357.05
CA
Cop 1

THE CAVALRY JOURNAL

Press Assn.

Members of a U. S. reconnaissance unit drive their M-8 armored reconnaissance car through the battered streets of Montebourg, France.

JULY-AUGUST, 1944

MODERN RECONNAISSANCE

This long awaited and much needed book has been compiled and edited by *The Cavalry Journal* staff.

Many of the articles are based upon personal combat experiences. All of them contain valuable information and training data for reconnaissance units. They include training material for the squadron, troop, company and platoon . . . reconnaissance methods for the infantry division, the armored units, and the T-D battalions . . . reconnaissance peculiar to the desert, the jungle, and street fighting. . . .

TABLE OF CONTENTS

INTRODUCTION—by Colonel Edwin M. Sumner, G.S.C. (Cav.)

RECONNAISSANCE—by Brigadier General H. S. Hawkins, Retired

PRINCIPLES AND MODERN METHODS OF RECONNAISSANCE—by Lieutenant Colonel Allen D. Hulse, Cavalry

GERMAN RECONNAISSANCE—by Lieutenant Colonel John R. Lovell, G.S.C. (C.A.)

ARMORED RECONNAISSANCE—by Major General Charles L. Scott

VEHICULAR RECONNAISSANCE—by Lieutenant Colonel Brainard S. Cook, Cavalry

THE DIVISION RECONNAISSANCE—TROOP AND SQUADRON—by Major Robert G. Fergusson, Cavalry

G-2 AND RECONNAISSANCE TROOP TRAINING IN NEW DIVISIONS—by Lieutenant Colonel James W. Bellah, G.S.C. (Inf.)

TRAINING THE BRIGADE RECONNAISSANCE PLATOON—by Major James B. Scott, Cavalry

THE RECONNAISSANCE SQUADRON IN THE MOTORIZED DIVISION—by Lieutenant Colonel Brainard S. Cook, Cavalry

THE RECONNAISSANCE SQUADRON, ARMORED DIVISION — by Major Roberts S. Demitz, Cavalry

COMBAT INTELLIGENCE FOR ARMORED UNITS—by Major Karl L. Scherer, Cavalry

COMMUNICATIONS NOTES—by Captain John W. Hopkins, Cavalry

RECONNAISSANCE WITH AN ARMORED DIVISION — by Colonel Peter C. Hains, III, Cavalry

BATTLE LESSONS ON RECONNAISSANCE—by Lieutenant Colonel Bruce Palmer, Jr., G.S.C. (Cav.)

RECONNAISSANCE LESSONS FROM TUNISIA—by Lieutenant Colonel Charles J. Hoy.

PATROLS AND OP's OF THE 81ST RECONNAISSANCE BATTALION IN TUNISIA—by Lieutenant Colonel Charles J. Hoy, Cavalry

MECHANICS OF BATTLEFIELD RECONNAISSANCE — by Lieutenant Colonel Charles J. Hoy, Cavalry

91ST RECONNAISSANCE SQUADRON IN TUNISIA—by Major Jack H. Ficklen, Cavalry

91ST RECONNAISSANCE SQUADRON IN TUNISIA — by Lieutenant Colonel Harry W. Candler, Cavalry

A DESERT RECONNAISSANCE — by Captain Marvin H. Smith, Infantry

A PROVISIONAL RECONNAISSANCE UNIT —by Technical Sergeant Robert Geake

A RUSSIAN ILLUSTRATION OF THE VALUE OF RECONNAISSANCE

A SOVIET RECONNAISSANCE PLATOON IN ACTION

RED CAVALRY RECONNAISSANCE BEHIND ENEMY LINES—by Cyrus L. Sulzberger

RECONNAISSANCE IN STREET FIGHTING—by Major General I. Ziberov, Red Army

RFCONNAISSANCE LESSONS FROM STALINGRAD—by Colonel General V. I. Chuykov, Red Army

JUNGLE RECONNAISSANCE—by Major Willard O. Foster, Cavalry

JAPANESE RECONNAISSANCE FOR NIGHT ASSAULT

GERMAN AERIAL RECONNAISSANCE

THE AIR-CAVALRY TEAM IN RECONNAISSANCE—by Major Roy C. Flannagan.

AIR-TANK-CAVALRY IN ACTIVE RECONNAISSANCE—by Major General Alexei Ignatyeu, Red Army

Order Blank, page 79

Price $1.50

The United States Cavalry Association

Organized November 9, 1885

The aim and purpose of the Association shall be to disseminate knowledge of the military art and science, to promote the professional improvement of its members, and to preserve and foster the spirit, the traditions, and solidarity of the Cavalry of the Army of the United States.—Article III, Constitution.

