (though not our sole) reliance should be on a retalia-

An Exclusive Journal Feature

The Author

Dr. Vannevar Bush is President of the Carnegie Institution of Washington, D. C. During the war he headed the Office of Scientific Research and Development.

The Reviewer

George Fielding Eliot is one of the leading military analysts of the day. Among his recent books are "Hate, Hope and High Explosives," and "If Russia Strikes."

tory strategic bombing force and an adequate supply of atomic bombs. He points out that no state can support the cost of being armed at all points. A full-scale offensive air force, a full-scale defense against air attack, a full-scale atomic program, plus adequate ground and naval forces, would exhaust the resources of any nation however great and rich. One is reminded of Mahan's axiom that no state had ever succeeded in being at one and the same time a great land power and a great sea power, and that the attempt to do both brought about the ruin of Louis XIV's ambitions and the reduction to second-rate importance of both Venice and Holland. Mahan, of course, wrote before the coming of air power—but it is still true that no people can hope to do everything, as Dr. Bush points out. Choices must be made, calculated risks assumed. National security rests on the wisdom of the choices, the accuracy of the calculations.

For the scientist Dr. Bush seeks a full and equal partnership with the professional military man in the development of weapons and techniques of warfare. He warns repeatedly of the dangers of the closed mind, but he believes that in our services the closed mind is becoming more and more a rarity.

In the field of planning, Dr. Bush does not say specifically that he is in favor of the single over-all Chief of Staff, so frequently proposed, but he says so by implication. With this view, many students of our national military problems will take issue. There are one or two other points on which those with military experience might argue with the author: for example, when he says that the strategic air force should have "an inspection system independent of the chain of command"—an innovation hardly likely to recommend itself to commanders of the caliber of General LeMay, unless indeed Dr. Bush is referring to the well-established activities of The Inspector General.

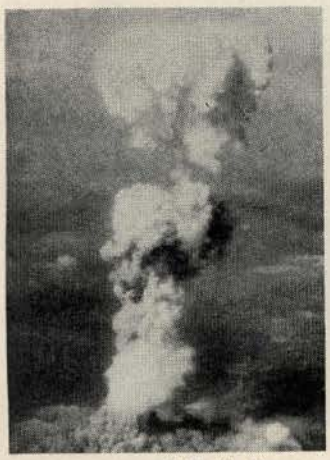
Democracy and Civilization

But these are details, details which fade into insignificance beside the grandeur of the thesis of this great book—that if we keep the faith of free men and women, and stout hearts, we may well be able to prevent another war, and if we are not able to prevent it, then we shall certainly win it. "Free men have at last created a democracy more effective, as long as it retains its hallmark, than any dictatorship can ever be in dealing with the intricacies of civilization."

To the American citizen seeking to winnow the grain of truth from the vast outpouring of chaff which confuses the mind in this crucial era, Dr. Bush's approach to his task will be welcome indeed. Where he says that so-and-so is a fact, he adduces the evidence—he does not ask you to take his word for it, he proves it beyond argument. When he says that he believes so-and-so to be true, he tells you why he believes it and evaluates the basis for his belief, leaving to the reader the choice between acceptance and rejection. When he is seriously in doubt, he weighs the points on both sides, again paying due respect to the reader's intelligence. And he writes it all easily and well, with a touch of humor and a kindly warmth which is wholly American and wholly engaging. To one who, like this reviewer, has labored through far too much entangled prose from the pens of scientists more familiar with the test tube than the typewriter, it is a happy relief to turn Dr. Bush's crisp well-arranged pages. We are fortunate that one at least of our great men of science has the gift of explaining his pregnant mysteries in words which plain men can understand. One striking feature is a modest absence from these pages of the pronoun "I," in gratifying contrast to some recent emanations from the Department of Defense.

It is easy, of course, to conclude a review of a book one admires by saying that everyone should read it. I wish there were some way to say more than that about this book. In this time of trouble and of danger, MODERN ARMS AND FREE MEN is "must" reading for all Americans. The nation will be the more secure if all of us not only read it, but read it again with thoughtful attention—and then set it carefully on the little shelf where we keep those few books into which we know we shall be dipping from day to day, again and again.

WAR AND PEACE



U.S. Air Force.

The Atomic Bomb

United Nations.

The United Nations

U.S. Navy.

The Guided Missile

THE GRAND ALLIANCE

Volume III of Winston Churchill's *The Second World War* will be published April 24th at $6.00. By ordering now you may take advantage of the special pre-publication price of $5.00. You may also, by placing your order before that date for the fourth and fifth volumes, insure the same saving of $1.00 on the published price of each of those volumes when they come.

If you do not already have Volume I, THE GATHERING STORM and Volume II, THEIR FINEST HOUR, you may, by placing your order for them along with Volume III, all before April 24th, secure them for $5.00 each, a saving of $1.00 per volume.

GREAT MISTAKES OF THE WAR

Hanson Baldwin, military analyst of *The New York Times,* discusses errors in American policy that influenced the course of the war or affected the peace. Includes such points as the misinformation about the Russians, the concessions to them, the invasion of Normandy rather than the soft underbelly, and the use of the atomic bomb. Published March 29th, $1.50.

THE GUADALCANAL CAMPAIGN

Fifth of a series of Marine Corps monographs covering operations in World War II. This is the official Marine account of operations on and adjacent to Guadalcanal in the early days of the American counteroffensive against the Japs. Published, $4.25.

THE CURTAIN ISN'T IRON

Joseph C. Harsch, Washington correspondent of The *Christian Science Monitor,* evaluates the Russian satellite states, showing that Russian domination may be far from complete or permanent. To be published May 18th.

The Best Sellers

With the kind permission of The New York Times Book Review, *here is an analysis based on reports from leading book sellers in 36 cities, showing the sales rating of 16 leading fiction and general titles.*

Fiction

March 5	March 12	March 19	March 26		
	9	4	1	The Wall. *Hersey*
1	1	1	2	The Parasites. *du Maurier*
3	2	2	3	The Egyptian. *Waltari*
2	3	3	4	The King's Cavalier. *Shellabarger*
5	4	5	5	The Horse's Mouth. *Cary*
9	8	7	6	Jubilee Trail. *Bristow*
4	5	6	7	Gentian Hill. *Goudge*
6	6	8	8	Mary. *Asch*
7	7	9	9	A Rage to Live. *O'Hara*
8	11	10	10	One on the House. *Lasswell*
12	10	14	11	The Strange Land. *Calmer*
	12		12	The Sea Eagles. *Jennings*
		11	13	The Pink House. *White*
		12	14	The Diplomat. *Aldridge*
13	15	13	15	I, My Ancestor. *Ross*
		16	16	Mingo Dabney. *Street*

General

March 5	March 12	March 19	March 26		
1	1	1	1	The Mature Mind. *Overstreet*
8	5	3	2	The Baby.
2	2	2	3	This I Remember. *Roosevelt*
3	3	4	4	Home Sweet Zoo. *Barnes*
5	6	6	5	The Peabody Sisters of Salem. *Tharp*
14	10	7	6	I Leap Over the Wall. *Baldwin*
10	11	9	7	Mr. Jones, Meet the Master. *Marshall*
4	4	5	8	White Collar Zoo. *Barnes*
11	9	10	9	The Road Ahead. *Flynn*
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Answers to ARE YOU WELL INFORMED from Page 57.

1. Albania and Bulgaria.
2. Hoxa, Albania; Chervenkov, Bulgaria; Groza, Rumania; Dobi, Hungary; Zapatocky, Czechoslovakia; Cyrankiewics, Poland.
3. Aboard the USS *Augusta* off Newfoundland on August 14, 1941 by Prime Minister Churchill and President Roosevelt.
4. Seoul, Korea (South); Rangoon, Burma; Karachi, Pakistan; Colombo, Ceylon; Saigon, Viet Nam (Indo-China).
5. Curaceo, the Netherlands; Guadaloupe, France; Jamaica, Britain; Martinique, France; Virgin Islands, United States.
6. Alaska, 1867; Hawaii, 1898; Puerto Rico, 1898.
7. Six horizontal rows of eight stars.
8. Nationalists are recognized by U. S., France, Ecuador, Egypt and Cuba. Communists are recognized by Russia, Britain, Yugoslavia, India and Norway.
9. May 10, 1940.
10. In southern Africa.
11. Vincent Auriol.
12. The Saar was administered by a League of Nations Commission from the end of World War I until a plebescite in 1935 voted its return to Germany.

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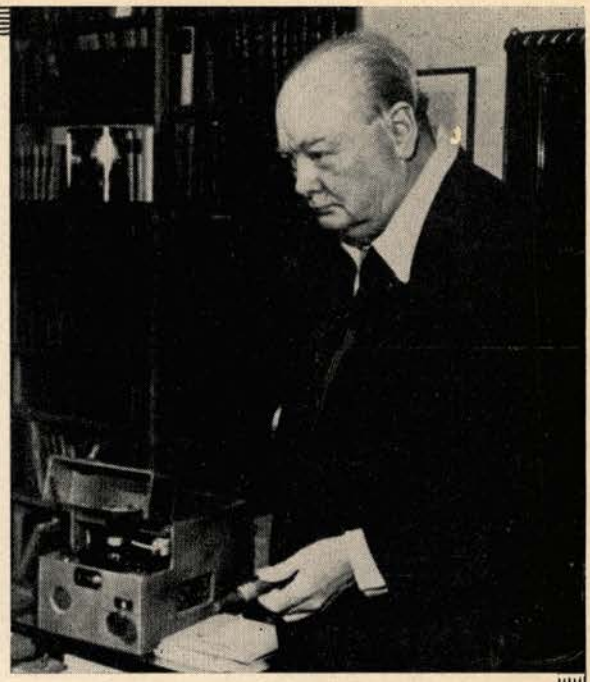

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THE Grand Alliance

WINSTON CHURCHILL now turns to the story of the year that brought America, Great Britain and Russia together in a Grand Alliance to break the power of Hitler. The lightning war had set all of Europe ablaze, burning deep into Russian territory, licking at the edges of Africa and Asia, flaring in the Atlantic and Mediterranean, consuming Crete and Greece. And in its glare Churchill built the structure of diplomacy with his "haughty ally," Stalin; fitted together the material elements of Lend-Lease, encouraging and guiding with a skilled patience the inevitable approach of America to the threshold of war.

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ARMORED CAVALRY JOURNAL

THE FIELD FORCES TEAM

Bell

RECONNOITERING EXERCISE SWARMER

Covered by friendly antiaircraft batteries a trio of Packets carries out a resupply drop to U. S. forces following the establishment of the Exercise Swarmer Airhead.
(See pages 2 and 32)

MAY-JUNE, 1950 VOL. LIX NO. 3

The U. S. Armored Cavalry Association

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WHEN Commander Bill (All the Ships at Sea) Lederer's office—the Magazine & Book Branch of OPI, Department of Defense—racked us up for the press tour of Swarmer we had some rapid calculating to do. What would a week in the Carolinas do to our schedules and deadline? Could we cover the exercise and get out on time? We decided to make the maneuver . . . and if you're reading this it's a cinch the magazine got out.

On D-3 we homed on Southern Pines, North Carolina, a neat little place to home on under any circumstances. Mode of transportation was private automobile, a fortunate choice, for we could use the protection when on D-Day night it came down golf balls as big as hailstones. A long trip by car? Well, we beat two plane loads of correspondents flying down from the Nation's Capital. The only difference was that we left at seven in the morning and they took off at two p.m.

By D-2, Hollywood Hotel at Southern Pines was buzzing like a hive. Here USAF Lt. Col. Barney Oldfield (no relation) had set up Press Headquarters. Briefings got underway, with the Swarmer Headquarters at Camp Mackall as the hub and the Camp Mackall reservation, Pope Air Force Base, Laurinburg-Maxton and the general Fort Bragg countryside wheeling the events. Armed with our camera (see page 32) and notebook we projected ourselves into the whirl.

MANEUVER situation was based in the assumption that an "aggressor" had laid hold of the Florida Peninsula, a strip of Texas' Gulf Coast, and a sizable chunk of the Eastern Seaboard in the Carolinas area. U. S. forces drew the assignment of capping a crescendo of air operations by seizing, expanding and supporting an airhead with the ultimate idea of backing the invader into the sea.

Exercise Swarmer had a nine-way purpose:

1. Train in operation of a joint maneuver Hq;
2. Study organization & operation of airhead;
3. Develop serial resupply techniques;
4. Test methods of close support for airborne units;
5. Train units and staffs in air-ground and airborne operations;
6. Determine special equipment requirements;
7. Test tactical application of new weapons;
8. Evaluate training efficiency of units;
9. Test feasibility of strategic airlift support of combat operations.

It would be impossible for one person or one medium to give full and complete coverage to an operation of this magnitude. At best we can offer some impressions. This was how it looked to us.

A great part of the attention focused, as it normally would, on D-Day. That was the big show. Here the accent was on the individual, his complex equipment and his great responsibilities. In an airborne operation you are witnessing the action of rugged men and top units.

BUT D-Day, with all the glamor and thrill of mass jumps in a peacetime operation, and all that it would imply in a wartime operation, is not by any means the full story. The other half lies in the planning stages, the logistical, the administrative side. It is here that the pre-D-Day and post-D-Day factors pile up in a mass of statistics from whose analysis will come the meat of the operation. It is here that the major questions are posed and answered. Is it possible to establish a tactical airhead and support it by strategic airlift? Some 60,000 men, over 600 planes, many thousands of dollars, miles of territory, weeks of time and a half-dozen lives were given to find the answers. A fair indication of the importance of defense planning in these times.

Top commanders and personnel right down the line entered Swarmer with open minds, recognizing the dark areas, prepared to make mistakes, sure of limitations, but prepared to learn something. Against a backdrop of wartime airborne operations and the Berlin Lift, they knuckled down in the hope of coming up with a pattern of mid-century design.

In a close consideration of this type of operation two things stand out, for us, over all others. They are *tactical air* and *armor.*

It is difficult to see how an airborne operation of this sort could be carried out without sub-

stantial, if not complete, air superiority over the zone.

And it is difficult to see how an airhead could be established in enemy territory if the enemy had any kind of armored force within appreciable striking distance.

THESE two things tie in, and we can take the striking and receiving ends and learn both ways. We recall the expression of pleasure that warmed the face of a top tactical air officer when we mentioned armor. "That," he said, "is the target we love. It's big, you can see it, you can really work on it." Yet, we also recall trailing along out in Aggressor territory as the action developed, where two Aggressor tanks deliberately took to a main road and ran up and down it in the hope that friendly air would fall in on them for a little practice. They were the only tanks around and at last check they were still unnoticed.

Armor, with careful use of camouflage, terrain, weather and antiaircraft cover, could raise ructions with an airhead operation and might well chop it off. The threat is one of real proportion. On the other hand, it is tempered by some real countermeasures. Foremost among these was the drop of trained forward air controllers, one each per battalion, regiment and division headquarters, who hit the silk with the initial troops, were radio equipped and ready to call in air on targets.

ANOTHER major step lay in the development of drop techniques to include the 90mm antitank gun, a pretty hefty package to float earthward. And again we saw a tank roll into and out of a cargo plane . . . but, hang it, we just never see it in the air! An airhead that can put its own armor to use—well, that will be the day. (It may seem, in the nature of our activity, that we're laboring the point in emphasizing armored aspects—but we don't think so.)

In the airlift line Swarmer displayed some interesting models of attack transports from the Chase and Northrop assembly lines. Their use, plus the findings of the exercise, will answer some of the problems in the air transport line. Also in line for improvement—loading and unloading equipment.

★★★★ to....

▸ Top commanders for a series of outstanding briefings on the respective phases of the operation.

▸ The Aggressor "Psycho" [Psychological Warfare (or should we leave well enough alone)] Unit that greeted the drop of 82nd troopers with a blaring "If I Knew You were Comin' I'd've Baked A Cake."

▸ That fine GI mess in the field at Carolina Base Section Headquarters. It's been a long time.

▸ PIO for the preview of "The Big Lift."

▸ The person who thought up the idea of a child's playground slide to debark troops from aircraft.

▸ Fairchild Aircraft for the aluminum clipboard.

By virtue of our limited staff it isn't often that we're able to break away to cover the maneuvers in the continuing series of the Armed Forces. However, we seem to be in an ever more favorable position. For, looking back over the course of the "war," we note that, while friendly forces continue to triumph over the "enemy" Aggressor, each successive engagement is closer to the heartland. We've whipped him from Alaska to Hawaii to the Caribbean to the Florida Coast to the Carolinas. Pretty soon we'll have him just where he wants us.

The title of the operation that will center on the Pentagon and the Nation's Capital makes for some interesting speculation. Will it be Exercise Five-Way-Stretch? Or perhaps Operation Foggy Bottom? Whatever it is, we can turn to Swarmer's Commander, USAF Lt. Gen. Lauris Norstad, for the clue to the outcome. When you're running the show you can't lose.

The Editors

A few blades of grass or a slim little sapling looks like mighty fine cover to the line infantryman going up against an enemy tank. In such a contest the infantryman needs the best of weapons . . . plus no small amount of moral fiber. For it takes something more than just weapons when you have

MEN against ARMOR

by COLONEL S. L. A. MARSHALL

AS A SUBJECT for a little earnest research, I would suggest the worthwhileness of questioning the moral power of line infantry to stand in place and fight armor, instead of taking it for granted, after a surface examination of World War II experience, that infantry is equal to the task provided that it is organically equipped with tank-stopping weapons.

Offhand, almost anyone would return an affirmative answer to this question. Why not? We all know of instances where armor was stopped cold mainly by fire from infantry elements. But the point is that if we did a little more cross-checking of the tactical circumstances in a large number of cases, we might discover that there are certain principles which govern what can be done, and what had best not be attempted.

Let me be specific. I am not speaking of the occasional frenzied enemy soldier who was to be seen charging a Sherman tank, and swinging his saber at its plate, or of what we have heard of Russian foot troops routing armor with Molotov cocktails. The point in inquiry is what an American infantry line is likely to do under the threat of being overrun by armor.

When we get down to that, I believe that search of the data would probably lead to the following conclusions:

a. Infantry in the open and defending against armor on a fairly broad front has virtually no tank-stopping power (in the moral sense) unless supported by fire from artillery and (or) armor which is getting visible and decisive killing results.

b. When tanks are moving into a defile, or advancing under any such conditions that the defenders can hit from the flank, centering fire on a single target without great danger of being taken in flank while so doing, trained infantry will accept the risks and will move aggressively to beat down the attack.

Acceptable Risks

This applies to the defense of a built-up area where infantry can take advantage of protecting walls. It is equally true of defense amid hedgerows and sunken roads, or in any terrain where armor is restricted to the road. Under that heading would come causeways and river passages where there is flank cover along the defended shoreline, and approaches over low ground in hill country. Forested areas, and other barriers naturally impassable by tanks, also provide moral stiffening to the infantry defense.

The requisite condition would appear to be this, that in the mind of the man handling the weapon on the ground, it must appear fairly obvious that he has not only some effective cover, but an advantage in position over the armor, whether that position puts him on the flank of his target, or prevents the armor from directly sighting on him. Then he will fight his weapon, whether it be a machine gun, a tube or a gammon grenade.

But expecting him to stand firm and die hard, simply because he has a weapon in his hands which might do the job, is no good. Men are not made that way, and training will not make them over.

There are individual exceptions. An occasional American, cast in a more heroic mold than his fellows, will stand resolutely against anything, whatever the odds. I am thinking of such a man as Lieutenant Don Levy, of 82nd Airborne Division, who seeing what was confronting him and knowing what he was doing, advanced against a battalion of German infantry and three tanks at the crossing of the Merderet, and took them on singlehanded with grenades and a light machine gun. Levy was killed a few days after that. His kind rarely live very long, and there are not enough of them that weapons and tactical calculations can be based upon them.

All of this is elementary. But it brands as somewhat illusory the idea

that infantry in defense is ipso facto assured firmness if equipped with a weapon certain to penetrate the toughest hide which comes against it. That is important, but not the main thing. More greatly decisive results flow chiefly from a more intelligent use of ground, and from keeping infantry quick of foot and mind, so that it will instinctively go to the most useful ground in a developing situation.

An infantryman bearing the finest recoilless weapon that the mind can devise is still not the equivalent of an artilleryman behind his gun. The difference lies in the moral values. The very solidity of a gun—the simple fact that there is something substantial to tie to—composes the mind and impels action. The point need not be labored; any man who under fire has sought the protection of a wall, haystack or pine stump, will know what I am talking about. Even good men are not devoid of a certain amount of ostrichism in the hour of danger. It isn't how things *are* but how they *seem* that makes the difference between a working measure of self-confidence and the lack thereof. The forlorn Jap soldier who on Kwajalein Island tried to counter an attack of an American flame-thrower by opening up with a hand fire extinguisher had about the same motivations as the rest of us. Being behind a two-inch sapling in the face of 88-mm fire provides more peace of mind than being behind nothing at all, ridiculous though that may seem.

Hard-boiled Conclusions

So I suggest that it would be well to go exhaustively into our data and come to a few hard-boiled conclusions about where they are pointing. There are a number of spectacular episodes in the men-against-armor category; probably each of them would throw a revealing, though partial, light on the subject of human reaction.

It is well known that in the Christmas morning fight at Bastogne, 18 enemy tanks came on and over the line of the 327th Glider Infantry Regiment to west of the town. Also, it is known that the overrun infantry kept its integrity and continued to fight, and that the armor was destroyed.

That is about all of the story that has been told in print; it is enough to suggest that these were men of exceptionally tough fiber, full of fight, and well unified. That would not be a mistaken conclusion. The brunt of the armored blow was borne by Company A, 401st Glider Infantry, an attached battalion of 327th. Perhaps the best measure of the fighting élan of this unit is that on the morning of the attack they were covering their ground with five .50 caliber machine guns, and two light mg's, in excess of the two light guns allowed by the tables. They had scrounged this extra weapon power and were quite happy to carry it along. This was a general characteristic of 101st Airborne Division; its men never overlooked a chance to build up weapon power. They would pre-empt armor and work it, if they could get their hands on it.

Colonel S. L. A. Marshall enlisted in the Army in June of 1917. He was commissioned in Infantry and served two years overseas, participating in the Soissons, St. Mihiel, Meuse-Argonne and Ypres-Lys Campaigns.

With World War I behind him Colonel Marshall entered upon the journalistic career that developed the military analyst of today. A five-year groundwork as Reporter and City Editor with the El Paso *Herald* terminated in 1927 with his transfer to *The Detroit News* as Military Critic and Editorial Writer, a post he holds today.

Re-entering the service in 1942 as a major, Colonel Marshall was assigned as Chief of Orientation for the Army of the United States where, in addition to other duties, he established the Army News Service, wrote the basic national policy on Americans of Japanese blood, and developed the Army policy of indoctrination of enemy prisoners of war.

In August of 1943 Colonel Marshall joined the newly forming Historical Division and began an important tour which took him first to the Pacific and later to the European Theater, where he was Theater Historian at war's end, having established methods of research which became standing procedure in all theaters.

Books from the Marshall pen include *Blitzkrieg, Armies on Wheels, Island Victory, Bastogne: (The First Eight Days), Makin, Men Against Fire* and *Toward Greater Mobility.*

As a correspondent Colonel Marshall covered the Spanish Civil War in 1936-37, and attended four revolutions in Mexico, Nicaragua and Cuba. As a student of military history he became interested in the writings of J. F. C. Fuller, convinced that his doctrine of war was sound. Most of his armor thinking has its genesis in Fuller's theories, modified by separate observations and reflections.

The Likely Avenue

There were 77 men in the Company under 1st Lieutenant Howard G. Bowles in the hour of the action. They were holding a sector approximately 1100 yards in width, organized generally along a ridge line, with a large pine plantation on the Company right, and a smaller forest lot in the center ground, in which the CP was established. Two tank destroyers of the 705th Battalion were in position in a forest patch directly behind the CP, and two others were in tree cover farther up the hill, and well to the left. Company A's machine guns were disposed so as to tie together the general front defended by the glidermen and the destroyer crews.

Reconnaissance had already convinced Division that this was the most likely avenue in the whole defensive circle for a thrust by enemy armor. The men knew this. Moreover, late on Christmas Eve, they had heard armor out beyond their horizon; the noise came from the forward elements of 15th Panzer Grenadier Division, which were just entering the battle.

At 2200 on Christmas Eve, on order from Division, Lieutenant Jack Adams, commanding the Third Platoon, was given 10 picked men by Bowles, and told to work out through the fog and dynamite the culvert short of the village of Flamizoulle, whence the sounds of activity were coming. The patrol was gone five hours. The fog had enabled Adams to make his approach safely, but it had also slowed his progress. He got to the culvert, drilled a few holes, put

in the dynamite; then he heard the tramp of German infantry marching along the fill and coming toward him; he had to withdraw before completing his mission.

He brought this word back to Bowles, and told him that there seemed to be "plenty of armor" in the village. Bowles at once asked for an artillery shoot on Flamizoulle and got it. But it was too late to be effective. Almost coincidentally, Private Allie Moore got back from the Second Platoon outpost and told Bowles that a considerable force of infantry and "many tanks" were moving directly on his front.

Bowles ran forward to the outpost on his left flank. He reached it just in time to see the tanks come on; the armor was in column, moving on a line which would take it directly between his left flank (Second Platoon) and the Company CP. Bowles doubled back to the main position.

From that time on, though the column of armor was moving so slowly that it took at least 30 minutes to move through Company A's ground, the response of the defenders to their situation was almost wholly automatic.

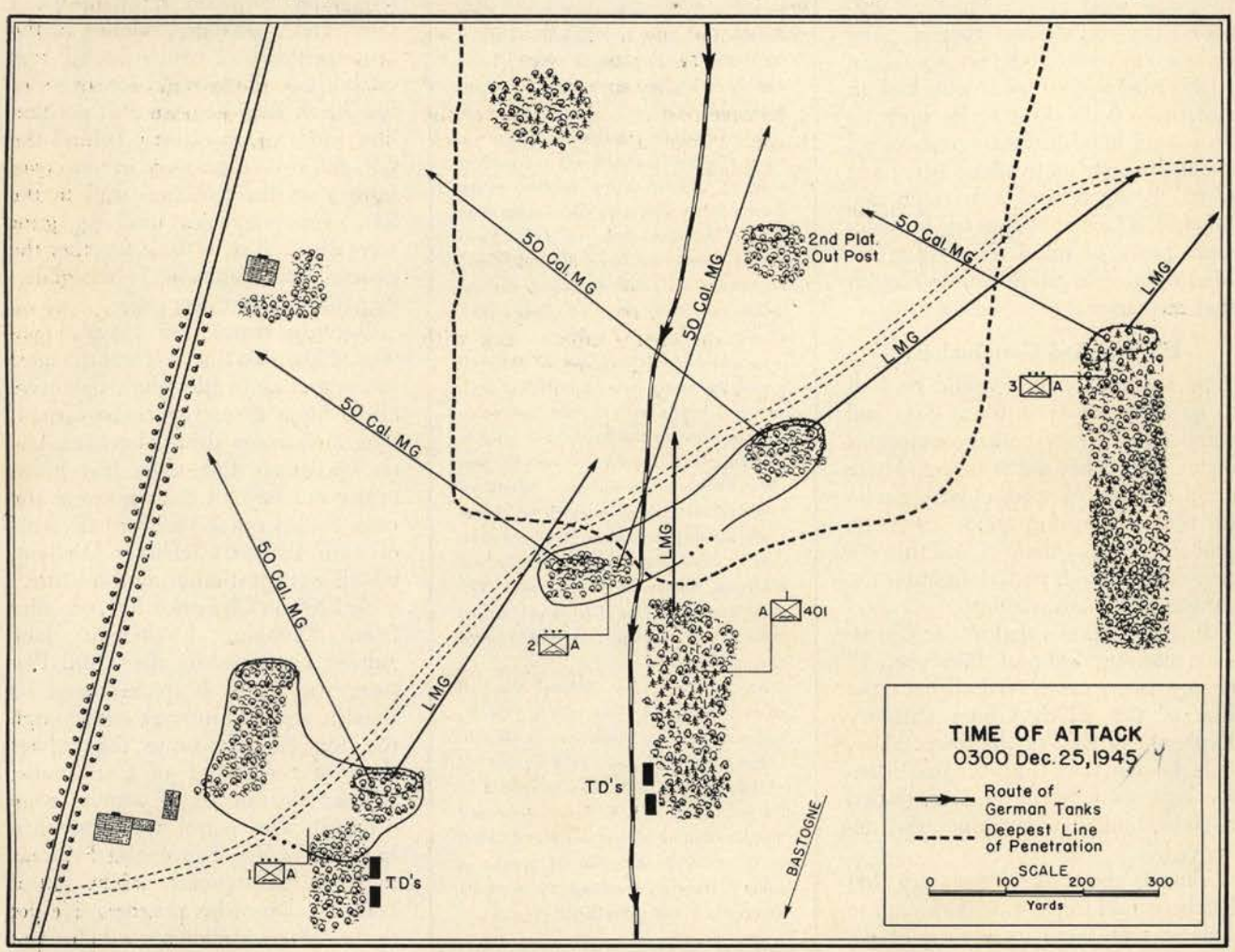
Bowles said it this way: "I gave no orders. There were no orders to give. To attempt direction in detail under these conditions is absolutely impossible. The chance for the position holding depends upon each group doing the right thing."

"The Right Thing"

For Sergeant Tom MacLaughlin, holding down a .50 mg on the left flank, the "right thing" was to fire, and continue firing, into the enemy column. For Second Platoon, which was looking right down the muzzle of the enemy thrust, the "right thing" was to fold over to the vastly better cover on the flank position held by Third Platoon. For the CP group in the little wood, which was equally under the gun, the "right thing" was to continue to fight with what they had, which wasn't much. Under Lieutenant Ralph J. Nelson, they met the enemy armor with M1's and carbines, and it was in this group that most of the night's casualties occurred —4 dead and five wounded.

Immediately behind them, the two destroyers remained silent. Because of the intervening trees, they couldn't see the enemy armor until it rolled right past them. The German tanks had been whitewashed, and the few infantrymen directly accompanying them were clad in sheets and evanescent as apparitions. One German tank commander, seeing the destroyers, mistook them for part of his own force, and cursed them aloud for dallying. No one answered. No one fired. And he went on.

Thus far, it would appear clear that the reaction of the American force during the armored pass-through was anything but head-length engagement. There was little fire. The decisive elements in this line, seemingly in cool possession of their own faculties, either did nothing, or moved instinctively to the ground which seemed to afford the greatest opportunity. From this reaction, the enemy would have been quite justified in supposing they had come upon weak



outpost elements, hardly worth a Parthian shot. In fact, that *was* their conclusion, as their prisoners confirmed, following their defeat.

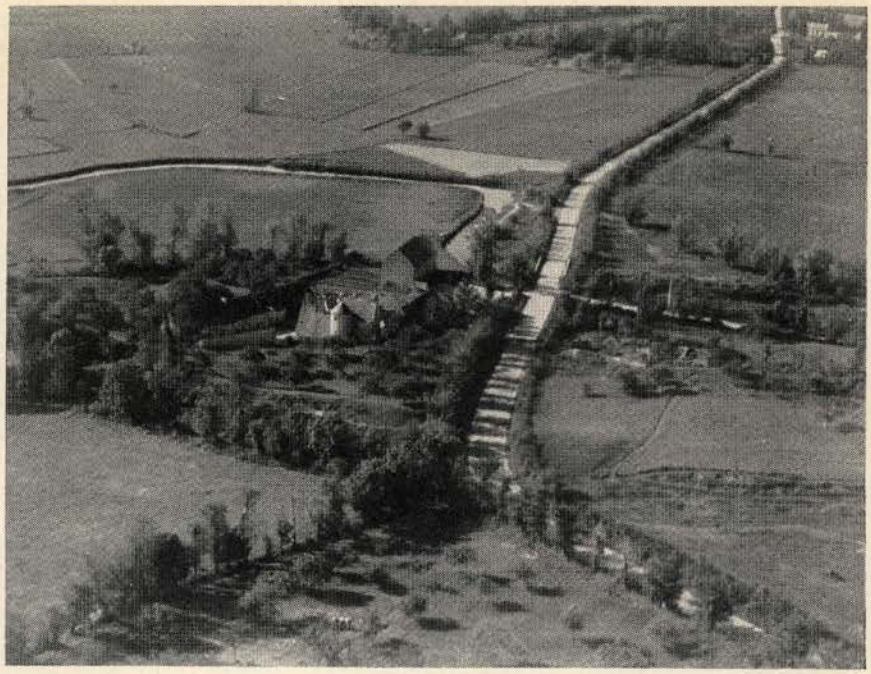
As the last tank cleared through Bowles' position the defense came fully to life as if by prearranged signal. The two destroyers behind the CP whipped over and joined the pair that had been covering the left flank. Together they fired rearward on the now vulnerable enemy column, moved out, and fired again and again. Five of the enemy tanks were destroyed by this action. Thus reduced, the column reeled and fell apart, its forces separating, some to be destroyed by the fire of supporting artillery, others to veer north and meet their finish from the bazooka fire of Company C, 502d Parachute Infantry, which had also fallen back to tree cover in face of the attack.

Now to get back to Second Platoon. Having quit its ground and joined Third Platoon when it saw the enemy armor bearing down, and gone thus far in the action without making effective resistance, it returned to its own flank right after the last tank passed through. Furthermore, it moved instinctively, as a body, without the necessity of any order being passed down the line. That is the finding, and it is eloquent testimony that the word "demoralization" does not apply to any part of its action that night. These men were game, but they were not foolish.

The Right Position

Second Platoon was thus in position to murder the enemy infantry assault line which, following along behind the tanks, had mistaken the meaning of their easy passage. Bowles' one mortar (the other had been overrun by the armor) found this body immediately and punished it hard while the men were still bunched; fire from the machine guns caught them left and right. The screams of the wounded rose high above the other noises of the action. Checked before they could bring any effective fire to bear against Bowles' line, the few survivors of this anticlimactic action came in with their hands up.

Though there are other gory and personal details, these are the salient facts. As with machine guns, the Company bazookas were in extra supply, but played no effective part in the action. Thus from first to last this night fight is an example of men making keen and mobile use of ground, but not daring the lightning by an inordinate use of weapons. By their tactics, they survived, and played a decisive part in the winning of the battle. It would be foolhardy to expect more.



U.S. Army

General view of the causeway crossing of the Merderet at La Fiere showing the bridge, a farm and the flat marshland.

* * *

Turn now to a daylight fight under equally, or even more, harrowing conditions. On the first day in Normandy, the enemy struck back with armor against the effort of 82nd Airborne Division to seize the causeway crossing of the Merderet at La Fiere. There may have been bloodier fights than this in the modern history of our Army, but I am at a loss to name one. Company A, 505th Parachute Infantry was holding the east end of the causeway during the showdown. The Company had had unusual fortune during the drop and had marched to its mission in practically full strength. Of the 147 men who could stand up and be counted on the first day, only 81 remained by afternoon of the second day, including 22 of the walking wounded. When First Sergeant Robert M. Matteson, a somewhat dour character, with a cast of countenance which would have entitled him to play the top kick role in "What Price Glory," lined his survivors up to march them away from this ghastly scene on the second afternoon, he remarked, "If people don't think men get killed in war, they ought to take a look at this company." For at least one reason, the statistics of that action are worth remembering; they give the lie to the oft-repeated assertion that no unit can lose more than 20 per cent of its strength and still fight.

On the first morning, Company A was terribly blooded during its advance across the last two hedgerow-bordered fields, trying to get to the Merederet Bridge. I have the play-by-ply account of this engagement: musing over its dreadful details, one wonders what kind of men these were that they could keep going after the first hour. Because that part of the fight is not pertinent to the issue here discussed, it is omitted.

Setting a Block

By noon, the enemy garrison covering the east end of the causeway was liquidated, and the fight for the bridgehead seemingly won. Company A dug in east of the bridge, blocking the road to whatever enemy forces were in the vicinity of Amfreville. So placed, it was looking right down the mouth of the armored attack which came over the causeway in midafternoon. This embankment, tree-bordered and about 20 feet in width, ran through the marsh for about 500

yards. Enemy flooding had turned the low ground into a lake. Any strike from the West would have to approach via the narrow causeway.

The position began to catch rather intense mortar fire from the West. A party of four men moved out through this fire to set up a roadblock just west of the bridge. In it were two bazooka men, Pfc John D. Bolderson and Pvt Gordon C. Pryne, a gunner Pfc Lenold Peterson, and his assistant, Pvt Marcus Hein, Jr. They carried forward, and emplaced in the roadway, one mine apiece, and then they dragged a ruined truck onto the bridge, and put it behind the mines to further the block.

But recently abandoned by the enemy, there were some neat foxholes just beyond the block, on the left-hand side of the embankment. This put them within about 40 yards of the Company. The four men went into these positions, paired together, with about 25 yards separating the forward post from its support.

U.S. Army

The bridge over the Merderet.

Out of a tempest of fire from the west bank, the enemy force hit in late afternoon—two tanks, close followed by a body of infantry. They got almost to the block. The tank commander stood in his turret. A machine gunner, Pvt Clarence Becker (later MIA) fired from the left of the Company and killed him. Simultaneously, the bazookas cracked down on the tank, their fire mingling with that of a 57-mm gun, firing from the hill. Slowed in coming into action by the intervening thick tree foliage, the first bazooka man got off only one round before the first tank stopped and began firing its cannon. Its first round snapped a concrete telephone pole near Peterson which just missed crushing him. Three more rounds apiece were fired into the first tank by the bazooka men before it went ablaze; so far as they were concerned, that was the end of the action, though their superiors mistakenly credited them with the decisive part of the action, and they got the Distinguished Service Cross.

Peterson, the machine gunner, working his own weapon to the limit, had been exhorting the others, in broken English and Swedish curses, to fire on the second tank.

He saw the tank swing out wide to the left as if trying to come around the blazing wreck, and he sensed that his own OP line had had enough. So he grabbed Bolderson's bazooka and ran forward about 20 yards to clear the trees which were screening the tank. Then he put four rockets on the turret with no apparent effect. The tank's cannon swung around on him, and he dodged back and forth to keep from getting potshotted. A fifth round made a fair hit where the turret joins the body: still no effect. His next round hit the track. Again he ran forward a few yards, to get on the tank's rear. The rocket hit fair, right where he wanted it, and at range of about one rod, but still the tank started backing away, lumbering badly because of the fouled track. Before it could move more than a few feet, Peterson got away his last rocket. That round exploded it, and the crew was incinerated in the ruin. All that saved Peterson's life during these minutes was that the fire from the Company position had driven the German infantry back to cover. He, too, was given the DSC for his afternoon's work; relatively speaking, it doesn't seem half enough.

Many men helped turn the enemy back from the Merderet that afternoon, but the beating down of the direct thrust pivoted pretty much on the unbelievably mad performance of one man. I remember him as a quiet man, somewhat on the awkward size, and looking about as aggressive as the Swede janitor in Elmer Rice's "Street Scene." No, if we were looking for a fighter type, we would certainly not pick Peterson.

In the Hot Spot

There followed for the Company a terrible night and morning under fire of such intensity that strength dwindled hour after hour, and Matteson, directing his wounded rearward, found himself feeling "like a traffic cop." Other fractions of the Division had come up and taken ground on both flanks of the Company along the river embankment. But the men were not told they were there, and continued to think that there was no support anywhere around.

In midmorning the enemy tried again with armor—four Renault tanks leading, and then several companies of infantry. Peterson and the other three were still holding their ground of the day before; but this time Peterson had a bazooka in his hands from the beginning. They fired until the armor came abreast of them; the stunted poplars got in their way, and German infantry crawling along the embankment kept their pits under a grazing fire which made free action impossible. So Peterson yelled an order and the four ran back to the rifle line. There they put the bazookas again into play, and between Peterson's fire and that of the 57-mm gun, which was now placed right on the embankment, the first Renault was stopped as it tried to get around the ruined tank. So again the column was brought in check, though

this time the situation was different. The German infantry now had a broad wall of steel from behind which they could pour fire into the American rifle pits. They made swift use of it, and at 40 yards range, the two forces became locked in a death embrace, one hugging earth, the other metal.

Owens Stops In

Again, the mortar fire became hellish; the men of Lieutenant William A. Oakley's platoon, nearest the bridge, could scarcely raise their heads. Casualties were occurring all along the line. Oakley was hard hit by a mortar burst and spouted so much blood that he had to be dragged away in the middle of the fight. His place was taken by Sergeant William D. Owens, a slender, sallow, quiet little man, so retiring as to looks and disposition that a personnel expert probably wouldn't give him a second glance.

The position was falling apart. Owens could feel it. Quite a few stragglers from other units had come into the line that night; they had started crawling rearward when the Renaults appeared, and under the fire from behind the tank barricade, the few remaining strays ran for cover. Among their number was one strange lieutenant who yelled, "We can't stop them, and it's time to get out." Half of Oakley's men were dead or wounded by this time. Of Owens' squad, only three remained.

So Owens arose, and started walking around, talking to the remaining men, and telling them that they must stick it. He was conspicuously in the open, not more than 35 yards from the bridge. How he escaped death during the next half hour is beyond explanation. But by the account of all present, it was his steadiness—and that alone—which held the position.

The force that won't be beaten can't be beaten. So they say.

A Choice of Morals

The time always comes when flesh and blood can stand no more. So they say.

Don't show me men; show me the man! So they say.

In this episode, you can pick your own moral.

Owens' men at last told him they couldn't take it any more. He was still up and still walking about. But by then, the machine gun ammo supply was down to one box per gun, and the guns were so overheated that when the gunners paused, the guns kept spitting. Half of the Company had become casualties, and Owens' own force was down to 15 men. The men were saying, "Let's get out, or we'll all be killed." Owens told them, "No, we will wait for orders. They haven't said we could go." But he was uncertain of his decision, and he sent a man over to Captain Dolan's foxhole to ask what he wanted done. Back to the remnant of the platoon came the message. Dolan had written it out: "I don't know a better place than this to die."

A Full Measure

There were these few minutes of crisis, and then it was over. The Germans raised a Red Cross flag and asked for a half-hour respite to remove their wounded. They didn't come back; they had had enough. The fight to win the Merderet crossing was to continue for another two days, but toward that end, Company A had given its last full measure.

With Dolan present (and Dolan was a conscientious and courageous officer) these survivors all told me, "It was Owens who saved the position; the rest of us were through." But Dolan, though less than 100 yards from the platoon during the fight, still had no perspective on the superb moral influence of his subordinate. He had already put Owens in for the *Bronze Star,* and incredible as it seems, that was all Owens got.

* * *

Two or three case studies will no more point a lesson than one swallow can make a summer. What I have written is just by way of illustrating that there are rich resources available from which solid truths may be winnowed, if we will but make the effort. Maybe in the end we would come up with nothing more startling than this: That what numbers of men do in a fight will depend on what one or two men of their ranks put forth in the worst moment, and that wisdom as to the use of ground means more than any amount of confidence in the power of a weapon.

If that were all, it would still sharpen our view of where to put the emphasis, toward the development of sounder leading.

Armored Cavalry Journal and Armored Cavalry Association Names Will Conform To Branch Change In Pending Legislation

As this issue of The JOURNAL went to press, S2334, HR5794, the Army Organization Act of 1949, was in the process of legislative action in the Congress. The Executive Council of the U. S. Armored Cavalry Association, in meeting on 16 May, determined that the names of the Association and JOURNAL would logically conform to any legal change which may be effected concerning the branch. Our readers are therefore informed that, at such time as it becomes appropriate, The JOURNAL will appear under a new name.

THE EDITORS.

Mobility extends well beyond mechanization and motorization to organization, communications, doctrine, leadership. In making our forces mobile to meet the demands of modern warfare we must think beyond the idea of transportation to the other contributing elements that facilitate movement.

RESTORING MOBILITY to the BATTLEFIELD

by LT. COL. GEORGE B. PICKETT, JR.

ALMOST all thinking Americans today admit that in the event of war, the U.S. would have to utilize its industrial superiority to offset our possible foe's outstanding superiority in manpower. Daily our senior officers stress the need for mobility—the ability to outmaneuver our possible enemies. But too many of our officers have the mistaken belief that motorization and mechanization are synonymous with mobility. Although a tremendous percentage of mobility is a function of mechanization, it is not by any means the only consideration. Nor can the U. S. or any other modern power afford to build a completely motorized and mechanized army; but they can build mobile armies. Our industrial potential and natural resources are not unlimited requiring our nation still to utilize the great foot masses as in previous wars.

Mobility to Outmaneuver

Mobility must be achieved to the extent that our ground forces can systematically and repeatedly outmaneuver the enemy on the battlefield. Although both opponents had the horse for transportation—the Christian forces even had more armor—the Mongols of the great Khan defeated the Western Europeans in every engagement, with superior battlefield mobility. The Mongol successes were not due to superior transport; but to a superior communication system that insured quicker reaction to changing conditions on the battlefield than their adversaries. Napoleon outmaneuvered and defeated his opponents because his organization had greater flexibility than theirs. Although his armies and his enemies' armies were approximately equal in mounted troops, his "division d'armee" organization facilitated faster maneuver through ease of control. However, superior communication and a flexible organization are not the only means of increasing battlefield mobility; other considerations include the employment of mobile tactics, the maximum use of motorization and mechanization, the use of airborne forces, and intelligent and aggressive battlefield leadership.

Tactical Doctrine

First let us consider the incorporation of mobility into tactical doctrine. A considered study of World War II offensive tactics discloses their reliance upon speed and mobility. The exploitations across Northern France and Central Europe are in themselves masterpieces of mobile warfare; and the slugging matches in Normandy and the Ardennes adequately indicate the American Army's appreciation of offensive mobility. Yet in the field of defensive doctrine, mobility has been almost excluded. True enough, the book lists it as a principle to be observed; but it then ignores any real use of mobility in the entire discussion of defense. Our present concept of sustained defense is still based on a main line of resistance (MLR) as was the Maginot Line. In spite of all the German experience in Russia, where the concept of mobile defense arose, and our own experience in the Ardennes, American defensive doctrine is predominantly static. The lessons of Verdun (World War I) still are not fully understood by those responsible for our defensive tactics. At Verdun the French lost over a hundred thousand more casualties using the doctrine of "they shall not pass," than the attacking Germans. In spite of this our Army pays lip service to "conserving men on one front by defensive action to assume the offensive elsewhere." How? There may be situations such as Anzio where possession of a foot of ground assumes great importance; but this doctrine of "hold at all costs," when the object held had no real military value, is accredited by the German Generals as being Adolph Hitler's personal contribution to the Allied War effort. Bismarck once said, "Any fool can profit by his own experience; but I prefer to profit by the experience of others." Why can't we?

Motorization and Mechanization

One ground army can defeat another only if it has equality or superiority in armor (mechanization). There are other factors present, but all modern armies should have as great a percentage of their forces armored as their national economy permits. This percentage of mounted troops to over-all strength determines the battlefield maneuverability of any army. Graziani's defeat by the British in North Africa has been attributed to many nebulous reasons. However, according to Rommel, the principal reason is disclosed when the percentage of mechanization of Graziani's force is compared to the percentage of mechanization of the British. Although the size of the British armored element was small, the over-all percentage of armor to foot mass was tremendously greater than Graziani's armor to foot mass ratio. This enabled the British armor, approximately equal in strength to Graziani's armor, to break away a larger mobile armored force for independent

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maneuver than the Italians. The Italian armor, hampered by having to protect a large foot mass, was piecemealed out to the foot masses for this purpose. As a result it was destroyed in small increments by superior concentrations of British armor. Once the Italian armor was destroyed, Graziani's foot mass collapsed due to lack of a defense against the remaining British armor. Allied armor in Western Europe had similar experiences. Almost every U.S. armored division destroyed German foot masses far greater in numerical strength due to a marked superiority in armor (mechanization) over the Germans in the immediate battle area.

Armored Personnel Carrier

World War I resulted in the the development of the tank to overcome the defensive superiority of the machine gun. The proximity fuze of World War II has tremendously restricted the battlefield mobility of foot masses. The armored personnel carrier is one of the most practical solutions to the problem imposed on the infantryman in the open by this fuze. With widespread use of VT fuzes by the enemy, battlefield maneuver of foot troops would be a costly drain on U.S. manpower resources. The armored personnel carrier must be used to transport the soldier who fights on foot so close to the objective that fear of endangering his own troops will prevent massed employment of VT fuzes by the enemy. The foot soldier dismounts to continue the attack over adverse terrain or dismounts on his objective. For every yard he is transported, casualties are reduced and manpower conserved. Naturally a tremendous superiority in artillery and air power would neutralize the enemy's VT fuze fire; but normally this can be achieved only near the end of a war or campaign.

Col. S. L. A. Marshall has written an excellent article in the *Infantry Journal* entitled "The Mobility of One Man." He ably points out how the foot soldier is too often hampered by excess equipment and how this problem can be overcome. To supplement Col. Marshall, if we provide our foot soldier with an armored personnel carrier we also increase his foot mobility since he has to carry only his weapon and ammunition, for the rest of his equipment is carried in the vehicle.

Organization and Communication

As already discussed, superior communications provided the added edge in mobility for the Mongols; and a more flexible organization accomplished the same purpose for Napoleon. In both cases the advantage was gained by reducing the reaction time required by subordinate elements to carry out the commander's orders and to react to constantly changing battle conditions. At present our army has numerous headquarters which "supplement" an order en route to the executing unit. This "supplementation" often slows down receipt of the order by the executing unit and, sadly enough, frequently shifts the emphasis initially placed on portions of the order by the higher commander. The greater the number of headquarters, the greater the time lag between issuance of the order and its execution. Thus, as the outstanding military writer Liddell-Hart points out, too many headquarters, like too many cooks, overseason the soup. In order to cut down on reaction time and increase battlefield mobility, Liddell-Hart recommends elimination of the Corps Headquarters. His proposed chain of command goes from Army Group to Army and from Army direct to division. Since the Corps Headquarters is eliminated, reaction time is thereby reduced by the Corps "supplementation" factor. Critics of the system raise the hue and cry of "too many divisions under Army control." Liddell-Hart solves this problem by standardizing the army at five instead of the present nine divisions; of these divisions three should be infantry and two armored. More "Armies" would be needed; but reaction time would be reduced.

Substitute the Combat Command

Also, mobility can be fostered by the elimination of the regimental organization from our infantry divisions and the substitution therefor of the combat command-separate battalion type organization. The combat command system enables forces to be formed with the optimum ratio of tanks, infantry, etc., for the battle task at hand. It also fosters economy of force by using only those troops required on a task to perform that task. It reduces the chances of having too much infantry and too few tanks to do the job as is frequently the case in the presently organized infantry regiment. By fostering economy of force, the troops saved can be used in another area enabling us to cut the army from nine to five divisions as suggested by Liddell-Hart.

Mobility can also be fostered by organizing armored personnel carrier regiments or groups as Army troops. Attachments of these carriers restores the mobility to the infantry division denied it by the proximity fuze. Of course additional tanks are needed to protect the advance of these APC's, requiring an Army Tank Group available for attachment along with the APC group. Logistical considerations would limit the number of carriers in each army to those required to mount one infantry division. The pooling principle would be employed to insure maximum flexibility in their use.

Airborne Forces

Airborne forces increase the strategic mobility of any army; but, unless we consider the entire theatre as one battlefield, they do not increase battlefield mobility. They provide speed to the battlefield, by the possibility of employment at any point of a broad deep area in a small time factor. However, once landed, airborne units become a foot mass with all the inherent weaknesses of a foot mass. Their greatest weakness is vulnerability to armor. Today's airborne soldier wants a small light individual weapon capable of knocking out heavy tanks. He is a long way from getting it. He should be thinking of air transportable armor. Airborne forces need a small air transportable armored personnel carrier to provide them battlefield mobility and protection from proximity fuzes after landing. The need for an airborne tank parallels the need for the airborne APC. This article is not intended to debunk airborne enthusiasm for it is realized that the future lies in the airborne-armored team, using airborne forces to seize critical areas with the support of airborne armor, and using armored forces to drive through overland to link up with the airhead to open a conventional line of supply. Operation "Market," the Arnhem operation by the 1st Allied Airborne Army during September 1944 and the overland drive by the British ar-

Secretary of the Army

The Honorable Frank Pace, Jr., was nominated by President Truman as Secretary of the Army March 30, 1950. He was confirmed by the Senate April 10, 1950, and sworn into office April 12, 1950.

Mr. Pace served as Director of the Bureau of the Budget from January, 1949, until he was appointed to his present position, and prior to that time had been Assistant Director of the Bureau for a year.

For nearly two years before becoming Assistant Director of the Bureau in January, 1948, Mr. Pace was executive assistant to The Postmaster General. He also served as vice president of the Universal Postal Union, the governing body on international postal affairs, and as the U.S. representative on the Universal Postal Union at the United Nations.

For a short period after the war, Mr. Pace was special assistant to the Attorney General of the United States in the Taxation Division of the Department of Justice. He left to accept his assignment in the Post Office Department.

He entered the Army in 1942 as a second lieutenant and served with the Air Transport Command of the Army Air Forces for four years, during which time he rose to the rank of major.

Mr. Pace began his career in the public service as Assistant District Attorney for the 12th District of Arkansas, a position in which he served from 1936 to 1938. From 1938 to 1941, he was general counsel for the Arkansas State Department of Revenue. During this period, he argued 21 cases before the Supreme Court of the State of Arkansas, 20 successfully. In 1939, at the age of 27, he argued the case of McCarroll versus Dixie Greyhound Company before the Supreme Court of the United States. From 1941 to 1942, he was a member of the law firm of Pace, Davis and Pace, of Little Rock, Arkansas, in which his father was senior partner.

mor to link up with the airborne forces, has set a pattern for the future. The fact that the weight of armor in the overland drive was insufficient to carry them past Arnhem in time to take full advantage of the airborne effort detracts in no way from the trend established by this operation.

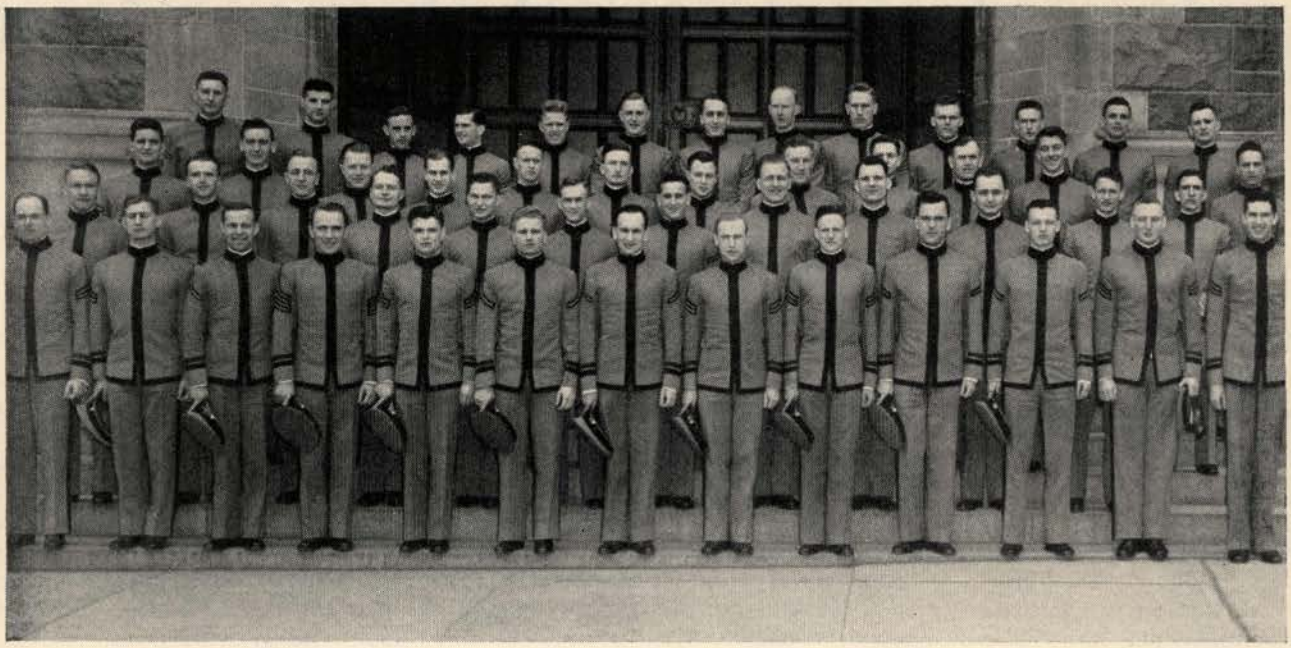
Battlefield Leadership

Field Marshal Rommel is credited with first appreciating that a senior commander should be well forward, not to "inspire" his men à la Mauldin cartoon fashion; but to obtain first-hand information, issue timely orders on the battlefield, and supervise their execution. Much of Rommel's success in Africa was due to the fact that he was at the critical point with his maneuvering force to supervise and regulate its movement. By supplemental orders on the scene, he directly influenced the outcome. A modern commander can not be a big "make my momentous decision and relax" man. His "rest," if any, comes before crossing the line of departure, not after it. He must be a leader in every sense of the word. He should cut down on detailed orders and instructions which too often hamstring subordinates; but should base his operation on previously orienting his subordinates fully, issuing them mission-type orders, and making timely additional decisions as needed on the battlefield.

Subject for All

Mobility is a relative term. It does not just imply speed of movement; but includes ease and freedom of movement. We enhance mobility any time we eliminate restrictions on movement; and speed logically follows once movement is facilitated. Greater mobility than the enemy assures success. All officers should consider how their unit can be made more mobile by use of mobile tactics, improvements in organization and communications, use of vehicles, cooperation with or as a part of an airborne force; and how they can personally speed up and foster ease of movement on the battlefield by their personal leadership.

West Point: Armored Cavalry & the Class of '50



Left to Right, front row: Crockett EP, Milia CP, Graham CP, Birk EL, Foster GE, McCandlish RH, Ehrlich IR, Creuziger IP, Cameron SF, Quinn EB, Hayward CW, Ache PS, Miller WD. *Second row:* Jones JG, Brown VS, Bolte PL, Mangas CL, Hufnagel JB, Paulger AM, Lodewick LS, Mather LB, Samsey PB, Littlefield WC, Tilson GP, Lumsden LH. *Third row:* Wood S. Loper TC, Lockwood KE, Blank HL, Singleton MH, Gearan WK, McDowell WR, McDaniel PB, Pettit DP, Rees MW, Boydston TW, Navarro P. *Fourth row:* Freedman EP, Fife TW, Shade RA, Mernan DW, Allan AN, Crittenberger DJ, Saalberg JJ, Eek LM, Nutting WH, Hendry JR, Fahey DA, Bastar RG. *Not in picture:* McSherry WC, Ward WF.

Of the 663 members of the Class of 1950 soon to be commissioned at the United States Military Academy at West Point, New York, fifty-one will fill Cavalry vacancies. These 51 cadets, all but two of whom are pictured above, range in class standing from 35 through 298, all in the upper half of their class. The Journal extends congratulations to every member of the First Class, and offers a special welcome to the 51 cadets who will shortly be Second Lieutenants of Cavalry. Their forthcoming assignments are listed below.

3d Armd Cav Regt (L), Ft. Geo. G. Meade, Md.: (7)

Hendry, JR
Hufnagel, JR
Graham, CP
Mather, LB
Tilson, GP
Bolte, PL
Mernan, DW

70th Heavy Tank Bn., Ft. Knox, Ky: (2)

Mangas, CL
Littlefield, WC

76th Heavy Tank Bn., Cp. Campbell, Ky: (2)

Rees, MW
McDaniel, PB

44th Heavy Tank Bn., Ft. Bragg, N. C.: (2)

Miller, WD
Milia, CP

2d Armored Div. Ft. Hood, Texas: (6)

Crittenberger, DJ
Nutting, WH
Eek, IM
Paulger, AM
Hayward, GW
Crockett, EP

91st Armd Cav. Rcn. Bn., Ft. Riley, Kan.: (2)

Cameron, SF
Boydston, TW

72d Heavy Tank Bn., Ft. Lewis, Wash.: (2)

Quinn, EB
Fife, TW

56th Amph Tank & Tractor Bn., Ft. Worden, Wash.: (2)

Allan, AN
Ward, WF

EUCOM: (20)

Birk, EL
Lodewick, LS
Lumsden, LH
Ehrlich, IR
Wood, S
Navarro, P
Freedman, EP
Creuziger, DP
McDowell, WR
McSherry, WC
Jones, JG
Saalberg, JJ
Shade, RA
Ache, PS
Fahey, DA
Brown, VS
Lockwood, KE
Singleton, MH
Gearan, WK
McCandlish, RH

CARIB: (3)

Loper, TC
Blank, HL
Pettit, DP

73d Heavy Tank Bn., Ft. Benning, Ga.: (2)

Samsey, PB
Bastar, RG

FECOM: (1)

Foster, GE

THE STORY OF SOVIET ARMOR

PART IV - THE WAR YEARS - THE TANK

by GARRETT UNDERHILL

Second of two sections devoted to The Tank in the portion of *The Story of Soviet Armor* covering The War Years.

WHEN the German juggernaut was launched against Russia, the bulk of Soviet armor as yet was made up of the older models of the 1930s—the fast BT's and the slow T-26's with their 45mm guns, and the T-28 mediums. The little two-man T-27's originated as "machine gun carriers" by the British show up to the West only in beleaguered Leningrad, where anything went. The 3.86-ton tinplate T-37 and T-38 amphibians seem largely to have been withdrawn from infantry units, the integral infantry accompanying tank role apparently being taken over by the 10½-ton T-26's. (After the war, T-38's have appeared as logging tractors and chassis for logging cranes—indicating that even Russian tanks get sent to Siberia.) But there were one or more thousand of the new series heavy and medium tanks, in the creation of which Stalin played a stellar role. Considering their relative superiority (on paper), and the fact that they came as a surprise to the Germans—it was in the cards for them to have a stellar if not decisive role, too.

They didn't; and if they gained in importance, it was because the campaigns of the first summer and winter practically eliminated the older tanks. Of these, only the T-28 medium (with short 76mm gun) distinguished itself at all—though not sufficiently for the Germans to make mention of it. The extra-armored versions of the T-28's, resulting from Finnish War lessons, were a surprise. But not such as to affect the course of an action.

German technical comments on captured specimens of these tanks interestingly reveal that, despite the fact that basic engineering designs of the 1930s tanks were borrowed from experienced foreign firms, the tanks tended to have the same mechanical deficiencies as the previous two waves of Soviet tanks: the original Russian Renaults of the 1920's, and the experimental Soviet tanks of the 1920's. They were rough running, cranky, and generally poor as regards steering and transmission. The fast BT types were singled out by the Germans for poor transmission.

Even the new series tanks—the KV and T-34 as built under semi-peacetime conditions (for the Soviet arma-

ment industry has always been in a flap about increasing production such as most industries get into only in war)—were deficient mechanically. The power train in general was troublesome, and as has been noted for the T-34—the transmission in particular. Gears showed greater wear, indicating that demands for quantity production at an early date had forced plant engineering staffs to accept watered-down material which derived from technical and skilled labor staffs too quickly watered-down themselves, in order to provide cadres for new plant capacity.

In peacetime these deficiencies were to all appearances overcome by personnel training in field forces. Indeed, during the war Soviet officers of the Tank Engineering Service (the special ordnance division which both designs, manufactures and maintains armor in the field) said that quality was often consciously compromised, and special gadgetry omitted, because it took less man-hours to train tankers to make up for mechanical deficiencies or defects than to try and correct them with machines and skilled labor. Of course, the Soviet officers were arguing (to some minds quite rightly) that we put more industrial effort into weapons than realistic war economics warranted.

Nevertheless, the Russian theory is one of those surficially-sound and seemingly common-sensical Russian rationalizations which doesn't necessarily hold up so well on analysis. It could well be argued that, because the average Russian recruit is a mechanical ignoramus and because needs of expanded war production call for whatever skilled labor there is, the tanks should be pretty foolproof and able to last without constant thorough checks and maintenance. As it was during the war, the Soviets required the US 50-hour types check every 25 hours, and the US 100-hour check every 50 hours. The recovery and field maintenance organizations increased in size six times during the war. Prior to the war 48% of the repairs were factory jobs, and during the war 92% of work was done in the field. Field maintenance units got to be so complex and thorough that they even had electric furnaces for repairing armor of heavy tanks. German authorities have generally praised the Soviet tank maintenance men, and found them so well skilled as to be desirable recruits for German maintenance units.

We are hearing from all sides about Soviet Russia's Joseph Stalin tank. What about the ideas back of them, the men who man them, the tactics and strategy that fight them? In comparing American with Soviet armor, Mr. Underhill suggests that we think of missions as well as quantity and quality. "In war as in sport, it's the team that counts—and not the apparent stars."

Before the war, when the Red armored force and other troops were exhibited to the West at the Minsk maneuvers of 1936, the now Marshal Lord Wavell and the tank pioneer Gen. Sir Giffard Martel both noted how well the Russian tanks stood up. During the exercises there were hardly any breakdowns. The concluding review was climaxed by a parade of 1,000 tanks without a single breakdown—a feat which both British generals asserted could not have been duplicated by any other forces in the world. (Two years later Germany was to draw ridicule because of panzer breakdowns in the forces occupying Vienna—failures which some Germans claimed to be normal for conditions encountered.)

But those who know the Russians well can only conclude that such an exhibition only proves that the Russians can do a good job, if they want. Or rather, if their command holds them to the line. If the military history of Russia proves anything, it is that maintenance of efficiency (and particularly mechanical efficiency) is more a function of smart and stern command, than in any other army. People viewing a given Russian unit never know whether they are seeing the real Russian military—or a special show for which an unnatural effort is made. In the opinion of some of the Minsk maneuver observers, the way the tanks stood up was "too good to be true"—a phrase used since the war by foreign military men who have viewed the Red Square parades. For, as Maj. Gen. Sir Richard Hilton (British attaché in Moscow in 1947-48) remarked, it must always be borne in mind that the Russians, and especially the Soviets, are "past masters in window-dressing and propaganda."

Obviously, a considerable proportion of the wartime repairs were done in the field, because they couldn't be done in the factory: rail transport had too much else to do. A moot point is whether the field forces didn't build up large facilities capable of major overhauls, because the wartime tank industry—right under the thumb of Molotov himself—was striving to produce ever more tanks, while at the same time cutting down man-hours and using less and less in the way of critical materials. Wartime economic czar Voznesenski after the war proudly told how between 1941 and 1943 factory time on a T-34 was cut from 8 to 3.7 thousand man-hours; how that for a KV went down from 14.6 to 7.2. The ersatz-ation of metals admitted is remarkable. And it's important to note that materials substitutions seem in no small part to have been required by the quantity of all arms built. True, the loss of the manganese sources in the South (recovered in '43) was serious for armor both plate and cast. Still, any effort to arm over 500 divisions, build 30,000* armored vehicles a year (the US built 86,000 tanks during the war), 40,000 planes annually, and have extra pools of artillery, mortars, and armor—would represent quite an immense effort for any country. For one with Russia's industrial rating (granted that her industry was built for heavy armament work), such quantity production inevitably demanded tremendous qualitative compromises. The reduction in the quality of armor itself—of plate and castings—is covered up in Voznesenski's boasts by assertions that making armor steel by the special "duplex" process, instead

*1943-44-45 average.

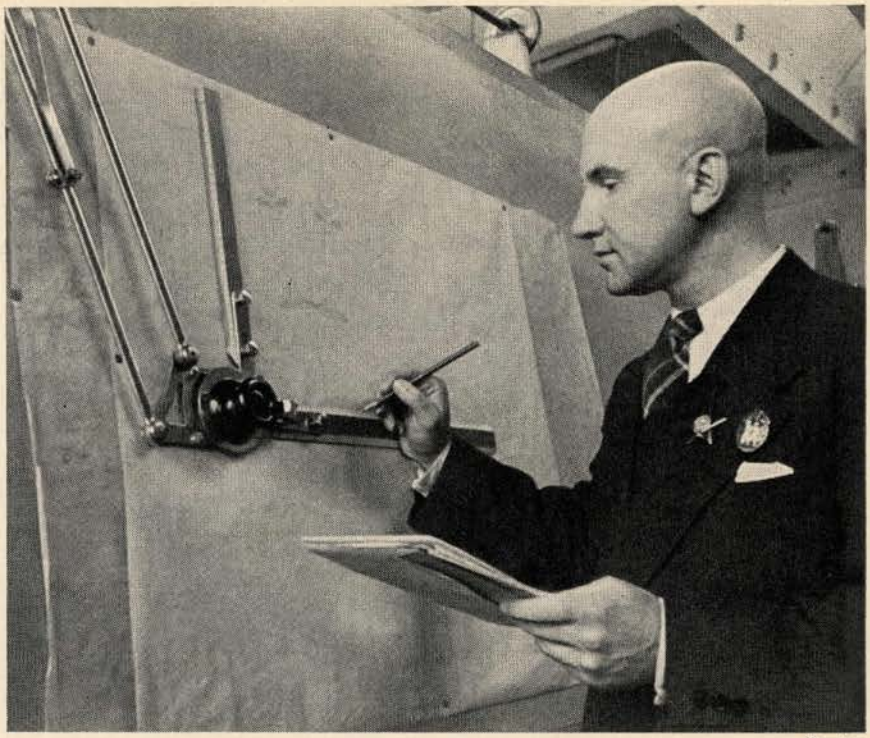
of in open hearth furnaces, saved 350,000 tons of steel. But the quality of Russian armor steel was such as to enable Hitler and his sycophantic cronies to hold onto their vain hope that Russia was on the verge of collapse even after Stalingrad.

How over-fascinated the Russian leaders were with quantity is only too well illustrated by the fact that, when they were seeking to get peak armor production and were getting it, they alone were outproducing Germany at least two times.

How quality suffered both from pre-hostilities feverishly-speeded-up armament programs, and from multi-digit wartime quantitative goals, is well illustrated by the fact that tank-poor Germany conspicuously failed to use captured Russian tanks—however highly they praised the build of the T-34 and KV, and their paper characteristics. The Germans took over the thousands of Russian field and antitank artillery pieces they captured in '41 (there were two schools in France specializing in training on Russian artillery at Normandy time). They even modified Russian antiaircraft pieces to take standard German 88mm ammunition. But they didn't bother to refit Russian tanks for use in the West, or to police Balkan partisans—the way they used French tanks. And they certainly never incorporated them in their own panzer divisions, the way they did Czech tanks.

The conclusion is inescapable: in things automotive—in mass manufacture to close tolerances of fast-moving parts which must last, the Russians had not made the grade, despite going right to Detroit to learn how. And they had been trying the American way for ten years when attacked.

Significantly, with aviation engines it was the same—only more obviously so. Even today experienced designers like Klimov, Shvetsov, and Mikulin adapt proven foreign designs to Russian industrial conditions. It is said by Russian engineering refugees that they are afraid to try out their own ideas, lest production schedules be held up for a year or more while the "bugs" are ironed out. If so—and so it appears from evidence—the parallel with tanks is close. It was this matter of time and bugs which made Soviet tankers turn to foreign tank designs for the tank wave of the 1930's. Even



Sovfoto

Alexander A. Mikulin, designer of Soviet aircraft engines. Engines are important to armored personnel.

so, the ever-expanding Russian aircraft engine factories (Germany's Gen. Ernst Udet and his technical staff, shown the Kuybishev combine in May of '41, estimated that its capacity exceeded that of all six major German engine combines then extant) have never been able to guarantee aircraft engine reliability—unless the engines are hand-tailored. Russian fighter pilots in the Balkans after the war used to refer to their planes as "coffins with music": chances of engine failure on take-off were such that they were likely to end up with the coffin and military music which in the Soviet forces are accorded a man who dies in line of duty. That old Toupolev's copy of the B-29, produced in 1947, mounts copies of Wright Duplex Cyclones (which rate in America at 2,200 HP)—when US B-50s produced contemporaneously are fitted with 3,500 HP Pratt & Whitney engines—is meaningful to US tankers as well as to airmen. The long-range strategic employment of armor as well as aviation—and its continuous use at critical periods—depends a great deal upon internal combustion engine reliability.

Whereas Germany made efforts to improve armor during the war by building new types of tanks, the Soviets had the sense to make their improvements largely within the framework of what they were building.

Besides the tanks mentioned, the new series was to include a replacement for the T-26 light (as the KV heavy replaced the T-35, the T-34 the BT, and the amphibious T-40 the T-38). This was the T-50, of around ten tons. It mounted a 45mm gun turret well forward. A manual was issued on it in 1941, but the Germans never reported it in service. The Soviets acknowledge it was a failure. Around 1940 the Soviets were trying an experimental T-30, which is not further identified.

The Soviets, then, were not themselves aware of what they'd done in creating the T-34 and KV. Tactically and strategically, their thinking as to armor didn't change when the new series came in. Stalin in late July of 1941 himself still put more faith in infantry-support tanks, than in panzer divisions. He then told Harry Hopkins that the Germans were at last recognizing the error of their panzer ways, and assigning more and more tanks from panzer divisions to infantry support work! The 76mm guns had been fitted to Russian mediums and heavies for years; in the new tanks they'd just been made more powerful.

In the BT-8, the Soviets had had a Christie with 500 HP and a 76. The T-50 was to carry on for the T-26 light, and the T-40 for the T-38. In a reapportionment of missions, the new KV heavies took over the work of both the T-28 mediums and T-35 heavy breakthrough tanks. The T-34 could, like the BT, both assault and work in the Red Army's "pocket armored divisions" for long-range armored work—the moto-mechanized corps.

The Soviets therefore continued to search for a replacement for the T-26 after the war started. But before it was introduced, they made an effort to salvage the T-40 as a non-amphibious T-60. It kept the weight—5½ tons—but by shedding armored flotation tanks was able to increase armor to .8-in., though the side armor was only .23-in. The front, side, and rear were modified, and coaxially with the rifle-caliber DT machine gun there was put a 20mm aircraft Schvak cannon (for the 12.7mm gun). The speed was about the same. The tank was in the light and little group which the Soviets designed to use auto components, and was made in the Moscow area. It began to show up late in 1941, but was soon abandoned as too thinly armored, even for reconnaissance. The crew was two.

The short-lived T-70 appeared the next year. It, too, was in the auto-components class and was put out by the big Gorki plant—too far East of Moscow ever to be in danger. It used two coupled in-line liquid cooled auto engines. On a weight of about 10 tons (similar to the last T-26's) it made 28 mph. The welded plate armor on the hull was 1¾-in. thick in front, .6 on the side. The armor on the welded plate turret was all of 2.3-in. in front, with 1.37-in. on the side. The turret mounted a 45mm gun and a coaxial DT. The single sloping front plate of the hull carried no ball-mounted DT, though it was pierced for a driver's hatch and a transmission servicing hatch. It was definitely a production design, adapted to existing tooling—as opposed to the more specialized designs of the big tanks like the KV and T-34. That is one reason why it did not have the usual Soviet-approved rear-drive. When it proved too light in gunpower and armor for a combat recon tank and was abandoned in 1944, this engine-in-front adapted the chassis for conversion into the form of a German-type self-propelled gun. The crew of only two hardly sufficed to carry out duties of driving, observation, fire, and communication required in a recon vehicle—but the Soviet even in 1942 stuck to two—as usual for them in light tanks intended for such purposes. By the time it was developed, it was no longer really a replacement for the three-man T-26, for a two-man tank with such armor and armament could hardly presume any infantry support roles.

The Soviets mention a T-80 light tank in this class, but never standardized it. They simply gave up their effort to get a light tank to do their recon. The old BA-10 no-reverse-gear six-wheeler Gorki Ford armored cars did the job, aided by new BA-64's. These were on four-wheeler Ford chassis out of Gorki. Their very light armor was shaped like that of the light German Horch cars—angular. The hull was topped by a sort of opened-top rotating turret of the Horch type, which mounted a DT tank gun and could protect the gunner if he crouched down. Like the BA-10, it did not have front-axle drive, which must have been embarrassing in Russian mud and Eastern Europe's generally poor roads.

The Russians got, via Lend-Lease, 4,000-odd M3 open-topped scout cars for recon. The Russians are as silent as the tomb as to whether these or the 1,600-odd M3 lights (which began to arrive in action just before Stalingrad) were better. (They got only a few samples of M5 lights.) They got 1,200-odd half tracks, which appear to have been used for command and recon purposes (like the scout cars) rather than as personnel carriers. The Russians got some of the little British Tetrarch tanks too.

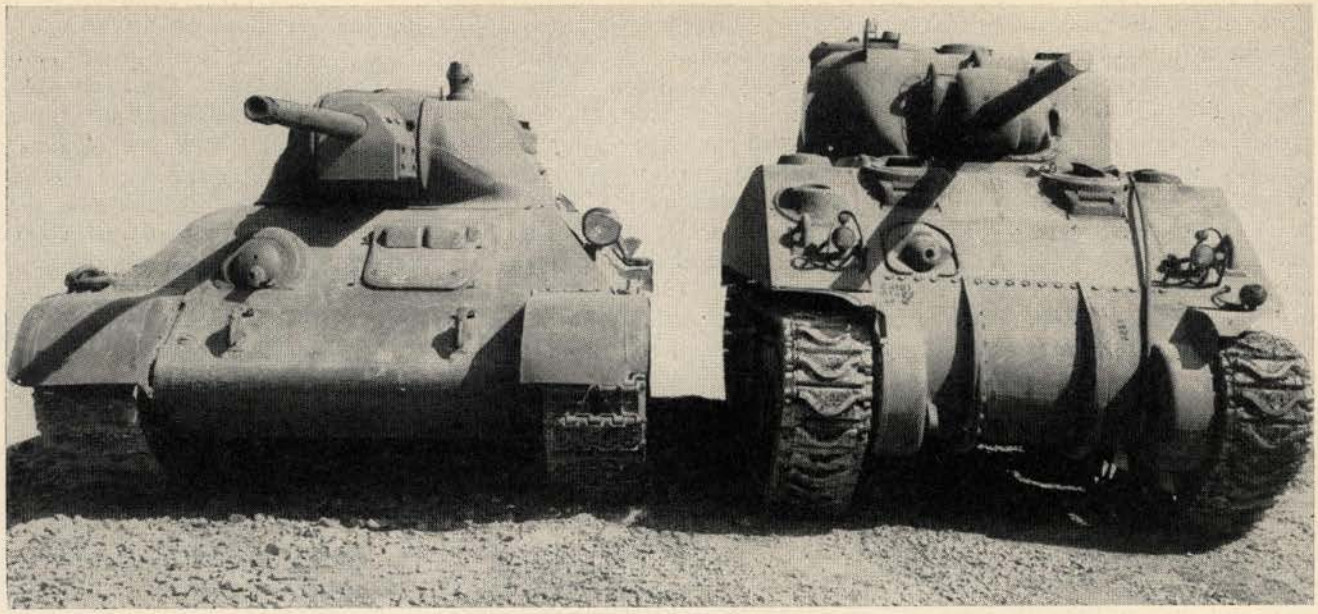
Thus they never had, throughout the war, a proper modern service reconnaissance vehicle—armored car, or tank. The M4 Shermans, considered by the Russians weakly armed by the time they arrived in numbers, seem to have rated as good strategic recon vehicles—particularly because of their mechanical reliability. They could keep going, even if they couldn't shoot it out. They got somewhat over 4,000 Shermans, slightly over half of them with the 76mm gun.

The British, when the Germans attacked, at once sent Valentine infantry tanks from Canada, and the earlier Matildas from England. They also sent some bigger Churchill heavy tanks at this time, when Stalin was uncertain whether he'd be able to move his main Kirov (Leningrad), Kharkov, and Stalingrad processing and assembly plants—with all the subcontracting plants connected with them.* To the end of '42—till America could get going, England sent all of 2,600 tanks (number which arrived not here reckoned). (After that England was on the receiving end of Lend-Lease tanks, getting over four

Sovfoto

Assembly of V-2 Diesels at the Kirov Diesel Plant.

*For a month or so after the German attack—which he hoped to hold West of the Dnepr River—Stalin didn't think he'd need—tanks from the West.



U.S. Army

Front view of Russian Medium T-34 and U.S. Medium M4A4 tank.

times the number of M4 Shermans that Russia did—and almost four times the number of M4 Shermans that Russia did—and almost four times the number of tanks in the overall.)

By Russian standards even of 1941, these British tanks were undergunned. The Valentine and the better armored Matildas had a 47mm gun, while the best the Churchill had was a 57mm. The Russians spoke of them as being "common graves," and from the Russian point of view could hardly vie with the 52-ton KV's in infantry support. Some were noted as late as 1944 waddling along astern of the monster SU 152 self-propelled guns, acting as escort tanks (one per gun) to fend off tank-hunter teams of hand-picked German daredevils.

The Russians reserved their hardest words for our M3 Medium the British called the Grant. Four-star tank General Mikhail D. Solomatin has meanly remarked:

"Frankly, I cannot conceive of what induced the Americans to build the nonsensical machine General Grant with three levels of guns. . . . Not without cause our tankists named the general Grant 'incinerator for 7 persons.'"

American correspondents, particularly Leland Stowe, noted that these opinions weren't just voiced by officials on their normal bent of running down foreigners. They also came from the troops, who—being less GI—tended to substitute "brothers" for "persons." As a matter of fact, the 1,300-odd Grants sent soon seem to have been relegated to trainers for Sherman crews, and maintenance men.

Solomatin, in this 1947 summary of tank development, has equally hard words for the M4 Sherman medium, which—he says—was "simply good for nothing" along with the Grant. He and the other Soviet tankers who took and take such a stand show short memories and little tolerance. The Red Army model for the original KV design competition rated as a mobile version of Governors Island's Castle William. The early KVs and T-34s had 76's less powerful than the Sherman or Grant's 75's. Possibly the Russians became miffed because, when beginning in 1941 they tried to tell us what tanks for World War II should be like, our people gave them what certainly appeared to be the brushoff. We wouldn't learn from our Russian "friends" or German enemies. We built tanks to equal what our enemies potential had at the time characteristics were approved—not what they had under development. Despite talk, America did not seek to build a better tank than the enemy would have, when the new tank made its debut.

The Soviet Army did, though during the war it temporarily lost its lead—at least on paper. In 1943 it rearmed and re-turreted the KV heavy tank to take a M1943 tank version of the M1939 85mm antiaircraft gun—the Russian counterpart of the German 88. (Since all Red Army artillery was under one arm, and not divided into Field and Coast Artillery like ours, Red artillery authorities had been overjoyed to adapt their flak to antitank fire. The 85 had proven itself in the first campaigns.) This KV 85 had a cast turret with commander's cupola—an item copied from the German *Pz. Kpfw. III's* and *IV's*, but attributed to Stalin by all postwar Soviet historians. Though the chassis was the ordinary KV type, the tank was slightly higher (9 ft.). The Germans reported the hull armor on sides and rear as somewhat lighter than the ordinary KV's—between 2.34 and 2.54-in.

Since the KV 85 appeared at the beginning of the era when the Russians assumed the offensive and the Germans found difficulty recovering such matériel, their reports are not to be taken as certain. It is doubtful if the KV 85 was made in any great quantity, for in 1942 and 1943 Urals plans were striving to turn out self-propelled guns on KV chassis. In 1943 the evacuated Kirov plant in the Urals was changing over the Joseph Stalins.

By the time the KV 85 was coming into service in the Spring of 1943, the Germans had the better-armored and faster Tiger for a breakthrough heavy tank. The German super-T-34, the Panther, which came into service later in 1943, at 50 tons came close to the weight of the KV's; it had far

better speed, good transmission and steering for quick handling. Its super-velocity 75 of 70 calibers made a better tank vs. tank gun than the Russian 85 of 51.5 calibers length. (Though the antiaircraft Russian 85 had a Bofors-type muzzle-brake—being patterned after Bofors designs, the tank 85 does not.)

True, the Panther didn't exist in great quantity even at the end. But in design it surpassed the slightly revised T-34s that came out in 1942 as the evacuated tank factories of Leningrad (Kirov), Stalingrad, and Kharkov set up in business again in the Urals. Tank factories at Sverdlosk and Nizhni Tagil had been on T-34s anyway; the others started anew on the T-34 when their combined center (including the Kharkov diesel engine works), set up in what came to be known as "Tankograd," got the T-34 blueprints late in July of 1942. Retooling with 400 new dies and some 5,000 tools and jigs was completed so as to rush out the following August 22d this new combine's first T-34—named after (you'd never guess it) Stalin. The Stalingrad plant kept working till August, 1942, when evacuation began. (Lots of its tools never got out of the plant or railway yards at Stalingrad—but despite the siege remained in shape to handle major tank repairs when operated by the skilled field maintenance men.)

Before the Tankograd combine cut in, the T-34 for 1942 had a hexagonal cast turret which eliminated that nasty rear overhang. In at least some factories' output, pistol ports were abandoned, and the number of periscopes cut to one—while the driver got a double episcope on the upper edge of his door in the front hull plate. The new turret had thicker armor (2.34- to 2.7-in.). (After the war began, some of the original T-34s had their front hull armor beefed up by welded-on plates 3/5ths of an inch thick; these were small, and gave a waffle-like effect. About the same thickness was added to front and sides of the turret.) The ball mount on the hull DT was redesigned and armored to prevent small arms fire fouling the ball.

In 1943, the commander's cupola was added to the hexagonal cast turret. Again the front roof of the turret sprouted two rotatable periscopes. The side pistol ports (consisting of a vision slit, with a hole below sealed by a plug on a chain) became standard on all output. At one time, the Tankograd combine turned out a turret with dewlaps on the side, apparently an effort to protect the rather exposed turret ring from being jammed by light AP ammunition.

It is doubtful if, as sometimes reported, the T-34 was ever built without the usual hard-rubber tired bogies. Photos of tire-less T-34s merely indicate that poor crew maintenance resulted in rapid wear of tires on several or all bogies, leaving the track to run on the steel rims. At no time does there appear to have been any trial at using the Christie-type T-34s to run on roads without tracks, nor is there any mention by the Soviets of their having any intention of providing for such runs in the original design.

The apparent technical inferiority of the T-34 and KV 85 tanks in service in 1943 actually mattered little, for Russian improvements had been on basic chassis. No disruption in production resulted, as in the case of the new German tanks. Theoretically, the Russians still had the edge on the *Pz. Kpfw. III's* and the *IV's* (the latter with long 75 having become the principal German tank). By sticking to what was essentially standard, the Russians in 1943 had plenty of tanks, just as the West had plenty of Shermans.

But the Soviet authorities weren't content with the situation; they wanted the most powerful tanks as well as the most. Morosov went to work and redesigned his T-34 to take a long cast turret that would mount the 85mm gun. The 85 M1943 has a muzzle velocity of 2,950 foot seconds with armor-piercing ammunition (according to the Germans). It definitely put the T-34 ahead of the common or garden *Pz. Kpfw. IV*. But with the big new cast turret (commander's cupola to right, with pistol ports on each side, and ventilator dome on roof rear), the T-34/85 had picked up weight. It now no longer has those characteristics of speed and "passability" which so distinguished the original "light-foot" model. The new model came into service in 1944, and has been the standard medium of the postwar years. It is definitely over-improved for its basic design and engine. And Morosov's basic design was five years old, when he reached for drafting gear to draw up the final improvements.

In 1943 young Kotin (who has a full head of hair) was also striving to get more power and armor on his same old chassis. The fruits of labor of his design team was the first Joseph Stalin, which went into production at the Kirov-in-Urals plant in 1943. This plant then dropped its T-34 assembly-line, and concentrated on the new heavy tanks—which appeared the next Spring in

Margaret Bourke-White from *Life*

The Soviet T-40 tank.

the Ukraine, to take the Germans by surprise.

In this tank, Kotin's team abandons the KV rectangular-type hull with uniform-thickness plate (more fitted for production than for resistance to attack). They go in for ballistic form, including a shaped casting for the front top of the hull. The driver is placed in the front center, and the superstructure fared away either side of him. The sides of the superstructure slope, and the rear plate (with two transmission servicing hatches) slopes toward the front.

The big cast turret fares away toward the front, but it's rather fat at the rear, where a DT machine gun is set in a ball mount on the left. The commander's cupola is also on the left. As on all Soviet tanks, a DT is mounted coaxially with the big gun, but for antiaircraft there is an innovation. A 12.7mm D Sh K is permanently mounted atop the turret in front of the cupola. It can also be used against disorganized personnel when the tank is passing through a breakthrough area, as well as against planes. (T-34s never mounted AA MG's. In one instance reported by an American liberated from a German prison by a T-34 brigade commanded by a woman, crews simply paid no attention when their parked column was gun-strafed by German fighters.) In 1943 Soviet armor began to carry one PPS tommy gun per vehicle—a Russian copy of the German MP 40 Schmeisser, having a similar folding skeleton stock. JS's got one such.

Though the original Stalin may sound like a monster, it's actually small and low—as low, if not lower, than a Sherman. The chassis's width again permits saving on height, though by this time the Soviets felt that the chassis and suspension were due for some minor redesign. Armor on the front was upped to almost 4 inches. The Germans felt that it gained as much as 50% in impenetrability over the KV because of form. Sides of the original were around 3½-inches, with the turret sides close to 4. But Panther guns and late 88's could hold it anywhere at ranges up to 2,200 yards.

The ace in the hole was the new gun—a big, long 17.15-foot 122mm gun, tipped by a German-type double-baffle muzzle-brake. (The 122mm caliber may be strange to the US, but it's a Russian caliber for 4.8-inches. Guns of such caliber have long been common in Russian field artillery.) A bracket is fitted to the rear of the hull to hold the gun steady for travelling.

After some minor hull modifications, Kotin undertook a complete redesign of the Stalin for production in 1944. His original big Stalins seem to be a little too big and thus too heavy for the basic suspension and horsepower units derived from the KV. The weight was close to that of the big KV-2 when the Stalins were combat loaded, and a drastic redesign was called for if speed and "passability" were not to be sacrificed.

The result was the Joseph Stalin III, which appeared in action in 1945. Troops aptly called it the Pike because of its sharp angled nose of plate. For the first time in Soviet tanks the front plates (which join in vertical center line, sloping off to the sides sharply) aren't pierced for the driver. He sits with his head almost right under the turret, on a seat that can be raised or lowered as on US tanks. His periscope is in the cover hatch. The rest of the chassis is more or less like the original Stalin's. The other big change is in the cast turret, which has been squashed down and made round, with sides sloping sharply upward and in. At the edges, they actually overhang the superstructure sides. The commander's cupola is dropped. The turret carries the radio, which has a buggy-whip antenna on the left. A 12.7mm DShK machine gun is mounted in front of the right turret hatch. There are plenty of hand-holds for the tank-borne troops considered as a necessary escort for heavy tanks.

With this tank, the last redesign in six years of work, Kotin proudly proclaims a genius like Morosov. His acknowledged co-designer of the KV, N.L. Dukhov, doesn't share honors with him this time; instead it is Shashmurin and Rybin who are cut in on the prize. Whoever is really responsible, they enable a claim to be made that the weight of the Soviet "heavy" is back to what the engine and suspension were designed to handle back in 1938-39—50 tons. Kotin proudly writes that his tank scales at a third the weight of the German Royal Tiger—and packages more power. (It also packages the crew like sardines, but then comfort has always ruthlessly been sacrificed

Sovfoto

Soviet T-34/85's in assault. Note the infantry in foreground.

for combat capability in Soviet tanks. The "unnecessary" comfort built into British and American tanks is what Soviet tankers single out first for criticism.)

But all that glistens is not gold—especially in Russia, where it has always been unwise to judge by appearances.

This wonderful tank mounts a gun which should have its ammunition power-rammed—but has no rammer. Its 122mm rounds have to be loaded in shell and cartridge case components, as on the standard wartime US Navy 5-inch 38's. This hardly makes for speed in getting in the first few rounds in one of the main missions the Soviets give a heavy—tank vs. tank fighting. The size of ammunition and gun makes for less ammunition storage capacity.

Why did the Soviets jump from an 85 right to this 122? Why did they not, like the Germans, beef up their heavies' power by a super-velocity 85—for the Germans were very satisfied with their Royal Tiger's Model 1943 88? How come they didn't shift back to the fine 100mm gun, when that became available? Why did they put a 122 in a tank, when in 1943 they were already mounting the long-range 122mm M1931/37 field gun on a well-armored KV chassis?

These questions suggest that wartime Soviet armor cannot be considered without the background of Soviet tactics—for attempts to gage any piece of foreign armor by trying to fit it to one's own concepts, is likely to produce wrong conclusions. Recalling Stalin's known direct interference in KV development, in aviation details, and in artillery design, the question is raised as to whether he (like Hitler) was the one who preferred big things better than ones less striking but more efficient. Wartime reduction of tank materials quality suggests that the qualitative reduction of ammunition, consequent upon fantastic quantitative production to meet the needs of gigantic armies and air forces, may have had something to do with the selection of such a big piece over a smaller one. Recollection of how Kotin himself blandly confesses to slipping one over on the Red Army—by "just happening" to have a design that Stalin at once liked—raises the issue of whether bureaucratic intrigue played its role.

What happened when the Germans attacked in 1941 is a strong reminder that there are other factors behind the Soviet military scene, than can be expressed in mere statistics. The statistics-minded should recall that three months after Hitler struck with numerically inferior forces, 11 years of guns-or-butter intensive rearmament lay in wreckage. Stalin had lost some 17,500 tanks to Hitler's 550. Plane losses were similar. And as for Stalin's subs, they distinguished themselves as much as their "formidable" (on paper) 1914 undersea fleet had. The sailors on the Baltic tied up their boats in Leningrad without bothering to test the German barrage in the mouth of the Gulf of Finland; they took to the shore and fought that kind of war that Russians know by tradition and fight well—infantry combat. Red tankers, too, would forget that success in war comes from *firepower and mobility:* they'd dig in their tanks, and fight them as if they were armored cupolas of a Maginot Line.

The important lessons to be drawn from the war years then, must derive not from the quality and quantity of Soviet armor. They must stem from the *ideas* armor is built to implement—the strategy and tactics. Most important of all are the people. First are the men who have the ideas which govern the quantity-quality balance in material, who determine the ideas and the atmosphere in which they're conceived, and the atmosphere under which the working army is trained. Hardly less important are the men who man and command the tanks themselves.

Thus folk who seek to compare the Stalin tank to American ones should not think just in terms of comparative weights and powers—but of missions. The German Panther had the weight of the new Stalin, but it was a medium tank for armored force duties, while the Stalin was built for the missions implied in the Soviet definition of heavy tank. Moreover, the Stalins were and are part of a team—one which in Soviet divisions include heavy and medium tanks, heavy fire support self-propelled guns and tank destroyers.

As the Germans proved by their brilliant victories and their stupid failures, in war as in sport, it's the team that counts—and not the apparent stars.

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Operation Headquarters

by Lt. Col. Thomas J. Rogers

NOWHERE has the flexibility of armor been better illustrated than in the myriad ways in which the headquarters of various armored divisions operated under the varying conditions encountered during World War II. Such flexibility is most desirable, and the ingenuity making it possible is highly commendable. However, in many ways standardization is also desirable; and a standard organization must be prescribed for planning and training purposes. Accordingly, the organization of the new armored division was tailored to make possible the employment of the best methods of headquarters functioning—these methods having been selected after careful study of a wide variety of the methods employed during the last war.

The accompanying chart shows the organization of division headquarters (T/O&E 17-1N). It will be noted that the staff sections needed for control and planning are grouped together in the forward echelon, where they are readily available to the division commander. It will also be noted that the forward echelon is that part of the headquarters known as the command post; therefore the terms *forward echelon* and *command post* are actually synonymous.

Normally, a command group will operate from the forward echelon. The composition of this group is variable; it will consist of the commander, such staff officers as he may designate, and sufficient personnel to operate the transportation and communication facilities needed.

The rear echelon consists of the sections primarily concerned with supply, administration, and services. These sections can operate more efficiently in rear areas, and there is seldom any great advantage in placing them forward.

The mission of the forward echelon is to furnish the command facilities needed for controlling the division, to maintain contact with higher and adjacent headquarters, to make plans for current and expected operations, and to supervise operations. The detailed functions and duties of elements of the forward echelon are prescribed in the manuals which cover operations of the general staff and of pertinent special staff officers and sections.

Formation of a command group enables the commander to operate well forward, in the vicinity of combat elements, and to have immediately available the staff assistance and the transportation and communication facilities that he needs. The command group should be kept small, so that it will be highly mobile. Its communication facilities must be adequate for maintaining contact with the command post, and with other headquarters if necessary.

The division headquarters company (T/O&E 17-2N), the organization of which is shown on an accompanying chart, supports the forward echelon by providing personnel and facilities for supply, mess, defense, medical service, and "housekeeping" in general, and by furnishing transportation, including liaison planes. Headquarters company, armored division trains (T/O&E 17-60-1N), similarly supports the rear echelon. Both of these headquarters companies are organized strictly along functional lines, each platoon or section performing the function indicated by its title. However, as should be the case in any headquarters or service company, personnel must be trained to perform duties other than their own, in order to provide the flexibility necessary for efficient operation.

In any discussion of the operation of the forward echelon, considerable attention must be paid to the headquarters commandant. He is the staff officer primarily concerned and charged with insuring that the forward echelon operates in an orderly and efficient manner. It is therefore obvious that the headquarters company performs most of its duties under his direction. He must closely coordinate his activities with each general staff officer, especially with G-1; the G-1 has general staff responsibility for the location, movement, and internal arrangement of the forward echelon, while the headquarters commandant is the actual operator in these matters. The headquarters commandant is responsible for the security of the command post, and in discharging this responsibility he must coordinate with G-3; he must coordinate with G-2 in security matters concerning visitors and correspondents; and he must coordinate with G-4 in all matters pertaining to supply and transportation. The smoothness with which the entire division operates is affected in no small measure by the smoothness and efficiency with which the headquarters commandant performs his mission. It is a most interesting job for anyone who can take small annoyances in stride, who likes to be where things are going on, and who enjoys matching wits with the unexpected. The routine can, and should be, quickly organized into a well-understood SOP.

In the operation of a headquarters, good "housekeeping" is often looked upon as routine. It is expected, as a matter of course, that equipment will be immediately available for a newly reporting officer; that a well-ordered mess will serve three good meals a day, or at least that a variety of individual combat rations will be offered; that a cup of hot coffee can be easily procured whenever desired; and that the area will always be clean. But these things, which do so much to promote smooth and efficient functioning of the headquarters, are usually the result of constant and painstaking effort on the part of the headquarters commandant.

Selection of a good headquarters commandant is often difficult, principally because of the many aspects of his job. He should possess the patience of a saint and the tactical knowledge of a combat commander, plus the housekeeping know-how of a hotel manager. He must be able to understand and appreciate the problems of his commander. A working knowledge of staff procedure is essential. It is requisite that he be able to select a command post site with a view to efficient command and control of subordinate units, at the same time considering routes of communication, cover and concealment, ade-

quate signal communication, and facilities and accommodations for headquarters personnel; but he must avoid usurping areas which are essential to tactical troops. He must be competent to select a command post arrangement which will lend itself to proper operation, defense, and movement.

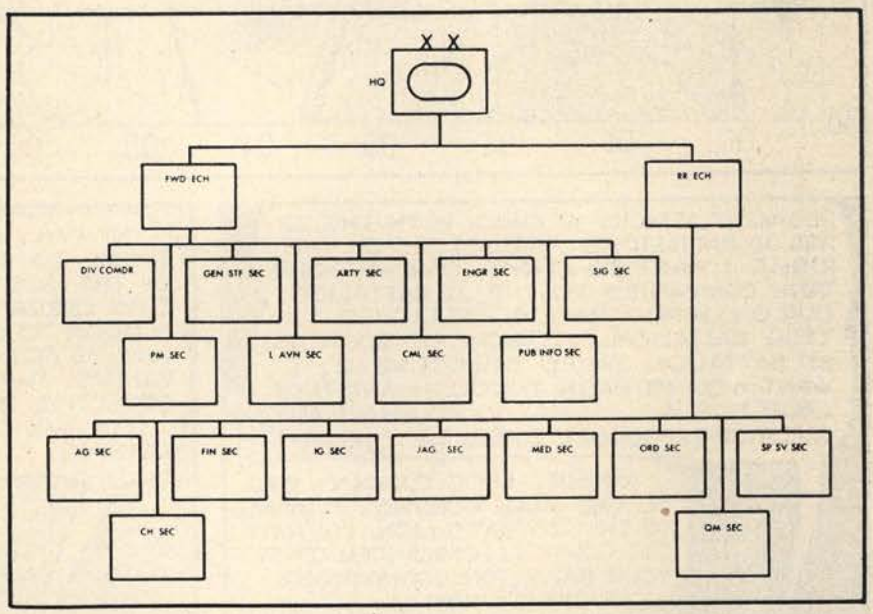
During tactical operations, the headquarters commandant's most important job has to do with movements of the command post. He must apply the same degree of careful planning and meticulous supervision to every move, whether it covers one mile or a hundred. When he is informed of an impending move, he is given the location of the new CP; the rest is up to him. An advance party will have previously been designated to assist him in reconnoitering and preparing the new area. The personnel and detailed missions of this party will vary somewhat, depending on the desires of the commander, but in general it will consist of representatives and detachments from the sections most concerned with arrangements in the new area. The signal representative will establish communication; the provost marshal's representative will mark routes and post guides; a detachment from the defense platoon will establish defensive positions for the local security of the CP; a detachment from headquarters company may make such initial preparations as clearing and cleaning up the area for occupancy. The headquarters commandant exercises general supervision over all of these activities, after first determining the interior arrangement of the new area in coordination with G-1. A standard interior arrangement, adhered to as closely as is practical in each instance, promotes good headquarters operations in many ways; for instance, personnel will be able to find installations with a minimum of difficulty, especially at night.

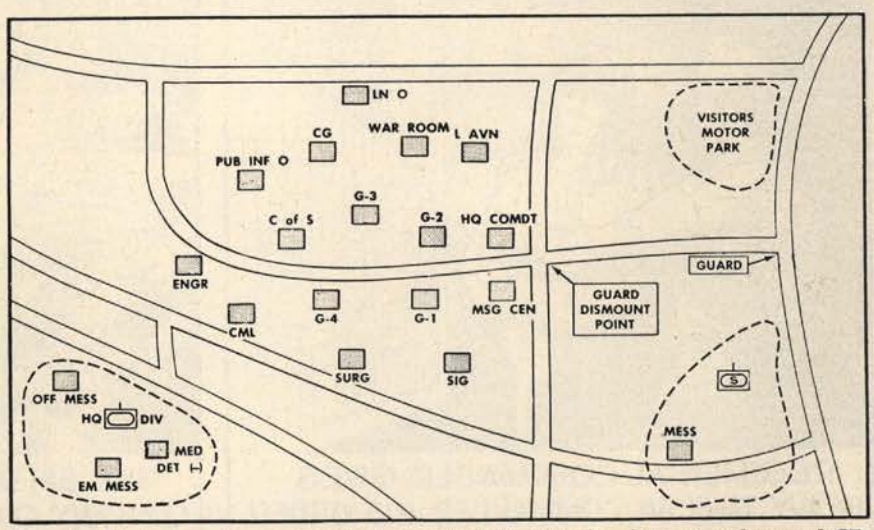
After insuring that the reconnaissance is completed, that the necessary plans are made, and that preliminary work is begun, the headquarters commandant loses no time in returning to the old CP. There he coordinates the necessary details of the move with G-1, who will have previously oriented all sections on the move. The SOP should prescribe the composition of serials, and the order in which they will move out; however, all details must be carefully checked. At the time designated by the commander for the move to start, the headquarters commandant, or an officer from headquarters company, will lead the first element across the IP and on to the new location.

The forward echelon of the armored division headquarters must be able to operate *on the move.* Headquarters personnel must be trained in performing their duties during movements, and equipment must be provided and arranged to make this possible. As a consequence, it will seldom be necessary to leave anything more than a skeleton message center or information post at the old location; the entire CP can be moved at one time. A well-understood SOP is essential if the forward echelon is to operate efficiently while moving. Radio will usually be the principal means of communication; under favorable circumstances, mounted messengers will be used to some extent, especially for delivery of such things as maps and documents.

In general, the rear echelon of the armored division controls and supervises the elements which provide the services and administrative functions required within the division during operations.

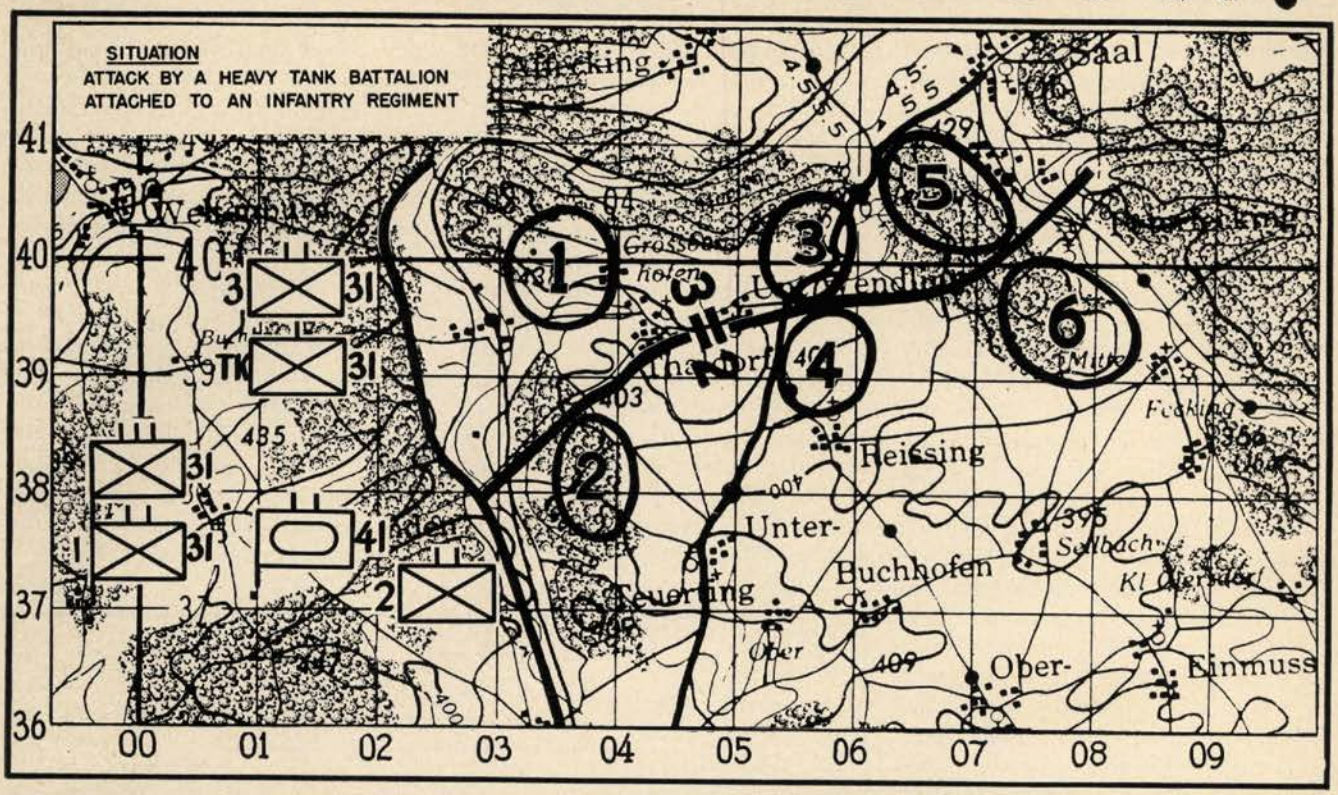
An efficient and flexible headquarters is vital to the combat effectiveness of the armored division. The headquarters commandant, "a man with a passion for anonymity," is the lubrication expert who keeps the headquarters machine running smoothly. He deserves the support and cooperation of everyone from the commanding general on down.





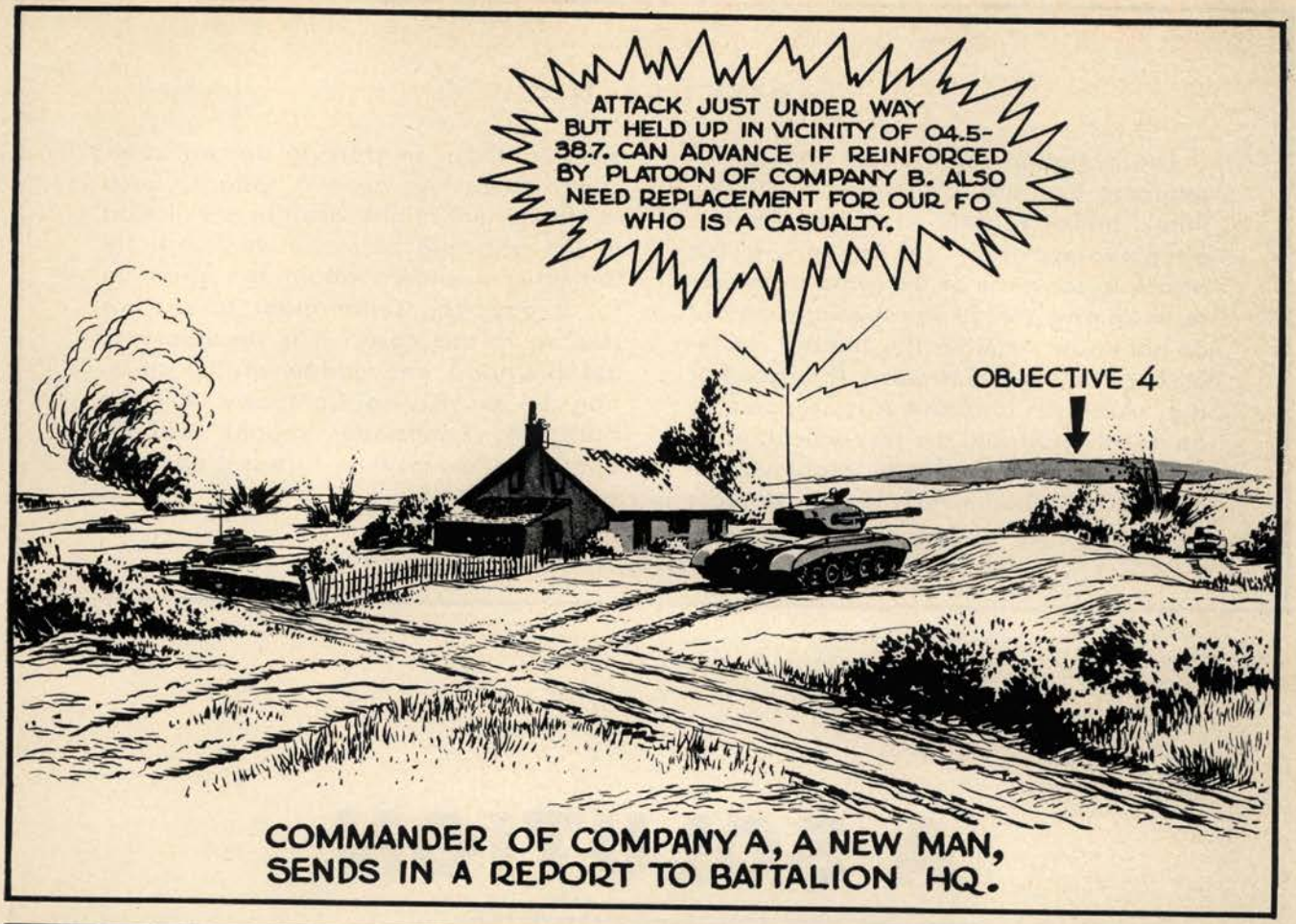
Standard interior arrangement of armored division headquarters forward CP.

HOW WOULD YOU DO IT?



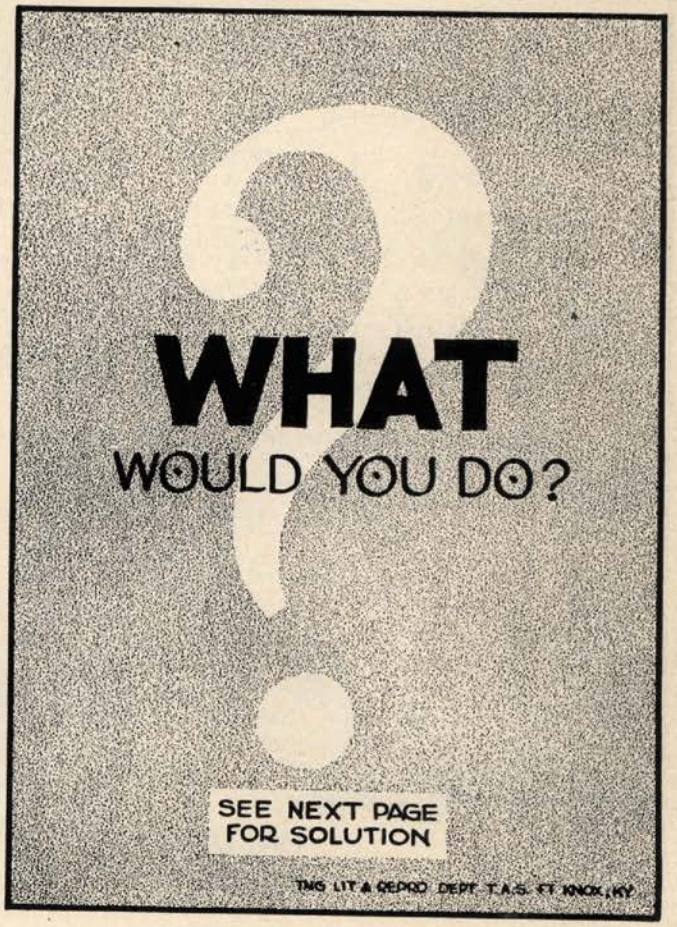
REGIMENTAL COMMANDER GIVES HEAVY TANK BN COMMANDER HIS ORDER

TANK BATTALION COMMANDER GIVES COMPANY COMMANDERS THEIR ORDERS



COMMANDER OF COMPANY A, A NEW MAN, SENDS IN A REPORT TO BATTALION HQ.

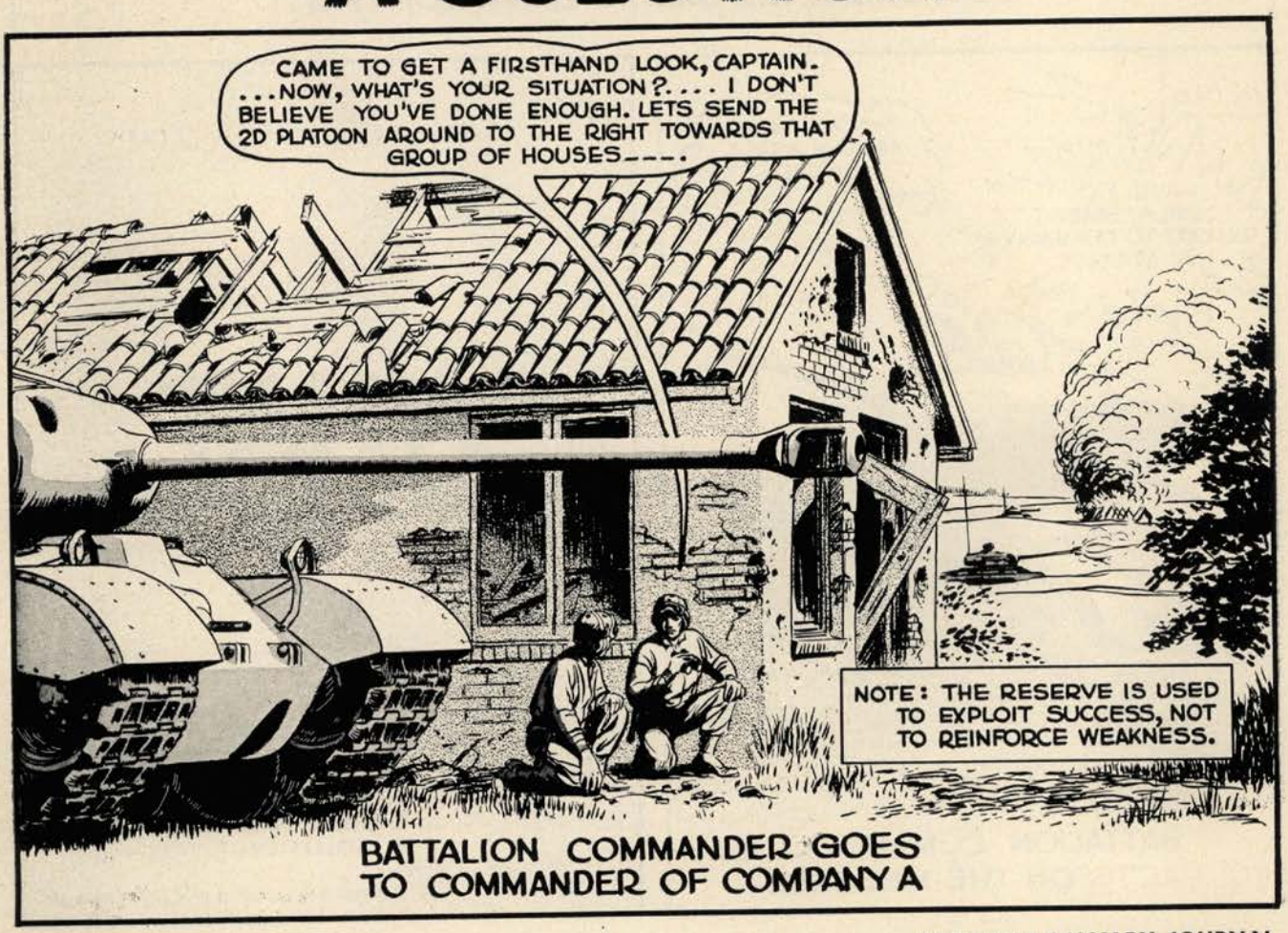
BATTALION COMMANDER ACTS ON THE MESSAGE



DISCUSSION

The battalion commander should not reinforce Captain, Company A, at this time. Initial reports in an attack are often exaggerated. It is too early in the attack to conceive of throwing in the reserve or any part of it, especially as you do not know whether the combat judgement of Captain, Company A, is good or not. Also, if Company A is stopped by an enemy position, the reserve company might perhaps be better employed in another direction which would be more decisive than reinforcing in an area where there has been a failure. Such reinforcement might result in a violation of the principle of maneuver. Entirely too little is known about the situation for a battalion commander to use his reserve in this case. It is necessary to get firsthand knowledge of the situation by a visit to Company A. The battalion commander should also request another artillery forward observer for Company A.

A SOLUTION



BATTALION COMMANDER GOES TO COMMANDER OF COMPANY A

Military Government in a Defensive Operation

by MAJOR ROBERT H. SLOVER

When the Sixth German SS Panzer Army struck deep into Allied territory in that "dark December" of 1944, Military Government found itself deeply involved in the widespread reaction. A look at G-5 operations in the Battle of the Bulge, concerned as they were with support of the military mission in the highly important and sensitive civil area, lends perspective to any consideration of that period of reverse.

THE 16th of December 1944 will be long remembered by Allied Forces of World War II. Seven Allied Armies, 2,000,000 strong, were moving or preparing to move into Germany. In the North was the British 21st Army Group, on its right the American Twelfth Army Group composed of the First, Third and Ninth U. S. Armies. To the South the Seventh U. S. Army and the First French Army, comprising the Sixth Army Group, were operating in Northern Alsace.

On the morning of the 16th the Sixth SS Panzer Army, spearheaded by the crack Adolph Hitler Division, began the Germans' last great counterattack. This and other German attacks made great strides during the next few days and the campaign now known as "the "Bulge" or "the Ardennes" was well under way.

It was not until New Year's Day of 1945 that the enemy shifted his offensive power to Northern Alsace where seven German divisions attacked on a forty-mile front.

The Role of Military Government

The story of the German breakthrough and the heroic action of the Allies in containing it and turning it into an Allied victory is well known. But little has been told of how Military Government contributed to that victory. Military Government had already proved its worth in the "civil affairs" operations in France, Belgium and The Netherlands and in the control of the first German territory captured. These had all been offensive operations. But what had Military Government to contribute to the military mission when defensive tactics and withdrawals were called for?

Time and time again Military Government officers and enlisted men had been told "the primary mission of Military Government during combat is to further the military mission —assist military operations." Offensively they had done just that. It was soon learned that Military Government staffs and units could contribute as much or more to accomplishment of the defensive mission, for the problems of evacuation, control and welfare of large civilian populations are multipled when it is necessary to fall back from positions, even temporarily, and go on the defensive.

ETO Organization

According to the pattern of Military Government in the European Theater of Operations, G-5 staff sections were provided for the Army Groups, Armies, and Corps. In the case of the Divisions, both Armored and Infantry, the Military Government staff was designated either as a G-5 or a Special Staff Section. For operational control of areas, Military Government or Civil Affairs detachments composed of administrative and functional specialists were placed in the towns and cities.

The German counteroffensive of December 1944 and January 1945 in the Ardennes and Northern Alsace confronted Military Government with, in the words of a First U. S. Army report, "the most serious problems since D-Day."

"At the moment the enemy struck," this report declared, "numerous difficulties in many communities had just begun to be ironed out; rehabilitation of the war-torn villages and towns was well under way; and the 'self help' program for the civilian population had made remarkable progress, due largely to two factors: (1) a mounting belief among the civilians that for them the war was over, and (2) a gradually abating fear of Nazi reprisals against those who had collaborated with the occupying authorities.

"The German counteroffensive struck hard at both these impressions. Civilians suddenly realized that, far from being out of the war, they might be in the thick of it for some time to come. Word of the Wehrmacht return instantly raised the spectre of Nazi vengeance. Ru-

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mors, added to the general apprehension, were stimulated by the absence of reliable news. . . ."

The Return of Terror

In the liberated countries, the German drive had even more searing effect. As the Germans smashed into Belgium and Luxembourg (and the following month into Alsace), tension became endemic among the civilian population. A recurrence of German atrocities against public officials, resistance members, and possibly the general populace was foreseen. With the return of bitter hostilities to many areas, terror grew acute and, for a time, panic threatened.

Intense fighting produced widespread devastation, disrupted utilities, paralyzed supply machinery, created a mounting list of civilian casualties. Civil administration tottered in places; the excellent state of law and order previously prevailing threatened to lapse. Thousands of inhabitants of the affected areas in the liberated countries, as well as in Germany, started to take to the roads in an effort to flee. The danger became so imminent that Allied military operations were threatened with being hamstrung by a breakdown in civilian controls.

G-5 Support

Faced with these civilian problems, the tactical troops turned to their G-5 Sections for concrete and immediate help. Never before had Military Government been so integral a part of the military team.

The most pressing task for the G-5 Sections at Army, Corps and Division levels during the withdrawal operations was "to prevent any interference with the Allied countermeasures, especially the convoys of troops and supplies that seemed to move on every road every hour of the day and night."

This called for intense activity by almost every Military Government officer to restrain hysteria among civilians, to control refugees, to keep military routes clear of civilian traffic, and to ensure the maintenance of security. The security question was a vital one in view of the presence of German parachutists and enemy partisans within the hit districts. In some instances the mass evacuation of entire towns became an operational necessity. Homeless, hungry, terror-stricken, and often wounded, tens of thousands of people, chiefly friendly, looked to Military Government for succor.

Detachments had to meet such problems as finding ambulances and hospitals for civilian casualties; locating adequate housing facilities for civilians who had fled, or who had been evacuated from overrun towns. They had to organize police, civil defense, and fire-fighting services. They had to restore local civil governments.

With supply routes cut off, the Military Government detachments were forced to solve food problems, in some cases distributing Allied food stocks—military and other. In some instances, they had to move supplies into danger zones, as, for instance, into a cave between the German and American lines near the village of Welferding where hundreds of people had sought shelter.

Most important of all, perhaps, Military Government officers had to lend strength and reassurance to the officials and population of the localities in which they were assigned. They had to supply the greatest and most difficult of all intangibles—courage and stamina—to thousands of frightened people.

Security

Number one on the agenda for Military Government during the critical early stages of the campaign was the security problem. This was the period when a flood of refugee traffic began to take to the roads and when "enemy agents in civilian dress and American uniform were the accepted, rather than the unusual, order of the day."

The priority task was to prevent any mass exodus of refugees and to keep roads clear for the heavy military traffic. In the First U. S. Army Sector, by Army order, circulation without a pass was prohibited in forward areas and constant patrolling of all roads and the confinement of civilians to their homes in certain areas reduced travel to a minimum. The order was issued on December 15th, to take effect on December 17th. Immediately it was passed on by Corps G-5 to Division Staffs and to detachments.

All resources, including Military Government Security Guards, local police and gendarmes as well as the personnel of Military Government detachments themselves were harnessed to control civilian movement and to enforce other security measures. The gendarmes were effective in checking strangers but did not, even when requested, assist in traffic control. Regulations over curfew, blackout, and other security measures were immediately instituted.

Measures at St. Vith

The War Diary of Lieutenant Sherman Hoyt of Detachment I2D2 tells how some of these measures were put into effect at St. Vith.

An entry under December 16th, says, "Lt Allsopp received request from G-1 (106th Infantry Division) to post patrols in town to keep civilians off streets and in their houses to provide security for armored columns going through town early Sunday morning."

Then, under date of December 17th:

"Lt. Allsopp had worked out plan for posts requested and gendarmes were alerted so all were at our office by 0500. Sixteen posts were worked out. Men from our Detachments, Captain Gilchrist's and Captain Seiner's, with one gendarme each, made up the posts. I briefed the men and gendarmes and all were out on their posts by 0600. The rest of us made individual patrols through town, and Lieutenant Murtrux of H5D2 went with the town crier to warn civilians to stay in their homes."

On the northern shoulder of the German offensive, Detachment I4G2, under Captain Robert A. Goetcheus, with jurisdiction over Landkreis Monschau, was faced with the decision to remain in place or evacuate the town. The detachment elected to remain in Monschau despite the threat that the town would be overrun by German troops, for the following reasons:

1. The detachment's presence in the town would be of considerable assistance to the local tactical unit,

This article is based primarily on the report prepared for G-5 SHAEF Historical Division by Major Donald B. Robinson, under the direction of Colonel F. Van Wyck Mason.

which expressed a desire for the detachment to remain.

2. The detachment's departure would be obvious to the local populace, which had already observed the removal of a group and two battalion headquarters from the town, and would have a very serious effect on civilian morale, with the possible result of attempted mass evacuation.

3. Military Government would in the future be handicapped in the Kreis, if the detachment departed leaving behind, for the mercy of civilian opportunists and possibly German military personnel, the civilians who had cooperated with the administration.

The tactical situation remained serious in Monschau throughout the remainder of the month and though the town suffered severely from unending shelling, the Military Government detachment remained. As a result, the citizenry remained calm, cooperative and under complete control. Local civilians even turned in some 25 German paratroopers.

In fact, it was a local civilian who, on December 22nd, brought to Detachment Headquarters the surrender letter of Lt. Colonel Baron von der Heydte, Commander of all German paratroopers in the Eupen-Malmedy area. (It was this officer who had demanded the surrender of the British forces at El Alamein in 1942.)

The letter, enclosed in an envelope addressed to "The Commanding Officer of the Military Government, at Monschau" said in part:

"Dear Sir, I tried to meet German troops near Monschau. As I could find there no German troops, I surrender because I am hurt and ill, and at the end of my physical forces."

Control of Refugees and Evacuations

Another task for Military Government was the control of refugees and displaced persons and the evacuation of these and other civilians from battle areas. The XVIII Corps (Airborne) did much in this field. The largest of all the XVIII Corps (Airborne) evacuations (and probably the largest undertaken by an American unit in this battle) was the one which commenced on December 22nd when all males between ten and sixty were moved from its area. Women and children wishing to be evacuated were taken along as well.

U. S. Army

Military Government evacuating Belgians from the fighting zone.

The evacuation termed Operation CHRISTMAS was undertaken by three detachments and Military Government staffs of the 82nd Airborne Division and the 7th Armored Division. It lasted three days.

The mechanics of the evacuations followed a set pattern. The number of people to be moved was estimated through inquiries of local officials and personal reconnaissance. Then further reconnaissance was made to locate and reserve adequate billet space in rear areas. Bourgmestres were charged with responsibility for this billeting. Because local foodstocks were inadequate, requisitions for a "carry-over period" were drawn up for Bourgmestres to sign.

Road reconnaissance was also made to avoid conflict with military traffic. Military Police were advised of the coming movement.

Transportation was then made available to a truck pool set up at some spot convenient to the operation. CIC (Counter Intelligence Corps) were alerted to be on hand for screening and clearing of persons to be moved, and of those few to be left behind (usually for the tending of cattle). Passes for the latter group were issued by Military Government.

Collecting points were established and persons loaded into trucks there. They previously were advised as to what personal belongings might be carried. Drivers were given strip maps to guide them to their destinations. Often soup kitchens were set up along the route.

Upon completion of an evacuation, follow-up visits were made by welfare-trained personnel to ascertain the condition of billets, adequacy of food, need for medical attention, etc. Needs uncovered were met through requisitions on the Civil Affairs Supply Depot at Liege, if indigenous supplies were not available.

To prevent an unauthorized return of evacuees to their homes, road blocks were established at critical road junctures and Bourgmestres were directed to keep all evacuees under surveillance.

Bastogne

The epic defense of Bastogne includes a story of unequaled Military Government gallantry and effectiveness.

The Military Government Section of Combat Command B of the 10th Armored Division, under Captain Roger F. Hull, moved into Bastogne. On the 20th, the Military Government Section of the 101st Airborne Division, headed by Captain Robert S. Smith, arrived. The two worked hand-in-glove from then on.

Some 2000 of the normal 5000 civilian population fled the city be-

fore the encirclement was completed on the 20th. Control of the remaining 3000 was, of course, of major military importance.

The city was left without any civil administration for three days after the mayor and many other officials together with the local gendarmes and maquis fled on the 20th. A new mayor and 17 auxiliary police were appointed on the 23rd, all of whom proved "very helpful in providing billets for refugees, burying civilian dead, supervising civil food distribution, and procuring needs for the army." The new administration, however, reestablished only the mayor's office, revitaillement and police, and those solely on an emergency basis.

The horror of war was fully felt in Bastogne. On the 18th, the city's power source fell into enemy hands and electric service was discontinued. All governmental functions, as well as trade and industry, ceased concurrently with the mass flight of civilians on December 18th and 19th. Telephone and telegraph service was suspended on December 19th by order of the Military Government officers.

The Shelling Starts

Shelling of the city started the 20th; bombing on the 24th. These, together with resultant fires, damaged 99 per cent of the city's buildings by the end of the month. Some 30 per cent, including two hotels, were totally destroyed. One standpipe was totally destroyed, and the remaining one damaged. Water mains were cut, and all power and communication lines cut in many places. Twenty civilians were killed, many more were wounded and injured.

Although the Chief and three regular members of the Fire Department remained in the city, efforts to reorganize this group were ineffective since their equipment was incapacitated by the freezing weather.

Luckily, the local food supplies were adequate for the inhabitants of Bastogne and some 600 refugees from nearby villages who were fed and housed by local authorities through Catholic Church organizations. As a matter of fact, for one day, the Army itself drew on civilian supply for meat and small quantities of other items. Fuel supply was ample, too, since requirements were drastically cut by civilians staying in large groups in air-raid shelters.

The Military Government officers devoted most of their efforts, of course, to the control of civilian movement, Combat Command B reported. "Hundreds of civilians attempting flight and impeding essential military traffic were removed from the streets daily, and impounded wherever they were apprehended. Later each day, they were returned to their home under escort, and were given orders to remain there. At the beginning of the period, all civilian circulation was forbidden, except under military escort. On December 23rd, 1944, the curfew was lifted from 1200 to 1400. . . ."

U. S. Army

The civilian: Unfortunate bystander in war.

Contributions of Military Government

A careful appraisal of Military Government record during the Battle of the Ardennes, and the German offensive in Alsace reveals that important contributions to the successful termination of both operations were made by G-5 staff section and Military Government detachments.

The efforts of Military Government personnel in preventing hysteria among civilians, in controlling circulation, in enforcing curfew and other security measures, in guarding against enemy agents and sabotage, in stabilizing civil administration and reinforcing governmental operations, as well as in supervising the evacuation of civilians enabled the tactical troops to proceed unimpeded on their mission of halting the Nazi threat.

It is also true that aid rendered by Military Government in billeting troops and providing civilian services to the combat units was a sizable factor in the final Allied successes.

In addition, Military Government performed a myriad of "smaller, but often vital" tasks for tactical units. A partial list of them, supplied by Colonel Harry P. Cain, ACOS for G-5, XVIII Corps (Airborne) included:

Sanding of Main Supply Routes by civilians.

Advising civilians of the presence of American booby traps, mines, and demolitions left behind in abandoned sectors.

Removing cattle from Artillery Fire Direction Centers.

Issuing hundreds of passes to civilians.

Supervising the burial of civilians and livestock.

Providing transport and guards for power line maintenance.

Acting as a Bureau of Missing Persons to bring together separated families.

Appraisal of Military Government Control

On the other hand, the defensive phase brought to light certain weaknesses in Military Government organization and operation.

Many detachment and staff members stressed the difficulties they encountered in obtaining information and direction. The need for prior planning and the maintenance of liaison during such a period of disorganization seems patent.

Just a few weeks after the German Ardennes bid was finally halted, the G-5 Section of the First U. S. Army, then under Colonel George P. Seneff, Acting ACOS for G-5, made a thorough survey of the experiences of its Military Government detachments during the offensive.

The results of this study were published on January 24th, 1945 to all detachments in the Army Service Area as a guide for their operations in the event that similar conditions again arose.

To Be Expected

The first section of this "Letter of Instruction" was concerned with "What May be Expected" during such an offensive. It listed these 12 points:

1. Spreading of false rumors and false alarms by enemy agents, local defeatists and collaborators.
2. Administrative officials leaving because of fear of retaliatory measures.
3. Mass civilian evacuations, blocking highways.
4. Public institutions, records, and monies left unguarded.
5. Bombardment by the enemy, causing homes to be destroyed, further mass evacuations, civilians injured and dead, and disruption of the food distribution system.
6. Passive Air Defense and Fire Departments disrupted because of nominal heads leaving town and the remaining personnel either living in shelters or being inexperienced.
7. Police system disrupted because nominal heads have fled and personnel is insufficient to carry on in the emergency.
8. Pro-Nazi elements released from jails by enemy collaborators or by civil officials fearing enemy reprisals.
9. Refugees from the battle front, evacuated to the rear, needing food and shelter.
10. An immediate increased need for medical personnel, equipment and supplies to care for the injured.
11. As a result of bombardments, civilian and animal dead, and large amounts of rubble for disposition.
12. Mass military evacuations which cause the civilian population great anxiety.

The "Letter of Instructions" then enumerated 12 "Counter-measures" to be taken by Military Government detachments:

1. All possible means of communication to the public should be used to calm the civilian population, such as public address systems, radio, posters, or even house-to-house canvass. Addresses by either the mayor or Detachment CO may be given during the period of anxiety, daily.
2. Call a meeting of all the town officials, the meeting to include the following activities:
   a. A confidence talk supporting the Allied superiority.
   b. Last minute preparations for bringing up to full strength all civilian branches of the government and mobilizing auxiliary personnel.
   c. Liaison to be set up by each civilian branch with appropriate Detachment Branch Officer.
   d. Plan for safeguarding civilian records, buildings and monies.
   e. Plan for handling the dead, injured, homeless and starving.
   f. Plan for discontinuing civilian communications services—posts, telephone and telegraph.
3. Establish a program to stop or counteract false rumors and ease the people's anxiety.
4. Urge the public welfare and health official to:
   a. Place all doctors, nurses, midwives, and Red Cross personnel on 24-hour call, to be accessible at critical points.
   b. Make buildings and essential medicines available at critical points to give first-aid to the injured.
5. Store in safe places a quantity of emergency food.
6. Survey all possible billets and ready them for immediate use.
7. Mark air raid shelters and publicize their positions.
8. Maintain constant communications with your tactical unit.
9. Prevent civilian circulation, except for essential occupations (doctors, food distributors, railroad workers, etc.).
10. Establish a rigid curfew as approved by the tactical unit.
11. Keep military routes clear of civilian traffic by increasing local police, posting signs, and establishing check points.
12. Have critical bridges and utilities guarded.

The final section outlined "Conditions of Withdrawal," stated as follows:

1. Detachments leave their areas only upon orders of their tactical commander, or if without communication or orders, when in the judgment of the Detachment CO the situation is untenable and staying on would not aid the military effort.
2. Movement is made only after:
   a. All papers of a confidential or secret nature have been destroyed.
   b. All papers with the names of civilians aiding the Allies have been destroyed.
   c. All administrative officials have been notified and their evacuation has been expedited if requested.
   d. All communications services are discontinued; important records, maps, documents and essential items of equipment for possible operation of telephone exchange by enemy, and mail in transit of intelligence value to enemy has been forwarded to Regional PTT headquarters, if in liberated territory, or to safe storage if in enemy territory.
3. Movement is made secretly. A night withdrawal is suggested.

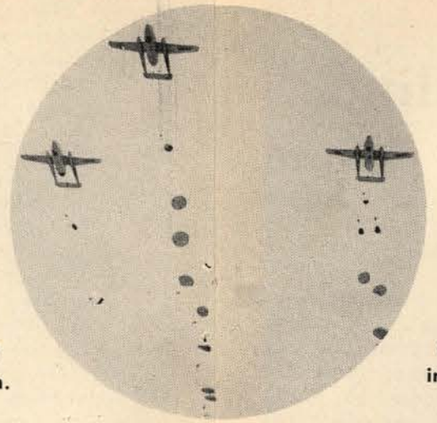
Colonel Cain, G-5, XVIII Corps (Airborne), very fittingly expressed the role of Military Government in defensive operations in the conclusion to one of his reports:

"Based on the experiences gained in the recent campaign," he wrote, "it seems clear and important that with freedom in the method of employment of Military Government Detachments, a G-5 has at his disposal a trained and capable instrument to successfully turn the problem of the civilian, which has plagued armies since the Caesars, into a boon to the campaign."

"If the efforts of the G-5 Section and its agents have been inconspicuous; if the civilian problem has seemed not too difficult, no more pleasing tribute can be paid to those of Military Government who have concerned themselves with this absorbing work."

EXERCISE

In late April and early May some 60,000 men and 600 planes picked up the next phase of the Armed Forces' postwar maneuver pattern and kicked off in Exercise Swarmer. Centered on the Carolinas, and commanded by the Air Forces' Lt. Gen. Lauris Norstad, Swarmer was designed to test the establishment of an airhead deep in enemy territory, with the emphasis on the sustained air lift in support of the tactical combat operation.



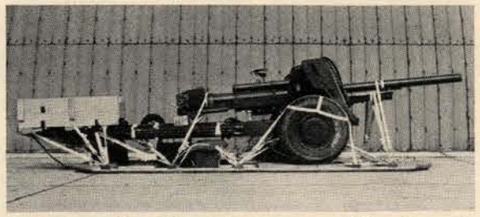
SWARMER

Participating troops on the friendly side included the 11th and 82nd Airborne Divisions. The "enemy" or Aggressor details were handled by elements of the 3d Infantry Division. Air Force, Navy and Marine air units were drawn from many points along the Eastern seaboard. New types of planes and equipment were tested and top commanders and their personnel entered the operation to learn things. Findings will contribute to defense planning.

Armor—and the plane to carry it. An M24 tank is loaded on the huge Douglas C124-A. Air transport of armor is essential, is still in early stages.

Air lift had the job of bringing in a steady stream of combat-equipped troops plus the huge tonnages to keep the expanding airhead going.

11th Airborne artillery crew set for direct or indirect laying following the H-Hour drop. Piece was banged up in landing but still operational.



The tremendous threat by armor to airhead establishment requires early drop of weapons like the 90mm AT gun, a sizable package to send earthward.

Aggressor on guard.

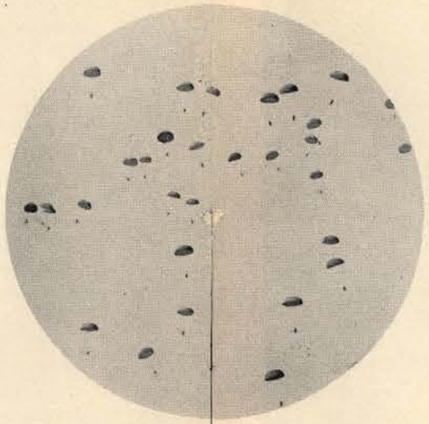
Swarmer brought forth several new types of attack transport capable of landing heavy loads on rough zones. Northrop's high wing-tail trimotor was one.

Recoilless weapons are well patterned to airborne needs. This 75mm is worth its weight and size in its contribution to airborne operations.

Aggressor tank battalion played hob with the airhead despite substantial fighter-bomber support. Armor could very well nip an airhead in the bud.

Advances in airborne methods make possible a pre-dropped pack, quick de-harness, preserver inflation safe for ribs.

Photos by
Capt. William Gardner Bell



Airborne operations put the accent on the rugged individual. It takes something to step off loaded like this.

Early drop brought in this 40mm AA gun to fend off enemy air attacks against the establishing airhead. Dropping of the 40mm is now standard.

Command—Assistance from an Outline

by LIEUTENANT COLONEL JAMES I. KING

THE PURPOSE of the attached outline is to give a commander a check list of important factors in considering the Combat Efficiency and Morale of a unit. The outline is pointed to a combat unit in an active theater, but it can be applied against such a unit, preferably a battalion or larger, in a zone of the interior location.

Certain logical factors enter into consideration when the face value of a unit for an operation is to be evaluated. Experience may permit an officer to adjudge these values by a seemingly cursory inspection. Undoubtedly an outline to guide a learning commander or staff officer on such an inspection would be valuable. If the commander is satisfied with the factors being considered he then must rely on the judgment of his staff officer to give him an evaluation.

Consideration was given to assigning an appropriate weighted value to each of the major factors. However, there is much to argue on each of the various items and it was finally decided that the estimate would be better made mentally by the user after perusal of the completed outline. For such interest as they may be the weight values considered for the major items are listed here:

Factor 1.	Time in Combat	Weight—14
2.	Casualties	" 11
3.	Service in Theater	" 11
4.	Personnel	" 14
5.	Training	" 14
6.	Equipment	" 11
7.	Weather	" 9
8.	Terrain	" 8
9.	Recreational Activities	" 8
		100

The opinion is held that Combat Efficiency and Unit Morale should be judged jointly. It is certain, from an *individual* standpoint, that a tired, worn and hungry Infantryman may not have high morale but is extremely combat efficient. However, a *unit* composed of these men is probably low in morale and in general combat efficiency. The reverse may likewise be true in a new unit, high morale and low combat ability. The estimate is conditioned by many factors, such as training, leadership, equipment, weather, terrain, and in operations, the opposition, to name a few.

The weights considered for possible allocation to the major factors were decided after consideration of the subitems under each factor in the outline form. They are usable solely to give a basis of judgment and comparison. No thought of setting a "passing grade" is considered. Perhaps, with use by one commander over a period of time and in consideration of several units, some level of sufficiency will be evident as to a "score" indicating failure, or satisfactory, or excellent conditions in each factor and as an over-all rating. Such usage of "scores" will permit a graphical record of various units.

The idea of such a tabulation of ratings was first presented when working in a Corps G-3 section in Italy. This was in the early days of the "forgotten front" of Italy and morale and combat efficiency were more than ever a constant worry to the Corps Commander. The approach at that time was to prepare a graph sheet on each division and major unit and from routine reports and the various staff section visits chart a series of graph lines which were then added together to produce a combined line. Illustrative of one line (factor) was to add one point for each of the first 60 days in line, hold level for 30 days, then drop two points for each day in line over 90 days. Other factors were likewise debatable as to value of the measure units. Graphs were produced which gave rating of units considered generally in agreement with the verbally stated staff ratings of the units. The graphs did give a black and white basis and backing to the ratings. Eventually the situation improved and the graph making was dropped due to the complexity and time-consumption of preparation.

The attached outline is an attempt to present a simpler, faster and more generally usable guide for the commanders' estimate of these important factors, Combat Efficiency and Unit Morale.

Commanders Estimate of Combat Efficiency and Unit Morale—Combat Unit in Active Theater

FACTORS:

1. Time in Combat:
   a. (1) Number of days in line since last relieved:
      (2) What type operations:
   b. (1) Total number of days combat for unit:
      (2) What type operations in what theater:
2. Casualties:
   a. Losses—during last (month) (week):

	O's	*EM*	*Total*	*% of Grand Total*
KIA				
Wounded				
Captured				
Missing				
Sick in hospital ..				
Grand Total .. (this date)				100%

   b. (1) Are there any special conditions affecting health of troops in units? Frostbite, malaria, fungus, etc.?
      (2) What per cent are affected and what is estimate of effect on unit?
      (3) Comments by Unit Surgeon:

3. Service in Theater:
   a. Time in theater:
   b. Date of entry:
   c. Method of entry:
   d. Type of service since entry:
   e. Type of previous six months service:
4. Personnel:
   a. Unit Strength:

	T/O		*Assigned*		*Effective*	
	O	*EM*	*O*	*EM*	*O*	*EM*
Total						

   b. By unit:
      (1) 15th Inf.
      (2)
      (3) 755 Tk Bn
      (4) etc.
      (5)
      (6)
      (7)
   c. Average strength per type Combat Company:

	Assigned	*Effective*
(1) Infantry		
(2) Tank		
(3) Engineer		
(4) Rcn		
(5)		

   d. Number replacements received within last (week) (month)—unit total: ....O's, ...EM, ...Total.
   e. Number RTU personnel rejoined within last (week) (month)—unit total: ....O's, ...EM, ...Total.
   f. Combat losses in leaders within last month—for entire unit: .....Plat Sgts, ...Bn Comdrs, ...Regt Comdrs, ...Plat Ldrs, ... Bn Staff, ...Regt Staff, ... Co Comdrs, ... O's ....O's.
   g. (1) What is policy in unit on rotation of reserve and front-line personnel and units?
      (2) Is it customary practice to deliver hot food to forward units and personnel? How is this problem handled?
   h. (1) For how long a period can present Comdr and Staff be considered as having been intact?
      (2) List major changes in this group within last three months:
      (3) Are any major changes expected soon? If so, where and why?
      (4) Are any major changes needed? If so, where and why?
   i. What is general impression of personnel of unit? ....Alert, ...Worn, ...Proud, ...Dejected, ...Confident, ...Know-how, ...Cleanliness (Personal), ... Sanitation (Area). *Use rating scale of Excel, Good, Not Good, Poor. Any comment:
   j. (1) Average age of personnel: ...O's, ...EM.
      (2) Education average in years schooling per individual: ....O's, ...EM.
      (3) Religious beliefs: (in per cent):

	O's	*EM*
...Prot, ...Catholic, ...Hebrew, ...Other		

      (4) Comments by Unit Chaplain:
5. Training:
   a. (1) Has unit had special training for type operations in which involved or for which considered?
      (2) What per cent of present personnel received this training?
   b. (1) How did unit perform last previous combat mission?
      (2) What, if any, weak points in training were shown?
   c. Is operation in which involved, or in which participation planned, considered as requiring special training?
   d. Your comment:
6. Equipment:
   a. What is status of major items (T/E) of *crew-served* equipment? (List shortages against authorized allowances if appropriate):
   b. (1) Is any special equipment (above T/E) needed for current operations or for considered operations? What items?
      (2) Is it available and to be issued?
      (3) In time to permit training needed?
   c. What is general impression as to condition of equipment observed?
      ....Serviceable, ...Not serviceable. Use rating scale of: Excellent, Good, Not Good, Poor. Any comment?
7. Weather:
   a. What have been general climatic conditions for the unit for the past (week) (month)?
   b. Can situation as to climatic conditions be expected to improve, or get worse? How? When?
   c. Are personnel and equipment acclimated? If not, what is needed?
8. Terrain:
   a. Over what type terrain has unit been operating during the past (week) (month)?
   b. Can situation as to terrain type and condition be expected to improve or get worse? How? When?
   c. Is any special equipment needed for type of terrain involved, now or in future plans?
      (1) What?
      (2) Is it available or will it be in time for necessary training? (Also see 6b preceding.)
9. Recreational Activities:
   a. How many in Unit Rest Area? ...O's, ...EM.
   b. How many in Army or other Rest Camp or Resort? ....O's, ...EM.
   c. Is Red Cross active in unit? What activities?
   d. Are there Officer, NCO, Enlisted Clubs organized? What activities do each sponsor?
   e. Are movies shown in the rear areas? How many how often?
   f. Does unit get any live shows, *e.g.*, USO? Are any unit talent shows organized and given?
   g. Are there unit athletics? Intramural? Competition with other units? What is extent of this program?

U. S. Constabulary Builds an NCO Academy

by BRIG. GENERAL BRUCE C. CLARKE,

Commandant, NCO Academy; Commander 2d Constabulary Brigade, Munich, Germany

THE United States Constabulary opened a Noncommissioned Officers Academy—the Army's only school of its type—on October 17, 1949, in Munich, Germany.

From the initial assemblage of 150 students to its current curriculum setting a stiff pace for its full-strength student complement of 320 Constabulary troopers—the school has been an answer and a challenge. It has been an answer to developing the NCO as a leader—the role which must be his in our modern Army. And it is a challenge in sharpening his know-how, expanding his background and lifting his prestige.

The NCO Academy at Munich, heralded as the most advanced effort by any postwar Army unit to custom-train its noncommissioned officers for today's command responsibility, is the outgrowth of the belief of Major General I. D. White, Constabulary Commander, that an Army's chain of command is no stronger than its critical link—the noncommissioned officer.

Two facts—that the observation was an astute one and that the program is a wise one—have been borne out over and over again in my work as Commandant of the Academy these initial months.

Much has been accomplished for the NCO since last August 10 when I arrived in Germany and General White directed that I build a school with a program of instruction that would provide a broad background knowledge and training that would enhance the prestige of the Constabulary noncommissioned officer corps.

My experience as Assistant Commandant of the Armored School at Fort Knox made my work easier. I created my staff partly from officers who had worked under me at Knox as students or instructors. I immediately drew up plans for saturation instruction and in four weeks the first class was started.

"We do not intend to teach you anything that is not practical," I told the first group of noncoms at the school's opening.

"We propose, in carrying out the academy's primary aim of developing you as leaders—to teach you how to teach others—how to reproduce for your men, the subject matter which you are taught here."

Propelled by that objective we are coursing full-speed ahead. The resulting schedule is tough to chew, strenuous to digest. Fourteen subjects are on the academy's curriculum: Drill and Command, Military Justice, Physical Training, Leadership, Instructor Training, Ceremonies, Use of Chain of Command, Basic Tactics, Weapons, Administration and Supply, Maintenance and Inspection, Characteristics of a good NCO, Job Management, Training of Small Units and Current Constabulary Problems.

The timing is tight—and a challenge—requiring rigid discipline and hair-trigger concentration with 48 or more classes meeting daily, calculated to make NCOs well-grounded as teachers as well as leaders of troops.

But the challenge to NCO students was set forth at the outset when Maj. Gen. I. D. White, Constabulary Commander; Lt. Col. Maynard D. Pederson, Academy Assistant Commander, and myself, on opening day keynoted the Academy's purpose, "to deepen the students' sense of duty, widen their professional knowledge, increase their dependability and help them gain the reputation of men who get things done."

"Throughout all," we informed NCOs, "you will develop your capacity as leaders of men by studying leaders and analyzing traits of leadership."

To achieve these purposes, the school is divided into three major departments: Leadership and Command, Tactics and Personnel and Administration.

The Leadership and Command Department, charged with 146 hours of instruction over the six-week period, delves into the psychological aspects of leadership; personal adjustment; development of personality; characteristics of a leader; roles of Army leadership; solution of the leader's problem; and leader-subordinate relations.

The department's second section—Methods of Instruction—presents and supervises 42 hours of Conference, Demonstration and Practical Work. It teaches the NCO student how to prepare and present effective instruction, emphasizing a 15-hour course in the techniques of Weapons Instruction; 10 hours of conference and practical work on preparing and conducting inspections; and 15 hours of conference and practical work instructing the NCO on the basic rules of company level sports and how to organize and conduct such sports in his unit.

The Tactics Department, in a 50-hour course, covers classes in: Estimate of the Situation, Intelligence Training, Tactics and Training of Small Units, Handling of Civil Disturbances, Map Reading, Aerial Photography and Message Writing, and Capabilities and Uses of Light Aviation Units in Constabulary.

Horseshoe-shaped, tiered sand table rooms, patterned after the ones developed at Fort Knox, are used for instruction in tactical subjects and here students work out solutions to tactical subjects.

The Personnel and Administration subjects groom the noncom in Job Management and Administration, Supply, Citizenship and Morality, Troop Information and Education, and in Career Management.

The up-and-at-it pace maintained at the Academy allows for no falling by the wayside. The academic day begins with reveille at 5 a.m. and closes with taps at 11 p.m.

A typical student week includes eight classes of practical instruction periods of 45 minutes per day, Monday through Friday, including one retreat parade each week.

Saturday morning is devoted to practical instructions and inspections. Students are also required to study two hours each evening Monday through Friday. Those students who fall short of minimum class standards are eliminated.

All possible help is given to the student as the Academy is organized for maximum student-teacher contact. The 320 students are instructed by 22 officers and 40 enlisted men. All men—both students and faculty—wear name cards to facilitate acquaintanceships.

Also, maximum student government prevails. The student battalion is organized into two companies, student-controlled as far as possible. Each student company of 160 men is divided into three platoons of about 50 students each. The platoons are commanded by a series of senior NCOs selected in rotation from the student body.

Student battalion responsibilities extend to promoting the students' welfare and to accomplishing details of their administration while they are in school.

In selecting students for the Academy, certain prerequisites were established. NCOs of the first three grades who have not been an officer or who have not completed similar training at a service or EUCOM school are considered NCO Academy material. In general, students selected have at least six months duty remaining in the command after completing the course.

In order to provide replacement NCOs with a satisfactory level of training, 40% of the students attending the Academy are selected from grades 4 and 5, provided they have an AGTC score of at least 90 and have shown proper aptitude for NCO training within their respective units.

To provide major incentives, an award fund has been set up to present suitable awards to the six outstanding students of each class. Throughout the six-week course, student grades and standings are posted continually, so each man knows at all times how well he places in relation to the entire group.

Furthermore, back in his home unit, his commander knows how the student is faring while at the academy. A full report covering the student's activities while at the academy, which is furnished to his commanding officer, covers in general the scholastic record, aptitude, deportment and instructional ability.

U. S. Army

Marching to class—Day's program is arranged for classes, calisthenics, recreation and study.

The academy's grounds and location at Jensen Barracks, Munich, lend background color and meaning to the NCOs in attendance. Formerly known as the Saar Kaserne, its construction was begun in the first year of Hitler's rise to power and was completed in 1935. In April 1943, General Rommel was assigned as Commander of the Kaserne, to organize it as a repair unit for armored vehicles damaged in combat.

In 1948 the Kaserne was renamed Jensen Barracks in honor of Pvt. Gotfred Jensen, a member of the 1st North Dakota Volunteer Infantry, who was awarded the Medal of Honor for routing 300 of the enemy on May 13, 1899 while serving in the Philippines.

The change from having the Kaserne turned from a Nazi stronghold and site of dictatorship based on fear and ignorance, into a school for well-informed, thinking leaders of men, is truly a pleasant prospect to contemplate.

There are 10 buildings in Jensen Barracks proper, including a mess hall for academy students, EM club, PX and snack bar, theater, school assembly hall, chapel, classrooms, and billets for students. The Headquarters of the Academy is in the Kaserne adjacent to Jensen Barracks.

The six principal buildings of the Academy have been named after Congressional Medal of Honor enlisted men who gave their lives in World War II in the European theater. Their memorial serves as an inspiration to all on the campus.

Prestige rode high at the Academy's first graduation exercises in Munich, presided over by General Thomas T. Handy, EUCOM Commander-in-Chief. Six men distinguished themselves as honor graduates, 140 received their coveted diplomas and only 14 men failed to graduate.

General Handy cited the students' "enviable position" as members of the first graduating class of this school dedicated to increasing prestige of the Constabulary Noncommissioned Officers Corps, emphasizing that "the Army never has enough leaders," and that all the mechanical devices of war "are not worth a dime unless we have a skillful and courageous leader and crew" to man them.

General White added that he expected the men "to spread the effects of their learning throughout the units of Constabulary," stressing "It is most important that you have learned to handle your duties and responsibilities without having to be told what to do at every turn."

The academy presages a general lifting of the level of the noncommissioned officer from a so-so basis to a status of a responsible leader. We who are working with the students are measuring results with respect and sizing up each new graduating class with justifiable pride.

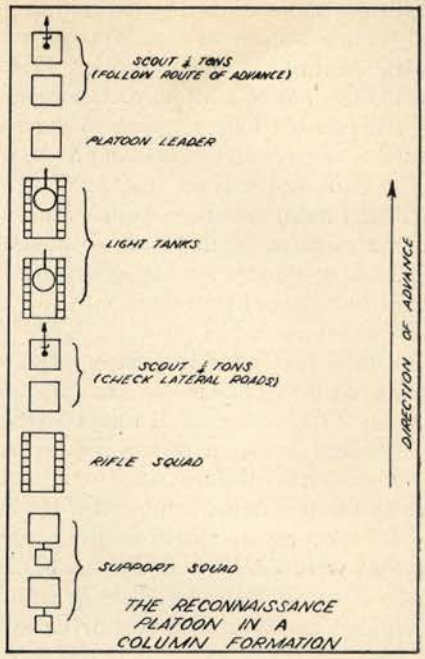
A goodly amount of inspiration and respect for results has spilled over into other Army units who, through knowing the Academy was set up primarily for Constabulary NCOs, are requesting quotas to the school.

The Academy's future is bright with hopes of progress, and it is anticipated classes will be slightly enlarged to take care of students from other Army units.

While the workload has been felt, and both faculty and students have been caught up in its strenuous stride, the results far outweigh the effort.

FIGHTING FEELERS

by MAJOR FORREST KLEINMAN



THE RECONNAISSANCE PLATOON IN A COLUMN FORMATION

The situation is fluid. Two days ago our forces smashed through the enemy's hasty defenses at the beachhead and now the 24th Infantry Division with its sister outfit, the 25th, is pouring through the gap to exploit the break before the enemy can shift reserves. Our objective is the key port of "X" and the 24th is determined to maintain the unbroken string of triumphs that won it the nickname of "the Victory Division" in the last war.

Ten miles ahead of the fast-moving Infantry-Artillery teams is a lone company of daring, highly trained men. As they probe along the two parallel roads that constitute the axis of the Division's advance, perhaps the spirit of Phil Sheridan or "Git-thar-fustest" Forrest rides with them —for they are the cavalry of today. They are the fighting feelers which locate enemy resistance and eliminate it or develop it until infantry and artillery can move up for the kill.

Like their forebears of Sheridan's day, these modern cavalrymen are characterized by aggressiveness and mobility. But here the resemblance ends. This outfit packs enough automatic fire power behind the armored hide of its light tanks and personnel carriers to slice through anything but the stiffest opposition from numerically superior forces. One platoon of the 24th Reconnaissance Company would have changed the history of the world if time had jumped a century or so to permit its presence at Waterloo or Gettysburg!

One of its platoons is about to make some history right now near a village we must call "Z" (for security reasons):

As the lead scout jeep of the platoon noses over a low ridge two miles from the village, a movement in a patch of woods on the next rise catches the alert eye of Corporal Alva Dickson. Signalling his men to cover, Corporal Dickson scans the area ahead through binoculars.

His suspicion is sharpened by a metallic glint in the distant foliage. An order to his machine gunner sends a stream of .30 caliber bullets to investigate. Reconnaissance by fire. Saves lives.

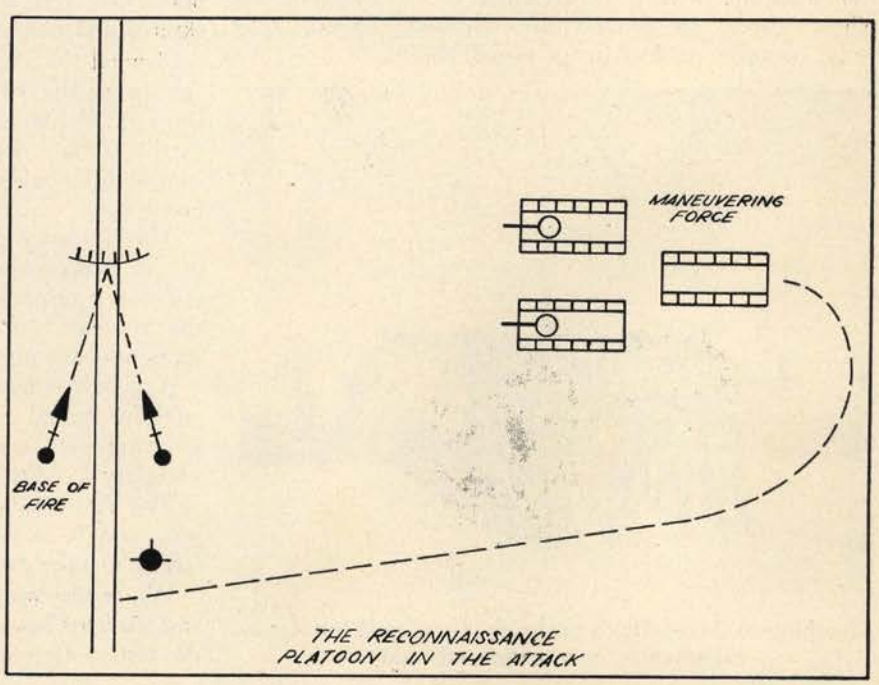
Suddenly the peaceful wood erupts with answering rifle and machine-gun fire, and Corporal Dickson gives thanks for his 20/20 eyesight. If he hadn't spotted this cozy little trap, the platoon would be up to its ears in ambush by now.

Lieutenant William Coghill, the platoon leader, comes up now and quickly sizes up the situation. "Just about our size and made to order," he says with a grin.

His radioed orders to the platoon, dispersed in column along the road behind him, are simple and to the point: "The enemy occupies the sparse woods about 800 yards to our front. Looks like one reinforced rifle platoon. We will attack at once.

"The support squad and scout section under Sergeant Wolf will establish a base of fire where our lead scouts are now engaged. Dismount now and move up along the road. Corporal Dickson will meet you and indicate fire positions. Start shooting as soon as you are in position.

"The tanks, supported by the rifle squad, will maneuver to our left under cover of this ridge and hit them on the flank. I will join the



THE RECONNAISSANCE PLATOON IN THE ATTACK

tanks where they are now parked and show the route.

"When the tanks are in position to assault, I will radio and fire a red flare to indicate lift mortar fire. During the attack, I will be in tank number one. . . ."

It all happens like a book solution. While the light machine guns and the mortar hammer the ridge, the two tanks supported by riflemen hook in from the flank and nail 'em. A half hour later, the platoon is assembled in open column along the road again. Back to G-2 by jeep go a captured enemy officer and NCO for interrogation while the platoon pushes forward, looking for more trouble. . . .

Now that the shooting is temporarily over, it can be disclosed that the village of "Z" is actually Camp Hakata on Kyushu. The bullets used in the fray were blanks, of course, and the enemy was furnished by our own 21st Infantry Regiment.

But skirmishes like this one *are* helping to make history! Napoleon once said that he learned the tactical skill that won his battles *before* he saw a battlefield. The Battle of Gettysburg was started (and thereby lost) from a meeting engagement of reconnaissance elements of the two armies. If the 24th Infantry Division is ever called upon again to defend our country, victory or defeat may well depend upon how well the present members of its Reconnaissance Company, like Sergeant Wolf and Corporal Dickson, are now learning their combat jobs.

Expert observers like Captains Joseph Gude of Division Headquarters, and Edward Just, 21st Infantry, who umpired the 24th Division's recent preliminary tests for the $1,500 FEC Armored-Cavalry Leadership competition, say that this summer's intensive training is paying off. From the men and guns and tanks and jeeps that make up the unit are emerging well-knit reconnaissance teams capable of fast-moving and aggressive action. But the Company Commander, Lieutenant Harland Koch says "We're not satisfied and won't be until every man in the company is capable of running it in combat!"

Wonder if any of General Sheridan's descendants married into a family named Koch?

Armored Cavalry Career Field Enlisted Promotion Scores

The Department of the Army recently forwarded to all major commands the promotion scores for the Armored Cavalry Career Field examinations. These promotion scores have been published for all MOS in the Armored Cavalry Career Field in the upper three grades for which examinations were held. Upon receipt of these promotion scores all major commanders have been authorized to promote those competitors on the uniform Army-wide Cavalry Career Field examinations who obtained an individual score equal to or above the announced promotion scores, provided the individual is in promotable status, i. e., still a member of the Army in good standing.

As a result of applying the Armored Cavalry Career Field promotion scores, the Army Department estimates that there will be a total of 530 Armored Cavalry Career Field promotions in the upper three grades. Sixty-two promotions, it is estimated, will be made to Grade E-7 Master Sergeant. One hundred and seventeen promotions, it is estimated, will be made to Grade E-6 Sergeant 1st Class, and 351 promotions, it is estimated, will be made to Grade E-5 Sergeant.

The Army Department announced that there were a total of 873 applicants examined on the Armored Cavalry Career Field examinations in the upper three grades. Ninety applicants were examined for Grade E-7 Master Sergeant promotion, 330 applicants were examined for Grade E-6 Sergeant 1st Class promotion, and 453 applicants were examined for Grade E-5 Sergeant promotion.

These promotions will be distributed among the several MOS in the upper three grades in the Armored Cavalry Career Field as follows: The number of applicants for each MOS and grade is also provided.

ARMORED CAVALRY CAREER FIELD MOS

Grade E-7 (62 Promotions)

MOS	Title	Total Promotions	Total Applicants
1616	Armored Operations Chief	1	2
1733	Armored Reconnaissance Leader	28	40
1736	Armored Intelligence Chief	5	5
1795	Tank Leader	28	43
1796	Amphibian Tank Leader	0	0
		62	90

Grade E-6 (117 Promotions)

1616	Armored Operations Chief	2	3
1733	Armored Reconnaissance Leader	51	124
1736	Armored Intelligence Chief	2	11
1795	Tank Leader	61	188
1796	Amphibian Tank Leader	1	4
		117	330

Grade E-5 (351 Promotions)

1616	Armored Operations Chief	5	5
1736	Armored Intelligence Chief	3	3
3733	Armored Reconnaissance Crewman	162	206
3795	Tank Crewman	177	232
3796	Amphibian Tank Crewman	4	7
		351	453
	Total	530	873

These Armored Cavalry Career Field Promotion scores are the second to be announced for the Combat Career Fields.

On Signal Communications for THE ARMORED DIVISION

EVERY individual in the armored division must receive a certain amount of signal communication training. Depending upon their assignment, some will require more than others. Each individual should be able to operate the voice radio equipment authorized his unit, be able to send and receive voice messages by radio or telephone, be able to write a message on a field message blank, and be cognizant of the principles of communication security and the communication system of his unit.

The efficiency of the signal communication system of the armored division is dependent upon adequately trained operating and using personnel. The minimum training time required may vary from a few days to many weeks, depending on the military occupational specialty (MOS) of the individual to be trained. Appropriate tables of organization list the MOS of communication personnel of the armored division. These personnel may receive their specialist training in unit, division, or Army service schools. The choice of where each specialist is to be trained must be determined by the situation of the unit concerned. The following recommendations may be used as criteria in the training of armored division communication personnel:

Specification Serial Number	*Military Occupational Specialty*	*Recommended Training*
0145	Radar Officer	Service School
0200	Communication Officer	Service School
514	Operator, Radar	Service School
775	Repairman, Radar	Service School
648	Repairman, Radio	Service School*
542	Communication Chief	Service School* or Division School
740	Operator, Radio, Intermediate Speed	Division or Unit** School
776	Operator, Radio, Low Speed	Division or Unit** School
667	Message Center Chief or Clerk	Division or Unit** School
345	Messenger	Division or Unit** School
650	Operator, Switchboard, Telephone	Division or Unit** School
641	Lineman	Division or Unit** School
1599	Operator, Radiotelephone	Division or Unit** School

*Courses for training of Comm Officers, Comm Chiefs and Radio Repairmen are available at The Armored School.

The Comm Officers and Chiefs receive sufficient training so that they can on return to their unit establish and instruct schools for training of the specialists marked with the double asterisk.

Communication Schools

It is recommended that certain communication personnel receive their specialist training at service schools. This type of school will normally offer the most economical and complete course. If conditions are such that attendance at service schools is impossible, the required training may be accomplished in division schools. If appropriate training schedules are not available at division level to conduct courses of instruction for such specialists, they may often be obtained from the appropriate service school.

Whenever possible, the training of communication specialists should be conducted in division rather than subordinate unit schools. This is desirable from the standpoint of economy of instructional overhead and standardization of instruction. These schools are conducted under the direction of the division signal officer. Instructors are provided by the armored signal company and subordinate units of the division. The best-qualified individual in the division for each subject should be the instructor in that subject. Personnel to attend classes should be detailed to the school on division orders to insure their presence for all instruction. To achieve the highest standard of instruction, consideration should be given to the necessity for training qualified personnel in instructional techniques.

Unit schools are established when appropriate division schools are not available. They are also established for refresher training. Their operation is similar to that of division schools.

On-the-Job Training

On-the-job training will produce adequate results when a high degree of technical proficiency is not required. It is particularly applicable to the following specialist categories: message center personnel, linemen, and switchboard operators. It is very difficult to train radio operators or radio repairmen because of the high degree of skill and technical knowledge required in these occupations. On-the-job training should be used as the final training phase for all communication personnel once formal instruction at a school has been completed. For instance, a graduate of a radio operator's course should immediately be placed with an expert radio operator for final on-the-job training.

Whenever possible, personnel are trained in sec-

Some Training Notes

by CAPTAIN WILBURN L. LESTER

ondary duties. Messengers are trained to be code clerks and linemen. Radio operators receive training in the presetting of channels of voice radio sets. Where the required training is not too technical and adequately trained personnel are available, additional personnel may be trained in these functions by on-the-job training. A messenger may be placed with a code clerk in order to learn the duties and functions of a code clerk. This principle may be used for many jobs and may be employed at almost any stage of training within the unit. Also this system may be employed to raise the level of training within the unit. Unit radio repairmen may be sent to the armored signal company for on-the-job training with the field radio maintenance repairmen. Units may exchange personnel for short periods so that each may learn the techniques and practices employed by the other.

Team Training

The individual specialist is assigned to a communication team when he has learned to perform his particular duty. As each member of the team becomes more familiar with his duties, he must be trained to perform the jobs of other members of the team. It is only after he has learned to perform these additional duties, and has perfected his technique through close cooperation with the other members of the team, that the full advantage of his training is realized. Specifically, during periods of heavy traffic when all members of a message center team are required for operation, certain radio operators may be required to assist in encrypting and decrypting messages. The communication team is trained within the unit under the technical supervision of the communication officer. It is suggested that a large part of this training be carried out in the field and should consist of practical work exercises.

Small units do not require communication personnel in such numbers as to permit organization of teams for specific purposes. For example, within the tank company there is authorized a communication sergeant, an agent liaison, a bugler, and a radio repairman. While specific personnel for over-all signal operation are not authorized, the tank company must establish and operate a message center and oftentimes a wire system. Communication personnel and other available men are trained in the above functions so that, as a team, they are capable of handling all communication requirements of their unit.

When each team has reached the desired level of proficiency, they are combined in training to operate the complete unit communication system. At this stage the individual teams will begin to operate with the unit in command post exercises and field exercises. Within the unit, training in signal communication is continuous. It is combined with other training whenever possible. For example, training in vehicular driving and marches should include the use of radio sets and interphones, and command post exercises should be so conducted that all communication facilities available are utilized.

Combined Training

As soon as unit training is completed the unit begins to train as part of a combined arms team. Command post and field exercise problems are performed on the reinforced battalion, combat command, and division level. The normal radio nets for use within a unit, up to and including division nets, are established and operated as frequently as possible. Command post exercises and field maneuvers, including combined arms teams, reinforced battalions, and combat commands, require a flexible communication system. Defects in the operation of the communication system, discovered during these exercises must be corrected. In certain cases this may require additional instruction, particularly to the commanders and communication personnel of units such as tank and armored infantry companies that are often detached from their parent unit.

Refresher Training

Once the desired level of training has been reached it must be maintained. Refresher training is conducted for individuals, teams, and units. In order to maintain his proficiency the radio operator must continually be given refresher training and practice in the performance of his duties. Refresher training may consist of classroom instruction, team training, or unit training. Continuous surveillance is required to insure that the desired level of training is maintained. In many cases this may consist of insuring that communication personnel are employed in their primary duty assignments and are not allowed to remain too long in the performance of administrative or secondary duty assignments. Refresher training programs should avoid monotonous code table practice, or other tedious drills.

news notes

Division Association Conventions-Reunions

Armored Divisions

1st Cleveland, Sept. 1-3
2nd New York, July 28-30
3rd Chicago, July 6-8
5th St. Louis, July 13-15
6th New York, Sept. 1-4
7th Detroit, Sept. 29-Oct. 1
8th Chicago, June 30-July 2
11th Louisville, Ky., Aug. 17-19
12th Columbus, Ohio, Sept. 1-4

Airborne Divisions

82nd Philadelphia, June 2-4
101st Washington, Sept. 1-2

Infantry Divisions

1st New York, Aug. 25-26
3rd New York, July 13-15
6th Minneapolis, July 13-15
8th Cincinnati, Nov. 17-19
9th Chicago, July 13-15
24th Chicago, Aug. 11-13
25th Washington, July 7-9
26th Worcester, Mass. July 22-25
27th Albany, Oct. 6-7
29th Baltimore, Sept. 1-4
32nd Madison, Wisc. Sept. 1-4
34th DesMoines, Ia., Sept. 16-17
35th St. Louis, June 9-11
37th Cleveland, Sept. 1-4
41st Portland, Ore., July 21-23
42nd Detroit, July 13-15
43rd Old Orchard, Me., Sept. 8-10
63rd New York, June 16-18
71st New York, July 21-23
75th Kansas City, Mo., Aug. 16-18
76th New York, Sept. 15-17
83rd Boston, Aug. 17-19
84th New Orleans, Aug. 24-26
87th New York, Sept. 17-19
88th Cincinnati, Aug. 17-19
90th Fort Worth, Tex., Nov. 3-5
94th Boston, Aug. 4-6
95th Chicago, Oct. 13-15
99th Pittsburgh, June 23-24
100th Boston, Sept. 8-10
102nd St. Louis, June 23-25
103rd New York, Nov. 17-19
104th Pittsburgh, Sept. 1-4
106th Detroit, July 28-30

Other Units

1st Cav. Div., New York, Sept. 1-4
1st Spec. Serv. Force, Helena, Mont., Aug. 10-12
Ninth Army, Washington, June 29-30
10th Inf., Regt., Cincinnati, July 21-22

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Winners of Highest Service Awards To Choose Selector of World War II Unknown

One of five representatives of the Army, Navy, Air Force, Marine Corps and Coast Guard who were presented the highest awards of those services during World War II will make the actual selection of the World War II Unknown at Independence Hall, Philadelphia, on Saturday morning, May 26, 1951, Secretary of Defense Louis Johnson announced recently.

The method by which the selector will be chosen and the manner in which the final selection of the World War II Unknown will be made, is to be agreed upon by the five service representatives just prior to the selection ceremony.

Representatives of the services are to be nominated, together with five alternates, by the Secretary of the Army, Secretary of the Navy, Secretary of the Air Force, and the Secretary of the Treasury. Each service will decide upon its method of selecting a principal and alternate representative.

Selection of the World War II Unknown will be made at Independence Hall from among six unidentified American dead who are to be brought back to the United States for this purpose. The six will represent the European, Mediterranean, Africa-Middle East, West Pacific and Mid-Pacific theaters and the Alaskan Command. Remains will be selected from among unidentified dead in U.S. military cemeteries and national cemeteries in those areas.

Following selection of the World War II Unknown at Philadelphia the remains will be brought to Washington, D. C., and will rest in state in the rotunda of the Capitol. Final burial will take place at Arlington National Cemetery on Memorial Day, Wednesday, May 30, 1951.

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Texas 49th Armored Division Completes Organization

The 49th Armored Division of the Texas National Guard has completed organization.

Federal recognition of Company D, 148th Armored Infantry Battalion, Jacksonville, Texas, completed organization of the division, one of two armored divisions organized in the postwar National Guard. The other, the 50th Armored Division of New Jersey, completed organization of its 110 component units some time ago.

The National Guard now has completed organization if 4 infantry and armored divisions. The remaining three infantry divisions—the 29th of Maryland, Virginia and West Virginia; the 32nd of Wisconsin and the 35th of Kansas and Missouri—lack only nine units.

With 2,961 divisional units in 35 States Federally recognized, National Guard divisions were 99.7 percent organized.

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Boundaries of U.S. Naval Districts Shifted to Coincide With Army and Air Force Areas

Boundaries of the ten Naval districts within the United States will coincide with the boundaries of the six Army and Air Force areas, with the exception of the lower part of New Jersey, under the provisions of a directive issued by Secretary of the Navy Francis P. Matthews.

Although boundaries of the various districts and areas will be the same under the Naval district realignment, three Army and Air Force areas will include more than one Naval district. The boundaries of Army and Air Force areas have been the same for some time.

Secretary Matthews' directive transfers the State of Ohio from the Ninth Naval District, with headquarters at Great Lakes, Illinois, to the Fourth

FOR THE COMMANDER-IN-CHIEF—A TANK

Secretary of the Army Frank Pace presents President Truman with a replica of the Army's General Patton Tank in a ceremony at The Infantry Center, while Major General Withers A. Burress, Commanding General of the Center, looks on. Occasion was a recent orientation tour of the Armed Services attended by top military and civil leaders.

Naval District, with headquarters at Philadelphia, Pennsylvania.

The state of Kentucky, now part of the Ninth Naval District, is transferred to the Fifth Naval District, with headquarters at Norfolk, Virginia.

The changes are effective on April 1, 1950.

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Four National Guard Units Awarded Eisenhower Trophy

Award of the Eisenhower Trophy to outstanding National Guard units in Alabama, Illinois, Indiana and Utah was announced recently.

Awarded annually to the outstanding company size unit of the Army National Guard in each State, the District of Columbia, Hawaii, Puerto Rico and Alaska, the award is named for General Dwight D. Eisenhower.

Latest units awarded the trophy for performance during 1949 are:

Co. A, 131st Tank Battalion, Piedmont, Alabama.

Co. M, 130th Infantry Regiment, Mt. Vernon, Illinois.

Heavy Mortar Co., 152nd Infantry Regiment, Jasper, Indiana.

Service Battery, 204th Field Artillery Battalion, Smithfield, Utah.

Units in 11 States and Puerto Rico have won the trophy so far for 1949. Presentation of the cups, which are retained for one year, and of 15-inch replicas for permanent possession, will be made at field training encampments this summer.

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Army to Establish Guided Missile Training Group at Fort Bliss

Establishment of a guided missile training group at Fort Bliss, Texas, in connection with the use of guided missiles as operational weapons was announced recently by the Department of the Army.

The creation of an Army training group places guided missile training under control of the Army Field Forces. It will provide a program designed to assure the Department of the Army of a high standard of training among individuals and units in the guided missile field.

The training group will consist of three battalion-size units which will conduct simultaneous and successive phases of training as follows:

The first battalion will be composed of highly trained personnel now available to the Army Field Forces. Its mission will be to develop cadre for the units of the third battalion which will conduct the service-testing of experimental guided missile weapons. The most highly trained guided missile specialists will come from the first battalion.

The second battalion, formed and trained simultaneously with the first battalion, will be composed of personnel who, for the most part, have no previous training in guided missile work. The battalion's mission will be to conduct guided missile preliminary indoctrination and advanced individual training. Lesser specialists and guided missile training aids will be developed in this unit.

The third will be composed of personnel who have completed training in the first two battalions. Its mission will be threefold:

(1) To provide guided missile units to assist in the service-testing of guided missile weapons; (2) to develop Tables of Organization and Equipment for operational guided missile units; and, (3) To conduct unit training and develop guided missile tactical doctrines.

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Army and Navy to Participate Jointly in Special Training-Devices Program

A joint agreement which provides for Army participation with the Navy in the activities of the Navy Special Devices Center, Sands Point, Long Island, New York, was announced recently by the Departments of the Army and the Navy.

The center, which was located in Washington, D. C., during World War II and moved to Sands Point in 1946, is used for the evaluation, research, development, and procurement of certain training aids and devices, and for research in human engineering.

The training aids developed for the Army at the center will be similar to such devices now in use as a remote electronic scoring device used on rifle ranges to score automatically each shot fired into distant targets, or a radar device recording hits and misses on planes by antiaircraft gunners without any missiles actually being fired.

Army participation in the center is one of two steps toward the ultimate objective of establishing a system which will enable any using agency of the Regular Army and the Reserve Components to obtain required training aids of proven value in an expeditious manner. Besides using the center, the Army plans to establish

and features

training aid facilities in each Army Area which will devise the simpler types of training aids and act as storage and distribution centers for the aids.

Participation in the Navy Special Devices Center, it is believed, will insure the availability of training aids of proven value for Army-wide use, and will unify the development and issue system for all types of training aids. The training aid centers, which have received the enthusiastic support of Army Commanders, the Chief of the National Guard Bureau, and the Executive for Reserve and ROTC affairs, will bring about the orderly supply, storage, issue and repair of training aids.

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Army Redesignates Four Installations

Four installations of the Army presently designated as Camps are to be renamed Forts, the Department of the Army announced today. Orders now in preparation will affect the following posts:

Camp Hood, Texas, home station of the 2nd Armored Division, will be redesignated Fort Hood.

Camp Campbell, Kentucky, headquarters of the 11th Airborne Division, will be known as Fort Campbell.

Camp Lee, Virginia, the home station of the Quartermaster School and Board, WAC Training Center, and the Adjutant General School, will be called Fort Lee.

Camp Holabird, Maryland, the Counter Intelligence Corps Center, will be redesignated Fort Holabird.

ARE YOU WELL INFORMED?

Answers on page 64

1. This is a period of anniversaries. Do you recall the dates of (a) the German strike into France and the West? (b) the Allied entry into Rome? (c) the Invasion of Normandy? (d) VE Day?
2. The long-awaited VE Day came at Reims, where Germany surrendered to the Allies. Do you recall the principals who represented the Allies and Germany at the surrender?
3. Fire and flood have been wreaking havoc in several of the Canadian provinces. Can you name Canada's provinces?
4. A Navy privateer recently disappeared in the Baltic Sea area at the same moment that Russia claimed that her fighter planes had exchanged fire with a "B-29 type" plane over Latvia. What is the status of Latvia?
5. The Baltic Sea fronts on nine countries. Can you name them?
6. In an attempt to clear up the impasse in the United Nations the Secretary-General has made a trip to Russia to consult with high Soviet officials. Who is he?
7. Henry L. Stimson recently criticized Senator McCarthy's attack on the State Department. Mr. Stimson was Secretary of State under one president and Secretary of War under three. Under which presidents did he hold these posts?
8. Pakistan's prime minister has just visited this country, closely following the visit of India's prime minister. Can you name the two men?
9. June 26 will be the fifth anniversary of the signing of the United Nations Charter. How many nations comprised the original group of United Nations? How many members are there today?
10. The Big Three Foreign Ministers have been meeting in London to discuss ways and means of strengthening the Atlantic community. Would you say that the combined population of the Atlantic Pact countries is more or less than the combined population of the Soviet Union and its satellites (not including China)?

the relation between the political and the military in various countries operating under different systems of government makes for interesting analysis, touching on a broad range of background such as mercenaries, conscripts, developments in war, political training of military personnel, political use of élite forces and differences between military and political leaders

Élite Forces and the Party State

by EDMOND COCKS

OF ALL the many predictions by authorities in the post-World War I era, regarding the nature of this recent war, one of the most generally held and, in the light of experience, most obviously false, was the belief that this war would be fought with smaller numbers of combatants, relative to national population, than was the case in 1914-1918.

This belief, held by such authorities as Generals Fuller, Von Seeckt and De Gaulle, was based upon two factors: (1) that the mass armies of national conscripts of 1918 had lost their power to maneuver and thereby force a decision on the field, and (2) that all the important military issues in the World War were caused by political disintegration of the defeated nations.

That professional soldiers should resent the loss to the political agitator of the power to achieve decisions is to be expected. They met the challenge to their position with a series of new techniques and theories, all of which would have reduced the size of armies and all of which were being tentatively applied in the closing days of the first World War.

Allied officers, like Fuller and De Gaulle, held the machine gun responsible for the impasse. In trench warfare "Generals . . . became administrators rather than commanders."[1] They held that "The answer to an ounce of lead was one inch of steel"[2] and predicted that "as mechanization proceeds, armies grow smaller and not larger."[3] The army of the future would be a small, highly mechanized force of professional soldiers, a force that would make mass armies obsolescent, victims of the slashing attacks of armored forces; akin to the wooden warships in Hampton Roads when the *Merrimac* struck.

The Germans, on the other hand, being permitted no armor, developed from the storm troop formations of the World War heavily armed and trained professional troops and with the infiltration technique they had helped to develop, created what they considered the future army in the Hundertousend Heer. The national mass would supply equipment and replacements. This type of formation, Von Seeckt held, would "cleave through the conscript mass like a knife through butter." The small professional army had the added attraction to German officers who had lived through November, 1918, of being politically dependable.

In spite of the fact that these two theories disagreed as to the nature of future tactics and both proved false in believing in the triumph of military professionalism, the bases of their predictions remained valid and eventually came true in a manner anticipated by none of them. This was the formation in World War II, within all national armies, of special elite troops, with special pay and armament, and trained to spearhead critical operations and

[1]Fuller, Maj. Gen., *Armored Warfare*, p. 8.
[2]Fuller, Maj. Gen., *On Future Warfare*, Preface p. v.
[3]*Ibid.*, p. 8.

perform tasks the mass army is neither trained nor equipped to do.

In the words of General Manteuffel,[4] following the close of the war, "Modern conditions indicate that there should be two classes within the army. A certain number of divisions should be picked for this and should be given the best possible equipment, ample money for training and the pick of the personnel. A large country might be able to create up to thirty divisions on this scale. Of course no country could equip an army of millions on this scale. But it is better to have an elite army for main operational purposes than to have a much bigger army that is mediocrely equipped and trained throughout. That elite army would have an increased proportion of air support, airborne forces and rocket weapons . . ."

Manteuffel might have added that one of the special qualifications of the personnel of such formations in totalitarian armies was political fanaticism, qualifying them to serve as the final police power of the state and the army. For the creation of these special units in the totalitarian states was designed to settle not only the technical military problem, also common with the democratic states, but a political problem as well.

For Pay, Not Politics

Ever since the armored knight was forced to lay down his lance and assume the position of a leader of soldiers without special equipment in armor and horses with which to enforce his prerogative, the problem of the leadership minority of maintaining its authority over an opposition majority, usually representing different class interests, has presented a continuing military difficulty.

During early modern times this was met by recruiting soldiers from all the nations of the world, thereby preventing a national community of interest amongst the soldiers, or by hiring complete regiments or armies from foreign countries who could have no interest in the hiring state other than their pay. More than half of Frederick II's famous soldiers were non-Prussian. Thirty thousand Hessians were hired by George III to execute a colonial policy which had little popular support. Foreign troops were considered particularly desirable as bodyguard troops for sovereigns, *i.e.*, the Swiss guards of the Bourbons and the Dutch Guards of William II.

But the French National Revolution made war by the levee-en-masse possible and therefore necessary; it also increased problems for the commander of politically conscious troops that have not yet been solved.

During the nineteenth century, in an effort to reduce this difficulty, special attention was given to troops not only outstanding in battle but also dependable in a political crisis. Guards regiments, and many cavalry units were of this sort. Colonial or non-national troops, such as Cossacks, French and Spanish African troops, technically auxiliaries to the national armies, proved in times of political upheaval absolutely faithful to their officer leaders. Thus it was that Cossacks comprised the nucleus of the White Russian armies of the Ukraine, and Moroccan troops the nucleus of Franco's Nationalist army.

During the World Wars, years of attrition warfare placed strains too great to be borne by the armies of the Central powers and revolutions on the home fronts decided the war. Since superior political stamina in the end gave the victory to the nations of the west, it is only natural that the defeated should be the first to devise means of shoring up the political dependability of the masses, both civilians and military. Since in the Imperial Russian Army the cleavage between officer and soldier fell along distinctly class lines, it was therefore necessary for the dictatorship of the proletariat to concentrate its attention upon the professional officer class, once it had gained control of the masses. This was done by the creation of the commissar system to oversee the actions of those officers retained from the old army and at the same time to supervise the political education of the army forces. This system resembles that of the Roman Military Tribuneship, in which the leader of the plebeians possessed the right to veto any action taken by the patrician Senate. But the essentially negative nature of the arrangement was fatal to it; it was abandoned after the Finnish campaign, reassumed after the German attack and abandoned again after the failure of the Russian offensive against Kharkov in 1942. In its place we find new forms of elitism arising, the creation of the Guard Divisions from units which have distinguished themselves on the battlefield. Guards divisions receive double pay and other privileges; it is logical to assume that they will be exceptionally loyal to the government that has so honored them. Also created were M.V.D. divisions as an answer and counterpart to the German S.S. Div. Parallel with this there has been a rapid return to aristocratic traditions in the Russian Army Officer Corps, which has absorbed most of the military commissars.

Political Commissars

The Russians were the first to send the politician into the army, where he continued to function as a politician. The Germans and Italians, copying the one-party state, also delegated revolutionary leaders to the armed forces, but this time organized into autonomous combat units, with the avowed object of training and justifying themselves in the role of the political police, the exclusive weapon of the state party. The German Shutzstaffel, selected as the racial and political "elite," were expected to be "capable on every and any occasion of representing and asserting the power of the Reich."[5] Although these units fought with the regular army, they had independent staffs and commanders responsible to Himmler.

The very existence of such a military police force, independent of the army command, is an insult by implication to the honor of the Reichswehr, but at first Hitler was careful to avoid direct friction with the leaders of the regular Wehrmacht. Therefore, a member of the S.A., on entering the Regular Army, was expected in effect to suspend his political activities.

This dual system of political and professional army proved difficult to handle. In 1934 it was necessary to purge the S.A. and S.S. to enforce a ruling favorable to the power of the Wehrmacht; on July 20th of 1944, a blood purge, led by Himmler, was in the process of suppressing a revolt of Wehrmacht officers initiated by an attempt to kill by time bomb Hitler and a new General Staff in which party members were more heavily represented than ever before.

[4]Liddell Hart, *The German Generals Talk*, p. 102.

[5]Vagts, Alfred, *Hitler's Second Army*, p. 71.

The fact that the political soldier appears to have won the second round with his professional compatriots after losing the first, may be attributed to a technical and organizational evolution within the German armed forces which has been taking place during the last five years of war. In 1939 the few Waffen S.S. units known to exist were not armored. In 1944 there was hardly an S.S. division out of approximately 25 to 30 known, that was not armored, mechanized or airborne. S.S. armored divisions had both better tanks and larger units than the regular units. S.S. recruiting posters constantly stressed that the armament of the S.S. is the "very latest." In 1944 Reichsminister of Industrial Mobilization Speer announced the creation of a string of special training schools for the handling of new rocket weapons of all types, for use on tanks, submarines and planes, to be exclusively manned by young party members on coming of military age. At the same time the Luftwaffe of Goering's creation was always a Nazi party stronghold and armored units of the Reichswehr were saturated with Nazi fanatics to a much greater degree than would be found in other types of units.

Force and Control

It is the effective control of these strategic heavy weapon units that made possible the relatively easy victory of Hitler and the National Socialist party in the crisis of July 20th. Thus we see General Fuller's dictum that mechanized armies require only part of the available national manpower proving the salvation of the one-party principle. When this "part" of the national manpower becomes the "party," even though the conscript army be retained, the effective control of the army and the nation rests with those that monopolize its armored heavy weapons and its politics.

Armored heavy weapons are specified because of the characteristic power which armor gives to the user. Armor permits shock attack and the use of shock asserts a moral as well as physical superiority over unarmored, less mobile units. Aeroplanes as well as armored troops, gun and rocket gun carriers belong to the category of armored weapons, and it is into such units that the party is careful to post its men.

This then is the technical and physical basis of the party aristocracy which, in effect, won a battle with the older army officer aristocracy on July 20th. The elite of armored political fighters defeated the elite of the soldier leaders who lacked both armor and politics. German defeat, when it came, was military—not political.

An Example

It is interesting to note that in a similar struggle in Italian politics which took place July, 1943, the officer class possessed both and won. The aristocracy of soldier leaders, led by Badoglio, had a political alternative to Mussolini in King Victor Emmanuel and at the same time controlled in regular army and King's guard units most of the armor of the nation. What little effective resistance to the German occupation of Rome did occur was the work of the two armored divisions of the King's Guards stationed there.

This association of armored fighting groups with aristocracy is not a new thing, for throughout history the possibility of controlling the limited quantities of critical weapons for the advantages of a single group has been understood and exploited by aristocracies whenever the political possibilities permitted.

In the classical world the development of the heavy armored hoplite of the phalanx army made it possible to restrict the citizenship to those able to pay for the expensive metal armor. In landlocked Sparta this aristocracy of metal was never broken, but the rise of Athens as a sea power produced Athenian democracy, for service on shipboard gave no advantages to the owner of armor, and ships were of necessity state property. In Rome the decay of patrician influence was accompanied by the decline of the heavy armored phalanx, the extensive use of light troops, allies and mercenaries. Shock tactics declined, missile fighting increased. The military aristocracy came into its own again with the political chaos of the Dark Ages and the invention of the stirrup saddle, which gave an armored man stability enough to fight on horseback and attack with a couched lance. The shock weapons of the armored fighters overwhelmed the missile weapons of the infantry. Then again, the possession of scarce forms of equipment in horses and armor vested its owner with military and political power.

Ripe Political Conditions

But it would be a mistake to say that technical conditions alone determine the success of a military aristocracy; rather it would seem that technical means are found when political conditions make possible the formation of elite units.

The armored knight was not dismounted and reduced to officer status by gunpowder, but by new forms of social cohesion, both national and communal, armed with such simple weapons as the English longbow, the Swiss pike and, above all, discipline.

Therefore, the rise of armored political forces does not represent so much a technical problem to democracy as a political challenge. The democratic armies of Britain and America contain large numbers of technically elite soldiers in the air and armored forces, but no political significance can be attached to their existence. However, should our political abilities fail to solve our postwar problems, these armored forces might very well assume a political as well as a military aspect.

This is the challenge that armor offers the democratic world.

WHY?

by LIEUTENANT COLONEL RUSSELL O. FUDGE

The Story of Information in the American Army

PART II

DURING World War II, the Information and Education Division was bitterly criticized by elements of the press and public for using its communications media to improve racial, religious, and economic understanding and tolerance. Critics assumed that this activity was an attempt to revise the social order and to do what American democracy had only partially accomplished. Only after many careful explanations were the moderate objectors enabled to understand that an Army filled with prejudices and hatreds of its own people is an inefficient and dangerous force. Washington, too, was harried by prejudices of the men who brought with them the viewpoints of the various sections of the young Nation. He directed that Major General Philip Schuyler start an educational campaign to remove these prejudices; and shortly thereafter Schuyler's officers instituted a series of discussions within the regiments on the need for replacing regional jealousies with mutual confidence and comradeship.

General Washington followed his instructions to General Schuyler two weeks later with a General Order addressed to the entire army on the same subject. This directive is also of interest in this review of the historical background of troop information in the American Army because of the appearance of the words, "best Soldier and best Patriot," for the widely known slogan of the Information and Education Program of today is "Better Citizen, Better Soldier." The Spirit of '76 reaffirms that there's nothing new under the sun.

The first Commanding General had spent most of the summer and fall importuning the Army and the people, intending to improve the morale of both. As the winter campaign began, and Washington was forced on his cold retreat to the South, he turned to the best known writer of the day, Thomas Paine. Paine responded with a series of 13 pamphlets called "The American Crisis," the first of which was written during the retreat of Washington across the Delaware, and was printed in the *Pennsylvania Journal* on 19 December 1776.

A Stimulus

Although Paine later came under great criticism because of his religious writings, especially *The Age of Reason,* his *Crisis* furnished an intellectual stimulus to the young Nation as inspiring as a national anthem. Washington directed that the first issue be read to each of the dispirited regiments. A few days after its publication, Washington's ragged group crossed the river for the desperate attack on Trenton, an adventure which resulted in a winter victory and aroused the spirits of the country and the army. "These are the times that try men's souls," the opening sentence of the first *Crisis,* was the watchword for the Trenton operation.

"This is Why . . ."

Into the darkest hour of American history, rode a little 48-year old man, who was to give the Army of the United States a tradition which has been indispensable to the application of modern military psychology. General Friedrich Wilhelm Augustus Heinrich Ferdinand von Steuben, had been an aide to Frederick the Great and had been induced by Benjamin Franklin to volunteer to the cause of the Colonies. Joining Washington's forces at Valley Forge, in February of 1778, it was von Steuben who as the newly appointed Inspector General of the little army gave it the discipline and training necessary for developing pride in unit. As the most trusted adviser to the Commander in Chief for the remainder of the war, the little Baron drilled, wrote manuals, and led troops. From this intimate experience with the first American army, he wrote to a kinsman back in Prussia, "You say to your soldier, 'Do this,' and he does it. But I am obliged to say to the American, 'This is why you ought to do that,' and then he does it."

"Why?" to a stern disciplinarian

of the Prussian school was a shocking question. To the pioneers, however, there was nothing unusual in such a situation. They were descendants of nonconformists; their fathers and mothers had left the countries of Europe because they did not agree with the teachings in the schools, with the opportunities for advancement, with the restrictions on freedom of worship and of speech, and with being born into the niche of an established social order. For that matter, they were engaged in a Revolution because they dared question why they should be ruled by a sovereign thousands of miles away.

Belief in a Cause

Many of the men who hung on in the bitter disillusionment of the Continental Army did so not for pay or hope of reward, but because of a burning belief in the cause for which they were fighting. Hundreds went home, or refused to rejoin because Washington and Paine and von Steuben failed to find an appeal that could reach them, but the men who remained did so to fight, and their "Why" was not argumentative nor cantankerous; it was a reasonable request for a reasonable explanation, and native intelligence made the application. The willingness of the American people to learn as expressed in that simple "why" has enabled the citizen-soldier of each war masterfully to apply the intricate details of military training to battlefield situations.

General Edward L. Munson foretold after World War I the potential loss of this spontaneous national drive in modern war. "In most of its wars, the United States has placed dependence on volunteers, whose very act of enrollment demonstrated an initial and dominating desire to fight. All that remained was to transform their individual psychic initiative into that unity of thought and purpose which is the soul of an army and distinguishes it from a mob. The last war [World War I] was quite different. A majority of the men under arms came there under the draft and not through individual desire. In them, the incentive to use arms needed largely to be created, as well as the molding of individual ideas into community of thought and purpose. The same will apply to any great war in the future. . . . It is the psychological stimulus that makes the soldier fight."

1812 and the Civil War

In the War of 1812, Andrew Jackson emulated Washington by issuing Division Orders to his troops. At a later period when Jackson analyzed the reasons for his victory at New Orleans he stressed that the soldiers had been educated to understand what they were fighting for and consequently "willed themselves to be free." One of the General's orders, issued on 7 March 1812, is unique and amazing today in that it bluntly summarized the reasons why the young nation was going to fight some three months before war was declared.

Few of the better-known general officers in the Civil War informed their troops on other than military matters. The chaplains of the Confederacy bore the brunt of keeping the South's soldiers informed. The South, however, had entered the war with considerable more unity and enthusiasm than had most sections of the North. The Union Army at the beginning needed a means of educating troops on the causes of the war to offset the subversive literature of the Copperheads who were willing to accept a divided nation.

An army-sponsored information program was never organized, although Joseph C. Thomas, while working for the United States Christian Commission with the Army of the Cumberland, outlined a plan for the training of officers and noncommissioned officers in lecturing and organizing discussion groups for the benefit of the men in the Army who could not read.

U.S. Army

Major General Edward L. Munson, World War I Morale Branch Chief.

Civilian publications circulated in large numbers among the troops, and probably did much to counteract the Copperhead influence. The American Unitarian Association published 900,000 copies of a group of pamphlets called the "Army Series," in each issue of which was "some reference to the reasons why the men were fighting and the character of the war." On 16 March 1863, the *Washington Chronicle* called for a "regular system of public speaking in the army to lift the morale of the soldiers by teaching them why they were fighting." The second issue of the *Army and Navy Journal* observed that "The emergence of a true understanding of why they were fighting and what was at stake in the war was an important factor in the new spirit evinced by the Union soldiers, while the utter lack of understanding of what they were fighting for, other than to uphold the property of the slaveholders, had much to do with the collapse of the morale of the Confederate soldiers."

World War I

The annual reports of the Secretary of War during the period of the first World War indicate a primary interest in the physical comfort of the soldier as a device for maintaining morale. The 1916 report, however, drew attention to congressional approval for the employment of civilian teachers to aid Army officers in giving vocational training. This program was devised for troops mobilized on the Mexican border and was to increase military proficiency as well as to prepare the men for return to civil life.

In May 1917, the War Department submitted to the Post Commander of Camp Greenleaf at Fort Oglethorpe, Georgia, a plan suggested by the Department's military psychologists "to develop a wholesome mental attitude towards the service, and to make induction to it as pleasant and profitable as possible." The results were lauded in 1920 by Dr. G. Stanley Hall, distinguished psychologist, who wrote: "No one who has studied the Greenleaf scheme can doubt that morale . . . can be inculcated." Norman Copeland in his

book written for the British officer, *Psychology and the Soldier,* gave an objective report of the experiment, a portion of which reads:

On the morning of the first day in camp the recruits were marched to the information tent, which was also the headquarters of the morale work, and there they were presented with a tag bearing the following inscription:

"You are now a soldier of the United States, a soldier selected by your country to fight for the freedom of the world. Walk like a soldier. Think like a soldier. Act like a soldier. Be a soldier. That is not easy to do at first, and there may be things you do not understand. Never mind. All good soldiers have learned to do the things that you are learning to do. Remember you are following a flag that has never led in an unjust war. Remember that the American Army has never yet been defeated. Do your part and it never can be. Keep your head up, your eyes open, and smile. . . ."

A talk was given about discipline, camp organization, games, books, disease, sick parade, writing home, clothing, and food. Then the recruits were taught a rousing marching song, after which the chaplain introduced himself. Finally they were supplied with writing paper, pen and ink, and there and then wrote a letter home. Included in each envelope was a letter signed by the battalion commander [which said in part]:

"Remember always that you too are part of the American Army—you are the army of encouragement and enthusiasm. Write letters filled with these things to your soldier and you will help us to help him. . . ."

A Morale Branch

At the conclusion of World War I, Mr. Raymond B. Fosdick, who as chairman of the Commission on Training Camp Activities had coordinated the work of the numerous civilian organizations engaged in sponsoring entertainment and educational programs for the soldiers, recommended to the Secretary of War that in the event of another war such morale activities should be undertaken by the Army. Secretary Newton D. Baker concurred in this recommendation, and a branch of the War Plans Division of the General Staff was charged with creating "an organization for the purpose of systematically studying conditions responsible for states of mind and behavior flowing therefrom and of applying honest methods of correction and stimulation."

Morale officers were placed on the staffs of commanders of divisions, posts, camps, and stations to advise commanders on the "spirit and mental attitude of men and officers, and the degree of efficiency dependent thereon." The mission of the new corps was "to have troops in such mental condition that they will be most receptive to training in time of peace and to psychological stimulation in time of war, and, second, to render the Army representative of the standards and ideals of the country whose armed force it represents." These objectives were reinforced with the creation on 1 November 1919 of an Education and Recreation Branch which implemented the Secretary's declaration that "education for soldiers has been planned to develop their intelligent initiative as a necessary part of their training. . . . Specific instruction in citizenship and American ideals is considered necessary to produce properly developed soldiers."

U.S. Army

Maj. Gen. Frederick H. Osborn
World War II I&E Chief.

By 1922 the Morale Branch had disappeared, and its functions had become a part of the Welfare Branch, which also assumed religious and recreational functions. Although it is interesting to note that nearly 10 per cent of the enlisted men of the Army were attending schools conducted by over one thousand commissioned and enlisted instructors (each soldier was required to attend a post school if his knowledge of writing and reading was not sufficient for him to discharge satisfactorily his military duties), the multiplicity of responsibilities assigned to this Branch would preclude serious attention to any but the obvious, and relatively simple, recreational aspects of morale work.

General Munson's Influence

The formality of the Secretary's reports has obscured the personality of the remarkable officer, Brigadier General Edward L. Munson, who had been the guiding genius in the development of a psychological approach in the Army. General Munson was a Regular Army medical officer, famous as the inventor and designer of the "Munson Shoe Last," used in the manufacture of American Army shoes for over 20 years. Yet the genius of his philosophy and scholarship as expressed in his monumental work, *The Management of Men,* published in 1921, is practically unknown in the Army.

General Munson was detailed to the General Staff and made the head of the Morale Branch, War Plans Division, during the closing days of World War I. From his reflections on the problems of his position he assembled a document on the systematic development of morale, at a time when academic psychology was only 40 years old and the science was just branching out into large industrial organizations. Easily outstanding in General Munson's conception of morale was an evaluation of the relationship of the soldier's mental state to his physical condition. He did not belittle physical comfort, but had all officers of the Army of 1941 been conversant with the following passage written 20 years earlier, how much better prepared they would have been to help their perplexed men in the autumn before Pearl Harbor:

It is at least as important that soldiers should want to fight as that they should know how to fight. . . . Morale is to the mind what "condition" is to the body. . . . Morale is not merely enthusiasm, nor mental courage, nor "pep," nor the fighting spirit. It is all these things—and more. It has a sterner element. It is that mental training and mental hardening which, in a body of troops, continues to function after everything else has broken. . . .

Morale further means not only fighting power but staying power and strength of mind which resists the mental inflections of fear, discouragement and exaggeration of difficulties, and which furnishes the mental stimulus that brings troops back to endure further punishment in the determination to win. . . . Confidence in cause rests upon

a conviction that it is right and worth working for or defending. This depends on education. The soldier will not fight at his best for a cause of which he knows little or in which he does not fully believe. Instruction in such matters must be effectively given. This is particularly necessary in troops such as ours, drawn from diverse racial and national stocks.

It was General Munson who suggested a solution for the treatment of the young scamps who considered themselves a part of the intelligentsia, yet had neither sufficient knowledge nor maturity to be other than irreconcilables to any constructive attitudes toward their country. The morale group in the fall of 1918 conducted an experiment in isolating these individuals, most of whom were "radical young reds," by placing each youngster in a squad where he was the only man with such beliefs. The squad had been carefully packed with alert and intelligent young Americans, and had at least one "lawyer-type, one ministerial-type, and one business-type" buddy to meet and accept the newcomer's challenging radical ideas with counter-arguments that appealed to reason (lawyer), ideals and scriptures (minister), or economic survival (business). Soon the nonplused objector, isolated from the unwholesome nest which had bred him, was in a quandary at the discovery that he was alone in his beliefs and that he appeared ridiculous to his associates because of the ideas which he entertained. It would have taken men of greater moral courage than that possessed by such hotheads to have been able to resist successfully such group pressure.

A Course in "Why"

Another experiment was the inclusion of a "War Issues Course" in the training given to the Students Army Training Corps. A later evaluation of this course, which was designed to show why America was in the war, received the enthusiastic support of 118 of 127 commanding officers, one of whom declared that "students began the course as unwilling soldiers, but at the end were crazy to get into the fight."

General Munson also quoted General Pershing as having written "The earnest belief of every member of the Expeditionary Forces in the justice of our cause was productive of a form of self-imposed discipline among our soldiers which must be regarded as an unusual development of this war, a fact which materially aided us to organize and employ in an incredibly short space of time the extraordinary fighting machine developed in France. . . . without the . . . willing ness and enthusiasm displayed . . . the successful results we obtained so quickly would have been utterly impossible."

Remagen Bridgehead, first of a new series of AFI&E posters pointing up Pride of Service. Scheduled at four a year, with one Army, Navy and Air Force subject plus one general scene depicting all services, others of the 1950 series will include The Battle of the Philippine Sea, The Ploesti Raid and The Normandy Invasion.

General Marshall, at a conference of Morale Officers held in Washington on 25 February 1941, told the group that some time before, he had had an interesting talk with General Munson on the modernization of morale management and had taken home with him General Munson's book for bedtime reading. If a "father" were to be designated for the modern information program in the American Army, the title incontestably belongs to General Munson. Not only did he pioneer the conception, and have the industry and skill to record his findings for posterity, but practically all of the major concepts of the Information Program philosophy of today are to be found in his classics.

Even in this brief study it is apparent that the physical comfort approach of World War I as the major effort to the solution of the problems of morale, would be useless to the bewildered officers of September 1941. Few of the complaints and criticisms being received by the Army from civilians and soldiers alike had to do with recreation, although aimless and disillusioned soldiers often cited limited recreational and entertainment facilities as a cause of their lack of enthusiasm for army life. The beginning of the military preparedness program for World War II had a background for considering mental stimulation as a part of mobilization training. It is true that it was only a few weeks before the end of World War I that General Munson had assumed responsibility for morale in the Army and was able to have morale officers designated for camps and divisions—time enough, however, to insure a vital part in the demobilization period. This brief activity was sufficient for the preparation of General Munson's book, and for the establishment of the necessary tradition.

World War II

The appearance in the 1939 Mobilization Regulation 1-10 of plans for

a Morale Branch was an occasion for no surprise except to those individuals who were not familiar with the history of the Army. With an increase in numbers of men in the Army, the Adjutant General, on 20 July 1940, began the operation of a division for morale; and in the spring of 1941, this organization became an independent Morale Branch on an equal plane with other Arms and Services such as the Infantry and Quartermaster. The enlargement of the functions previously performed by the Morale Division of the Adjutant General's office was justified by the statement that "while the physical comforts and recreational needs will remain in the spotlight of attention, it is recognized that everything physical and psychological affects human conduct."

The first chief of the new Branch was Brigadier General James A. Ulio, who also held the position of assistant The Adjutant General. During the period that he was chartering the development of morale in the American Army, General Ulio emphasized that the relationship of morale to attitude, command guidance, and physical comforts ranked in the order named, and that the latter, although important, was easily the smallest element. The attitude of the recruit upon entering service was "the most important single factor in the individual's morale"; and "the great basic factor in the creation of military morale is devotion to a cause," were the keynotes of his philosophy.

The publication of the article in *Life* in August 1941 had created unfavorable publicity for the Army throughout the press, and had caused as well a flood of letters from parents to the Army. By 1 September, *Life* was able to intimate that the story had caused the appointment of a civilian as Chief of the Army Morale Branch with the rank of brigadier general.

The new chief was six-feet-eight inch Frederick H. Osborn, who, in 1940, had been appointed Chairman of the Selective Service Advisory Committee by his friend, Secretary of War Henry L. Stimson. In January of 1941, the Secretary had appointed him Chairman of the War Department Committee on Education, Recreation, and Community Service, an idea which appealed to Secretary of the Navy Knox, who took steps to have the committee include the Navy. In August, General Marshall offered Mr. Osborn the job of taking over from General Ulio (who as Assistant Adjutant General of the growing Army already had a full-time job) and to become Chief of the Morale Branch.

At the first morale conference in February of 1941, General Osborn had heard Lt. Colonel H. F. Thompson of the Military Morale Division, charge that the Army was sadly lacking in inspirational methods, and that the soldier was entitled to know the "why" of instruction. "An American soldier is willing to do almost anything, if he can be given a logical reason for it," Colonel Thompson declared. "Our military life is utterly different from the normal life of a civilian and this mystery can only be overcome by early, sincere explanations of the various whys and wherefores of the soldiers' new mode of living."

General Osborn's philosphy and conception of the mission of his organization soon crystallized, and in a form which indicated that he clearly considered orientation not only essential but a responsibility of command.

"The problem is one of leadership," he declared. "In any total war, leadership which knows only strategy, and tactics, and weapons and the elements of command is not enough. Leadership must also understand the causes we are fighting for—the mission—and must know enough about the psychology of the citizen-soldier to impart that sense of cause, the sense of personal mission, right down to every man in the ranks."

While it is to General Munson that the present-day Information and Education Program owes most of its philosophy, it was General Osborn who built up the program. He moved into the War Department three months before the outbreak of war, and successfully weathered one reorganization after another: the Morale Branch became the Special Services Branch in January 1942, and was later redesignated as the Special Services Division of the Army Service Forces; in October 1943, the Special Services Division was divided into two divisions, and General Osborn elected to head the so-called mental functions which were grouped separately in a Morale Services Division.

Organizational Changes

The name of the organization was eventually changed to the Information and Education Division, and in the fall of 1945 it was taken from the Army Service Forces, and given a place on the Special Staff of the War Department under the policy control of the Chief of Information. While the functions have remained constant, the title has changed with yearly regularity. In 1947 the organization

was named the Troop Information and Education Division, in 1948 it became the Army-Air Force Troop Information and Education Division, and it is now known as the Armed Forces Information and Education Division.

It was under General Osborn's guidance that I&E became the great program for dissemination of facts to servicemen. The purpose of this article is to show the historical continuity of the need for information in military units, rather than to analyze the philosophy and communication media used by the Information and Education Division. As an organized, centrally planned, and continuous program, I&E in World War II became a great coordinated training achievement for inspiring the fighting men with confidence in their country, their allies, and their armed forces. Organized discussions became a required part of training time, and a specially produced pamphlet called *Army Talk* was issued each week; "Why We Fight" motion pictures, one of which earned an "Oscar," were distributed throughout the Army; posters and "Newsmaps" were printed by the hundreds of thousands and displayed in informational centers; service-operated radio stations were located at hundreds of points around the globe to bring the latest news and information to the isolated serviceman; pocket guides were prepared for each man sent overseas; *Yank* and *Stars and Stripes* were resurrected from World War I days; a news wire service and a news clip sheet service were organized to help small soldier newspapers; a special magazine was started for the WACS and for men in hospitals who had been separated from their outfits; and magazines, pamphlets, and informational books were purchased for distribution wherever a soldier might be stationed.

It is not generally known that the largest scale investigation to verify the psychological theory of the influence of attitude upon subsequent behavior was made by I&E during the war. Recognizing the need for a concrete proof of this phenomenon, the Research Branch of the Morale Services Division set up an experiment with 4 infantry divisions stationed in England and slated to participate in the initial assault in Normandy.

A few weeks before D-Day, the attitude interviewers of this Branch conducted a confidential questionnaire of all enlisted men with the 12 infantry regiments of these four divisions. Based upon these results, regiments were classified according to those with the best, medium, and lowest morale. Few Commanding Officers were willing to accept the interpretation of the Research Branch as conclusive proof that the morale of their organizations was as reported. Their skepticism was, of course, centered upon the practicability of deducing any close relationship between mental attitude and morale.

The divisions landed in Normandy within 4 days of each other. Meanwhile, the Research Branch had opened an individual ledger, based upon the morning reports, on each infantryman in the divisions. Daily for a period of two months the morning reports were analyzed for the number of infantry casualties separated according to non-battle and battle. It was proven impracticable after a few days to attempt to classify actual psychiatric cases because of the varying standards of diagnosis given within the divisions and regiments. Non-battle casualties, however, were relatively easy to determine. As a result of the analysis of those reports, the Research Branch determined conclusively that within those infantry companies rated the lowest in morale, the non-battle casualties rate was 60% higher than was the rate for those companies rated highest. For those companies with a medium morale, the non-battle casualty rate was 30% higher than was the non-battle rate for those organizations rated highest.

The strongly motivated fighting man in intimate contact with a determined enemy would "stick it out." The study established once and for all in the minds of those familiar with the results that there was a relationship between what a soldier thought and what he actually did.

An interesting by-product of this study which was verified several times on later troop attitude surveys was that the attitude of the individual fighting man generally varied directly with his rank. The differences between the favorable motivation of an officer to the cause for which he fought, a noncommissioned officer's attitude, and an enlisted man's viewpoint were not only very large but were consistent.

Brigadier General Charles T. Lanham took over the Information and Education Division during the difficult readjustment period following the end of hostilities. His was a constant "selling" job to Congress, the public, and within the high command to emphasize the necessity for maintaining the information program as a way of thinking in the Army. Except for reason of economy, no communication vehicle used by I&E during World War II has been abandoned. General Munson was I&E's prophet; General Osborn gave it life; and General Lanham gave it permanent status.

No greater compliment could be paid to General Lanham's accomplishment than in the choice of the men who have followed him. Brigadier General John K. Rice was in charge of the program for the greater part of 1948, and has been succeeded by Major General William K. Harrison, the current chief. These two were permanent general officers, known and respected throughout the Army as sound, battle-tested tacticians. Of primary significance, both were skilled as training specialists. The Information Program is now a full partner in the training organization of the Armed Forces. Other officers could take the recruit and teach him to be a skillful professional fighter; the Information and Education Division proposed to assist the commander to inculcate in him the desire to become a better serviceman and a better citizen. If the Information Program is successful, the job of the training officer is not only simplified, but the results will be far more efficient.

As the Armed Forces move forward in the spirit of the latest scientific knowledge, it must bring a smile of satisfaction to Generals Osborn, Lanham, Rice, and Harrison to read the Army's latest doctrine of leadership, a doctrine whose every word has been tested in the philosophy of the Information Program:

> No individual is fully prepared to undertake his assigned duties until he understands the mission and the part he is to play in accomplishing it. To provide this orientation is a constantly recurring obligation to all leaders in every stage of training and combat. . . .

As THE JOURNAL *goes to press with the second of two parts rounding up the Armored Cavalry ROTC story, word comes down that Department of the Army has authorized the activation of 26 additional Senior Division ROTC units at colleges and universities in 17 states. These courses become operative with the enrollment in September of this year.* THE JOURNAL *is happy to note that two of these 26 units are allotted to Armored Cavalry, which, with the loss of North Dakota, levels the branch total off at sixteen.*

Armored Cavalry ROTC Roundup

CLEMSON AGRICULTURAL COLLEGE

Clemson, South Carolina

MOST of the students at Clemson College stop to have a look at the tanks of the Armored Cavalry ROTC Unit as the tanks move about the campus. Immediately upon seeing the tanks the student's mind runs to the Armored Cavalry. For this, and no doubt other reasons as well, the Armored Cavalry unit has more students enrolled and under contract than any other arm or service represented at Clemson. At the present, there are 175 students enrolled in three Armored Cavalry courses, of which 47 are enrolled in Second Year Advanced, 87 are enrolled in First Year Advanced, and 41 are enrolled in Second Year Basic. The men in the Second Year Basic are now being authorized to begin specializing in the unit of their choice. In February of this year, twelve students completed the required course of study for a commission in the Armored Cavalry; however, only seven of these received their commission at the time, one is accepting a commission in the Field Artillery Corps of the Regular Army. Indications are at present that in a year or two the Armored Cavalry unit will not be able to handle all students desiring to enroll in the course.

Many of the students presently enrolled in the course are sufficiently interested in the course of instruction, and especially the practical work, to report to the tank park two afternoons each week and one Saturday or Sunday afternoon each month in order to receive additional instructions in driving and general operation of the vehicles and the radios. In each case, more students report for the extra training than can be accommodated with the limited quantity of equipment authorized for this unit.

The subject schedules for ROTC instruction, as prepared by The Armored School, have been a great help in preparing the course of instruction. However, the program as outlined is a bit too ambitious for an ROTC unit operating on a limited TE. It does, nevertheless, insure a uniform course of instruction for all Armored Cavalry ROTC units.

Further, it is somewhat difficult to conduct a course of instruction when the only references available are either obsolete or are a limited number of temporary publications or articles contained in periodicals, thereby making it impractical to supply the students with required reference material. We feel that an approved textbook should be published for each level of the Armored Cavalry course since such a manual would give the student and the instructor the same reference to work from.

Training films and film strips, although some are obsolete, appear to be adequate for the present. We do not have adequate training aids or personnel and material to construct the desired training aids; therefore, it is necessary to use makeshift items of inferior quality. A training-aids library similar to the film library would be of great help in the course of instruction.

NEW MEXICO MILITARY INSTITUTE

Roswell, New Mexico

Since 1891 New Mexico Military Institute has functioned on the premise of character and leadership development through military training concomitant with academic pursuits. Currently, it has JCMI status and maintains a Senior Division, Armored Cavalry ROTC unit, and has an average enrollment of approximately 500 students.

The facilities at NMMI for conduct of military training are modern and well suited for armored work. They include a modern motor maintenance shop, a 15-point indoor small bore range, a rifle range, ample terrain for mounted and dismounted tactical exercises, seven classrooms of varying sizes and types and excellent storage for military equipment.

The cadet at NMMI is under military supervision twenty-four hours a day, seven days a week. Every regularly enrolled member of the student body belongs to the Corps of Cadets which is organized as a provisional regiment. Each cadet lives in barracks, arises at reveille, marches to meals, participates in inspections, drills, Sunday parades and retires at night to the sound of taps. He is constantly under the surveillance of the Commandant of Cadets who is responsible for his discipline.

Promotions in the cadet corps, made in consonance with merit and development, carry commensurate responsibilities and thus afford opportunity for development of leadership and personnel management techniques as well as an opportunity to demonstrate knowledge of military subjects.

The ROTC program is conducted in small sections in conformity with Department of the Army and institute policy; every effort being made to obtain the maximum cadet participation during each class period. The entire corps excepting high school sophomores and cadets having completed MS-IV, are required to take Military Science regardless of eligibility for official enrollment in ROTC.

In addition to the program prescribed by Army Training Programs, but in keeping with practices of all essentially military institutions, NMMI devotes seven periods a week to practical military instruction generally involving the entire cadet corps. These periods are devoted to drill,

ceremonies, inspections, and to military exercises of a practical nature, mounted and dismounted. The exercises are conducted by cadet company, the instruction being presented by cadet officers and noncommissioned officers under supervision of military department personnel.

As one enters the headquarters building of New Mexico Military Institute he is impressed with the large group of individual pictures of former cadets who lost their lives during World Wars I and II. These pictures considered with the hundreds of awards earned by former cadets while serving their country in time of emergency are convincing evidence of the value which NMMI has been in the defense of the nation, indicative of the even greater part which it will play in the future, a part in keeping with its traditions and growth with the more efficient and ever improving ROTC program.

OKLAHOMA MILITARY ACADEMY

Claremore, Oklahoma

Oklahoma Military Academy was established by the State in 1919 and is located one mile west of Claremore, adjacent to the Will Rogers Memorial. The campus covers some 500 acres. Located on the main campus are 17 modern brick buildings comprising the physical plant. The military department, with an armory and a rifle range both completed in 1948, together with 400 acres adjacent, has a very complete physical plant.

The military objectives in addition to training for junior officers are stated as follows: "To give to its students a sound education and the habits of order, precision, and teamwork that military training develops, and to insure character and honor that will be an unending source of pride to its graduates and to the State of Oklahoma."

To carry out the army training program to its maximum, it would be advisable to have equipment to organize a reconnaissance platoon and a tank platoon. The present T/A does not allow for this objective. In other respects the T/A works out quite well. A great many training aids are locally constructed, and seem to be a satisfactory solution.

Student interest in the program is a must. To accomplish it, the schedule is arranged so that students work with tanks, radios, tank weapons right at the start and throughout the year. Demonstrations and skits are frequently arranged. A system of unit competitions and an individual achievement ribbon are effectively creating interest. This achievement ribbon is awarded to MS I students who have completed a semester of military and who are recommended by their company commanders. It is limited to the upper third of a unit. A star may be added each year upon satisfactory completion of certain prescribed requirements, such as tank driving, radio operation and conducting company schools. The distinguished military student award is a goal many students strive for. Week-end trips, and visits to army posts are also scheduled from time to time.

Classwork is integrated with the academic schedule through the day. Sufficient time to cover the scope as outlined in the army training programs is always a problem. Some standardized testing of selected courses is suggested. One afternoon each week is scheduled for a military laboratory at which time small unit problems, marches, demonstrations, etc., are scheduled. A one-hour period each week is devoted to ceremonies, and another to drill.

This academy has a night study program, the military having their proportionate amount of time. Part of this time is used in holding company schools twice weekly. Selected advanced students conduct the program, the military department scheduling the subjects, aiding and supervising the instructors.

Work in cooperation with the local National Guard deserves comment. Equipment needed only occasionally is frequently loaned back and forth. Chiefly, however, the students as members of the Guard receive additional training and in return receive pay and longevity. The local unit was reorganized to be the division reconnaissance company so that it would parallel the ROTC program.

AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS

College Station, Texas

The ROTC Cavalry Squadron at Texas A&M became mechanized but maintained its traditional spirit and élan. The spirit and traditions of the old Horse Cavalry are still keenly felt and deeply respected in Aggieland. The branch characteristics of mobility, firepower, and shock action fall easily on the shoulders of these Texans, who take to the M-26 as naturally as the neck of a calf at branding time. Patton, Keyes, Devers, and Gay set a pattern and left a mark for these men to shoot at. They are measuring up to those standards.

For tactical training, the A&M Cavalry student is in an enviable position. With eleven branches of the Ground Forces receiving instruction here, the student is constantly aware of his functions and responsibilities as one member of a combined arms team. He is ever conscious of the coordination and interdependence necessary if the team is to operate successfully as a unit.

Our plan of instruction is twofold: Primarily the development of the cadet's character, integrity, and leadership. The instructors constantly stress the necessity for and desirability of these qualities in the Army officer. Since Texas A&M is a military college, the opportunities for this development are greater than at a college where ROTC instruction is part of the academic curriculum only, secondarily training in the organization, tactics and technique, and operation of matériel of armored units.

Our theoretical military training is held in the classroom. Our practical work is done at the motor park or tank driving range located five minutes from the campus. The Cavalry Squadron of three Troops presently totals 193 students. Of the 193 students, 119 are taking advanced Cavalry instruction, and 74 are completing their first-year basic Cavalry work. The instructor section consists of a Lt. Colonel, a Captain, a Sergeant First Class, and a Sergeant.

The Armored School at Ft. Knox is most helpful to us in keeping abreast of the latest Armored developments. Information of current instructional material, training aids, and trends, is of great assistance in keeping our

course alive and up-to-date. With the bulk of the future Cavalry officers coming from ROTC units, this is a needed and desired service. Fourth Army at Ft. Sam Houston, Texas, cooperates fully in our administrative support. The 2d Armored Division at Camp Hood, Texas, is our host at Summer Camp. The success of this field training period is due in great measure to the wholehearted cooperation we receive during our six-week period with them. Fortunately, the 2d Armored realizes this is an impressionable time for the student, so their participation in our training is vigorous, realistic, and well conducted. However, Camp Hood and the surroundings are poor competition in glamour and interest in comparison with the Summer ROTC Camps located in the East and accessible to Washington and/or New York City.

The students approach their military instruction with enthusiasm and interest. Should they be called to active duty in the years to come, we are confident they will be a great credit to the Cavalry and to A&M.

UNIVERSITY OF ILLINOIS

Champaign, Illinois

There are 1,793 students enrolled in nine branches of the army ROTC at the University of Illinois. Twenty-seven are in the Advanced Course, Armored Cavalry, and ninety-eight in Military Science II, taking training peculiar to this branch; this is the first year policy has permitted the selection of branch-preparation training. The total places the Armored Cavalry highest of the branches. Possibly the display of armor on the Armory floor, its use by Advanced Students, and observation of it during servicing periods has been conducive to favorable Basic enrollment.

Chief interest is in Tank Driving. Associated elements of Gunnery and Communications follow in that order, with the voice radio favored, seemingly because it is practical without specialized training. The Weapons course is next in interest, and first for the MS IIs, especially as it tends toward tank weapons and their use in the tank. Otherwise, the course is too long (35 hours) before it reaches the application within, in the turret and manipulation (4 hours). The curse of the schedule is reduced by an early blending of the two subjects, essentially to capitalize on interest and create more. This in turn, we think, is conducive to interest in the Advanced Course.

Training aids are limited in quantity and restrained in use, the latter due to absences of training areas. Of the vehicles, an armored car (M8), a half-track (M3A1), an assault-gun (M8), and one light tank (M24), three are obsolete in the Table of Allowances for Armored Cavalry. In effect it is showing the student antiques which are only amusing as compared with the interest necessary to prepare potential officers. These vehicles should be replaced with another light tank (providing for practical application of communications, tactics, and more devices for groups to work without the risk of being idle—and bored), an assault gun mounted with a 105-mm., and a personnel carrier (M44). However, none of these vehicles are on the Table of Allowances for ROTC units.

Time and academic class schedules also limit practical work; gunnery is confined to turret manipulation and use of instruments; driving is restricted to a mile stretch of level semi-paved road or the Armory floor when it is not monopolized by varsity sports.

Decline in enrollment this year is partly due, it is believed, to the fact that eliminating the draft removed the impulsion to join the ROTC as a choice. This unit has endeavored to counter this by personal contacts, public relations, demonstrations of equipment to interested groups, electing a cavalry queen from among the co-eds, and by opening the Cavalry Club membership to qualified sophomores. However, the essence of the ROTC problem is to re-establish the program at the level of prestige it held before World War II; the temporary abolishing of commissions from the ROTC, the granting of commissions to civilians without military training, and the progaganda of subversive groups—still active—has discredited the program. It will take a long time with intensive support by all higher headquarters and associated administrations to bring the ROTC back to its former position.

MICHIGAN STATE COLLEGE

East Lansing, Michigan

Armored Cavalry training at Michigan State College, East Lansing, Michigan, is conducted under practical, and as near "school" conditions, as is possible with the facilities and time available. With 22 first year and 28 second year advanced students clamoring for the latest developments, all literature and lesson plans and texts published by The Armored School are carefully perused and are continually being adapted for ROTC use.

The equipment available consists of an M24 tank, an M12 Medium Tank Trainer, an M8 armored car, and many locally constructed training aids. In addition, equipment is borrowed from other branches such as radios, switchboards, trucks, an artillery "puff" board, charts and models. The tank and armored car become "spearheads" in many campus parades, displays and other activities, thereby creating considerable interest particularly among the 100 armored cavalry sophomores from whom next year's advanced quota will be selected. On display to create interest in motors is a complete automotive engine, power train, and chassis, with cut-away portions enabling the students to view all the detailed operation and structure of the vehicle, including the running gear. Engine trouble shooting is a challenge to the students when they attempt to correct preset trouble on the two prewar engines mounted on a homemade trailer.

With an expanding enrollment the past 5 years, and with new construction springing up in all available va-

Estimated 12,000 ROTC Students To Take Summer Training

An estimated 12,000 Reserve Officer Training Corps students from colleges and universities throughout the country will take part in the six weeks 1950 summer camp training program. More than 2,500 will be medical students, approximately twice the number in the 1949 summer camp.

With one exception, the ROTC branch summer training camps will begin June 19. The Fort Lewis, Washington training camp will start June 26. Medical, dental, veterinary, and pharmacy students will take their training in two phases, the first beginning June 19 and the second August 7. Each camp will last six weeks.

The ROTC summer camp training program is designed to furnish trainees with a comprehensive approach to leadership which they are expected to assume after completing the four-year senior ROTC course in college and receiving commissions in the civilian components.

Primary emphasis in the medical training camps will be placed on military medicine, dentistry, and surgery with additional training provided for veterinary and pharmaceutical students in the military applications of their respective specialties. ROTC veterinary and pharmacy students will also get small arms training.

Branch training, other than medical, will be given ROTC students this summer in seventeen Army installations. A breakdown of the ROTC training camps, branches, and estimated attendance follows: Fort Monmouth, New Jersey, Signal Corps, 550; Fort George G. Meade, Maryland, Infantry, 1000; Anti-Aircraft Artillery, 430; Aberdeen Proving Grounds, Maryland, Ordnance, 320; Fort Belvoir, Virginia, Engineer, 850; Camp Lee, Virginia, Quartermaster Corps, 680; Fort Eustis, Virginia, Transportation Corps, 640; Edgewood Arsenal, Maryland, Chemical Corps, 150; Carlisle Barracks, Pennsylvania, Army Security Agency, 30; Fort Knox, Kentucky, Armored Cavalry, 380; Fort Benning, Georgia, Infantry, 1020; Fort Bragg, North Carolina, Field Artillery, 630; Camp Gordon, Georgia, Corps of Military Police, 300; Fort Sill, Oklahoma, Field Artillery, 350; Camp Hood, Texas, Infantry, 410; Armored Cavalry, 150; Fort Bliss, Texas, Anti-Aircraft Artillery, 270; Camp McCoy, Wisconsin, Infantry, 500; Fort Lewis, Washington, Infantry, 330; Field Artillery, 110; Engineer, 140; Quartermaster Corps, 220.

This year, the medical ROTC summer training students will utilize six general hospitals; the Medical Field Service School at Brooke Army Medical Center, Fort Sam Houston, Texas, and two Station Hospitals. The General Hospitals are Letterman General Hospital at San Francisco, California; Fitzsimons General Hospital, Denver, Colorado; Brooke General Hospital, Fort Sam Houston; Walter Reed General Hospital, Washington, D. C.; Madigan General Hospital, Tacoma, Washington, and William Beaumont General Hospital, El Paso, Texas. Station Hospitals which will be used are those at Fort Bragg, North Carolina and Fort Benning, Georgia.

cant areas, the tank driving and practice gunnery courses have been relocated several times until at present a 2 to 3 mile trip is required to reach the course. Most of the outdoor training is scheduled for the fall and spring; however cold weather operations are demonstrated at every available opportunity as weather conditions permit.

The climax of the year's training consists of a field trip to the Detroit Tank Arsenal where a full day is spent receiving instruction from the research and development, and engineering departments followed by a detailed in spection of the arsenal. Included in the day's program is a series of demonstrations of the latest equipment and developments, including the opportunity to ride on the newest tanks and vehicles.

News recently received that the 1950 summer camp would be held at Fort Knox has caused no small ripple of excitement among the students because they have been looking forward to visiting The Armored School for a firsthand look at the training facilities there.

UNIVERSITY OF ARIZONA

Tucson, Arizona

The University of Arizona Armored Cavalry ROTC Unit was reinstituted at the conclusion of World War II and at present is in full operation on the peacetime ROTC program. An Air Force unit with administration and maintenance engineering courses is the only other service or branch represented here.

Throughout the school year approximately 570 armored cavalry students are enrolled of which 485 are basics and 85 are advanced students. The 1st year basic course is operated as a joint Army-Air Force course with 14 sections. The other courses are conducted separately by the respective Army and Air units with the number of students divided almost equally between the two units.

The physical plant at this institution is quite inadequate due to the large increase of students since the war, compared to the prewar enrollment. The Department offices are located in the basement of the Gymnasium as are the supply room and small bore range. Classes are conducted in temporary buildings adjacent to the Gymnasium. The Motor Park is located in the old stables area and now shelters two light tanks, an armored car, a truck and a jeep. The polo field is used as a playground for veterans and their families. The greatest need is for a modern armory and a tank driving range.

The Cavalry tradition has enabled this unit to maintain a satisfactory enrollment and a high standing on the campus, despite the popularity of the Air Force.

Many outstanding graduates of the ROTC have gone into the Regular Army and many more have served their country in the Reserve with high distinction.

Tucson's fine climate and the picturesque mountain and desert scenery make this a most pleasant and professionally satisfying station.

New Armored Cavalry Courses

Middle Tennessee State at Murfreesboro, Tenn., and Furman University at Greenville, S. C. are the two institutions adding Armored Cavalry Courses.

FORGING THE TEAM OF VICTORY

THE GRAND ALLIANCE. By Winston S. Churchill. Houghton Mifflin Company, Boston. 903 pp. $6.00.

A Review by MORGAN BEATTY

With a man like Winston Churchill dictating the major story of World War Two, Great Britain is bound to come out better than even in the libraries of the world when the story of the Second World War is recorded by historians.

He has the advantage over every other storyteller, in whatever language, from whatever land. Churchill is a great journalist—with a journalist's instinct for language and the master's touch in organizing his story. Churchill also was Britain's primary war statesman. He was privy to every important development, and all major details in the high councils of the allies.

No other account of fact, no other story of the war years, can possibly command the attention of future historians.

Here in the United States we are both blessed and damned. We have the views of a dozen men in critical positions before us already.

The Robert Sherwood story of the Hopkins papers is the prime volume. And yet that is so full of vacant spots it looks like a witch's grin. The black caverns of missing facts tantalize the reader. When you read Eisenhower's account of the war years, you feel he has kept most of the important facts to himself. The intense struggles of great minds are strikingly apparent because of their absence, or rather, their sketchy appearance. The reader feels the General is sparing everybody's feelings, including his own. And, of course, he argues the defense of his own position—and it is a highly defensible position.

The Stimson story and the Hull story are both restricted in their viewpoint—purposely restricted. So is Admiral Leahy's. So are all the others available.

And—to sum up the American position—we have NO Roosevelt story. We have no Marshall story. Nor, if the point is valid, do we have the MacArthur story.

I once asked General Marshall if he intended to write his story of the war. And I asked because I knew his point of view was not always in agreement with Churchill's. He said he had no intention of writing his story of the war years. Mrs. Marshall later told me the General felt he either had to write the whole story—as he saw it—or no story at all. He preferred to write no story. Perhaps he will leave behind him some personal papers, to be edited and released in future years.

But unfortunately for us the fact remains, Britain will have before the future historians the story of the major actor in England. The shaper of policy, the framer of war strategy has his record in the forefront. And historians naturally will prefer that

An Exclusive Journal Feature

The Author

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Winston Churchill, the world's senior statesman, has had perhaps greater impact on this half century of history than any other individual. He has held high cabinet position in the government of a major nation in two world wars. As parliamentarian, writer and historian he has had a dominant role in world affairs. He has written three volumes on the First World War. *The Grand Alliance* is the third of five volumes on the Second World War.

The Reviewer

Morgan Beatty has a broad background in the journalistic field. He joined the Associated Press in 1927. In 1941 he became a military analyst with the National Broadcasting Company. He covered the war in the ETO for that network, and since 1946 has handled the News of the World programs familiar to its listeners. In 1947 he won the Headliners' Club award for his reporting of the Texas City disaster. Recently he received the Dupont Award for outstanding reporting in 1949.

complete story—from one man's point of view—to the snaggle-toothed American story. The conclusion to be drawn is obvious.

I do not by any means wish to detract from the Churchill account. But I do wish to point out that this extremely clever man, this able politician, is not all-wise. Never has been. He has damned, in his previous records—damned with faint praise—the rightness of Henry Stimson about Japan, in the year 1931. That damning was wholly uncalled for. It was done obviously, with an eye on future historians.

We have before us the sad record, of both Britain and the United States, after the First World War. Both nations allowed the German generals to reach the libraries of the world with their alibi. And they reached the historians FIRST and convincingly. This time Britain has not lagged. Her public men have collected Britain's story and reached the libraries with that story FIRST. And Churchill, of course, heads the impressive list. The Germans have no story, and the Russians have not been able to crack the language barrier outside their own satellite territory.

So we Americans are the ones who are coming off second-best after the Second World War, unless the people who write history are extremely diligent. They have not always been diligent in such matters before, and scholars have a weakness for the captivating charm, and the clear command of the English language, displayed by Winston Churchill.

Rommel

Captured German Photo

". . . a very daring and skilful opponent against us, and, may I say across the havoc of war, a great general."

With that thought in mind, I review the third book in the Churchill series on World War Two—"The Grand Alliance."

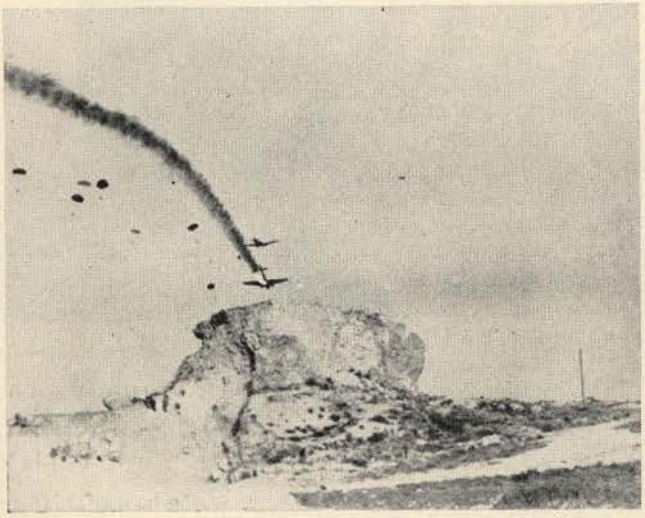
The impression of Churchill as the omniscient recorder appears subtly through "The Grand Alliance," probably even to a more marked degree than in the two earlier volumes —"The Gathering Storm" and "Their Finest Hour." Likely this results because, as his tale of the Great War unfolds, he deals with personalities, events and results closer to home to Americans.

At the start, his narrative necessarily evolved around the impact of the threat and the actual arrival of war on Britain. But in this third volume, the conflict has become an overt action directly involving the United States. And he consciously or unconsciously views the American situation from the point of view of the Englishman. There is no point of major conflict in this outlook, but nonetheless it is the Churchill view of things—and not the impression of the disinterested analyst—that we get here.

There is the man Churchill, for example, speaking out on the military mind. In a passage during his discussion of the earlier phases of the desert warfare in North Africa, he declares: ". . . Generals are often prone, if they have the chance, to choose a set-piece battle, when all is ready, at their own selected moment, rather than to wear down the enemy by continued unspectacular fighting. They naturally prefer certainty to hazard. They forget that war never stops, but burns on from day to day with ever-changing results not only in one theatre but in all. . . ."

Not the statement of a man who brooks no argument, perhaps. But certainly the judgment of one with firm, sharp and biting opinions. And typical of the Churchill who in his lifetime demonstrated time and again

Crete



Associated Press

"Nothing like it had ever been seen before. It was the first large-scale airborne attack in the annals of war."

Germany Drives East

Captured German Photo

"overwhelmed . . . by the German cannonade. The wicked are not always clever, nor are dictators always right."

his willingness to take the long, audacious chance—as in the Dardanelles Campaign of World War One—and, if necessary, accept responsibility for its failure.

This confidence in his own point of view crops up in another form as he speaks of an early conference with Harry Hopkins, President Roosevelt's personal emissary, and a group of high U. S. military and naval officers—a discussion of strategy at a time only months before Pearl Harbor. Recounts Churchill:

"Hopkins said that the 'men in the United States who held the principal places and took decisions on defence matters' were of the opinion that the Middle East was an indefensible position for the British Empire, and that great sacrifices were being made to maintain it. In their view the Battle of the Atlantic would be the final decisive battle of the war, and everything should be concentrated on it. The President, he said, was more inclined to support the struggle in the Middle East, because the enemy must be fought wherever he was found."

Then he relates how the British Chiefs of Staff, at his request, set out their own—and his own—impressions of what should be done and how it should be accomplished. "My feeling at the end of our discussion," he concludes, "was that our American friends were convinced by our statements and impressed by the solidarity among us."

Previous Reviews in the Churchill Series

The Gathering Storm, first of the Churchill books on the Second World War was reviewed by Captain William Gardner Bell in the July-August, 1948 issue of The Journal.

The Finest Hour, second volume in the series was reviewed by Charles Collingwood in the May-June, 1949 issue of The Journal.

It has been estimated that the remaining two volumes will appear at eight-month intervals.

Apparent everywhere, too, is the Churchillian sense and feel for the historic moment. He anticipates, in a passing reference, that there is sure to be a firm place in history for the man who devised a means of restoring artillery to the place of eminence in battle from whence it was dislodged, during the desert war, by tanks.

Then there are more obvious instances of noting the historical moment. In the emotional flush of Pearl Harbor, he took the brief time necessary to dispatch several messages full of meaning and hope. To Eamon deValera: "Now is your chance. Now or never! A Nation once again! I will meet you wherever you wish." To Chiang Kai-Shek: "The British Empire and the United States have been attacked by Japan. Always we have been friends: Now we face a common enemy." And to Harry Hopkins, in Washington: "Thinking of you much at this historic moment."

Apart from his continuing commentary and description on the progress of the war—militarily, politically and diplomatically—this third volume in the Churchill series builds to the climax of forming the Grand Alliance of our time—"how Soviet Russia and the United States were attacked and rallied to the cause on which their hearts had long been set."

Its first half—Germany Drives East—is concerned with the early days of 1941. The year began with Hitler's assurance to Mussolini that the War in the West is in itself won, but a final violent effort still is necessary to crush England. The year opened also with strengthened ties between England and America, largely through visits by Harry Hopkins—"that extraordinary man who played, and was to play, a sometimes decisive part in the whole movement of the war"—and "that most able and forceful man," Wendell Willkie. There lies the genesis of the second half of the book—War Comes to America.

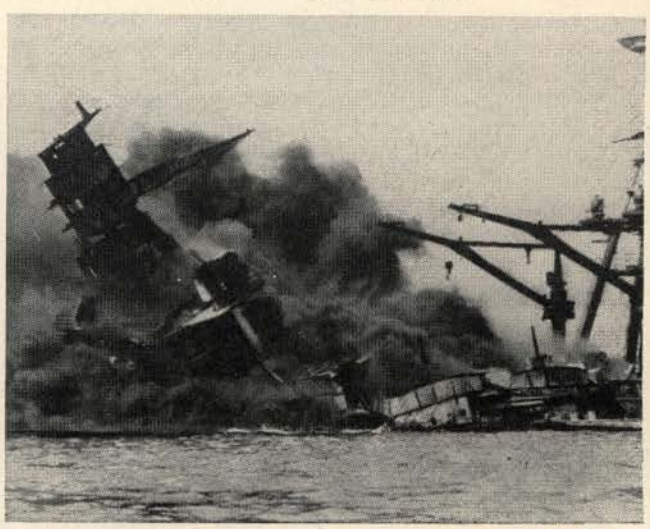
The war in North Africa and the Mediterranean intensified as the year moved along. The Italian Empire was conquered. Greece and Crete were lost. Tobruk was besieged. Then, on June 22, 1941, Hitler's Nazi forces attacked Russia, beginning a "new colossal struggle of armies and populations." The Soviet Union and the "second front" became major issues as Great Britain tried

The Atlantic Conference

U. S. Army

". . . to make known certain common principles . . . on which they base their hopes for a better future for the world."

War Comes to America



U. S. Navy

"Being saturated and satiated with emotion and sensation, I went to bed and slept the sleep of the saved and thankful."

to cooperate with her new ally—"surly, snarly, grasping, and so lately indifferent to our survival." And as Japan enters the war sphere on an all-out basis, Churchill takes time in his narrative to comment on the history and temperament of the Japanese and interpret—through his eyes—the events leading up to Pearl Harbor. He records a dramatic moment in history, by underplaying it like a skilled actor, as he describes the Sunday evening at Chequers when he received that news on the domestic wireless, in company with Ambassador Winant and Averell Harriman, then lend-lease expediter in London.

And there, like the author of a continued story, Winston Churchill leaves us. And he leaves us eager to get the next chapter in his continuing report on the most impressive period in all the world's history.

We will be happy (perhaps a better word would be excited) in anticipation of the future stories, especially the Churchill impressions of the atom bomb. It is noteworthy that he has carefully, to date, laid the entire credit—or blame—whichever—on the Americans. We shall see what he does in his permanent record.

There is one man alive today who will be able to write the climacteric of the Second World War. Or, at least, he will have the material. His name is Harry Truman.

He is not a masterful journalist. But he does have one advantage that most of his contemporaries do not know he has. He is a keener student of history than his predecessor Roosevelt. He knows his history as well as Churchill. And he has definite views about historians—and that would include Mr. Churchill.

I once asked Mr. Truman who was his favorite historian. He replied he had no favorites in that field. He likes all of them. He did not say he had much respect for historians, as a breed.

"Historians," said Mr. Truman, "have many handicaps. The records are never complete. They also repeat inaccuracies. Herodotus had it right. The war and the event rarely happen at the same time. A good historian remedies this."

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by Victor Kravchenko

Victor Kravchenko, whose I CHOSE FREEDOM sold over 300,000 copies (72,000 at the full $3.50 price), has written a new book that is just as sensational and just as salable.

Accused of deliberate lying about the Soviet Union by the French Communist journal *Les Lettres Francaises*, Kravchenko last year sued for libel. In the Paris lawsuit, which attracted world-wide attention, he established the truth of his charges beyond all question.

This book is only incidentally the story of that action for libel. It is primarily a surprising exposé of what really goes on in Russia today, as related in court by Kravchenko's witnesses. These men and women, escaped Soviet citizens—engineers, peasants, factory hands, teachers—swore to the truth of Kravchenko's earlier charges in I CHOSE FREEDOM and painted an appalling picture of the brutal reality behind such bland words as "collectivization," "kulak," "labor camp" and "NKVD." Very little, if any, of this fascinationg factual material was reported in the American press. It is a startling, vivid, utterly honest story—and exceptionally important reading for Americans today!

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Answers to ARE YOU WELL INFORMED?

1. (a) 10 May 1940. (b) 4 June 1944. (c) 6 June 1944. (d) 6 May 1945.
2. Maj. Gen. Walter Bedell Smith for the Allied Expeditionary Force; Maj. Gen. Ivan Susloparov for Russia; Maj. Gen. Francois Savez for France; Col. Gen. Alfred Jodl for Germany.
3. Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia.
4. Latvia was incorporated into the Soviet Union in 1940.
5. Sweden, Denmark, Finland, Germany, Poland, Russia, Lithuania, Estonia and Latvia.
6. Trygve Lie.
7. Mr. Stimson was Secretary of State under President Hoover from 1929 to 1933. He was Secretary of War under President Taft from 1911 to 1913; President Roosevelt from 1940 to April, 1945; President Truman from April to September, 1945.
8. Pakistan—Liaqat Ali Khan; India—Jawaharlal Nehru.
9. Fifty-one in 1945; Fifty-nine now.
10. Greater. Atlantic Pact countries total 337,464,000 against 270,845,000 for the Soviet group.

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The Second World War

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THE Grand Alliance

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