OFFICERS

MAJ. GEN. JOHN K. HERR
U. S. ARMY RETIRED
President

BRIG. GEN. H. S. HAWKINS
U. S. ARMY RETIRED
Vice-President

COL. EDWIN M. SUMNER
(CAV.), G. S. C.
Secretary-Treasurer

☆

EXECUTIVE COUNCIL

MAJ. GEN. GUY V. HENRY
BRIG. GEN. KARL BRADFORD
BRIG. GEN. PAUL McD. ROBINETT
BRIG. GEN. WALTER BRAXTON PYRON
COL. ALBERT STOVALL
COL. C. H. BRYAN
COL. E. H. CARNS
COL. DANA McBRIDE
COL. GORDON B. ROGERS

THE CAVALRY JOURNAL, published under the auspices of the United States Cavalry Association, is not an official publication. Contributions appearing herein do not necessarily reflect official thought or indorsement. Articles appearing in this Journal represent the personal views of the author and are published to stimulate interest in, provoke thought on, and provide a free forum for the decorous discussion of cavalry affairs.

The Cavalry Journal

Published Bimonthly by The United States Cavalry Association

COLONEL EDWIN M. SUMNER, *(Cav.) G.S.C., Editor*
CHRISTINE HARBOUR, *Associate Editor*
EVELYN S. DRAYTON, *Book Editor*
M/SGT. HOWARD M. COLLINS, *Circulation Manager*
CORPORAL JOHN J. CORNETT, *Ass't. Circulation Mgr.*

Volume LIII | JULY-AUGUST, 1944 | Number 4

THE LIBRARY OF CONGRESS AUG 4 1944

CONTENTS

TRIPHIBIOUS TRIUMPH 2
By Brigadier E. C. Anstey

BEACHHEAD IN FRANCE 6

A BATTLE IN NORMANDY 8
By Leonard Mosley

THE FRENCH MAQUIS 10

VITAL ROLE OF SOVIET CAVALRY 14
By Colonel I. Prenin

NEED FOR HORSES IN ITALY 16
By Major General John P. Lucas

A TD BATTALION AT ANZIO 20
As told by Captain P. C. Meacham to Lieutenant L. R. Barnhill

TANK TRAINING AT ANZIO 24
By Master Sergeant Robert C. Geake

THE GERMAN GOLIATH AND B4 TANKS 26
By Major James H. Quello

THE GERMAN ROBOT BOMB 28

GENERAL HAWKINS' NOTES, The Scope of Employment of Armored Forces—Tactics and Conduct 30

EDITORIAL COMMENT 32

SURVIVAL IN THE PHILIPPINES, December 22, 1941-March 1, 1942 34
By Major Arthur E. Whitehead

EYES, EARS AND NOSE IN JUNGLE PATROLLING 42
By Major Robert M. White, II

ON THE ROAD TO ODESSA 46
Kuban Cossacks, By Major V. Kirsanov
General Pliyev's Cossack Guards, By Bayev

CAVALRY IN THIS WAR 52
By Lieutenant Colonel Benary

BREAKING THROUGH GERMAN REAR DEFENSES 54
By Major A. Bukirev

CORRECTING ARTILLERY FIRE FROM TANK 56
By Senior Lieutenant G. Sidorov

TANK ASSAULT IN SWAMPY TERRAIN 57
By Major P. Slesarov

INTERACTION OF AIRCRAFT AND TANKS 58
By Colonel M. Kotelnikov

TACTICAL AIR OPERATIONS 60
By Colonel H. A. Sears

BRITISH PACK MULES AID ARMY ON THREE FRONTS 66

MECHANIZED CAVALRY ON RECONNAISSANCE 68

RECONNAISSANCE AIDS FOR RANGE DETERMINATION 71
By 1st Lieutenant Paul E. Keefed

DETERMINING INITIAL DIRECTION FOR MORTAR FIRE 74
By 1st Lieutenant Paul E. Keefed

BOOK REVIEWS 75

Publication date July 20, 1944. Deadline date, next issue: August 10, 1944.

THE CAVALRY JOURNAL IS NOT RESPONSIBLE FOR OPINIONS EXPRESSED IN PUBLISHED CONTRIBUTIONS

Editorial offices: 1719 K Street, Northwest, Washington 6, D. C. Copyright, 1944, by the U. S. Cavalry Association. Publication offices: 1406 East Franklin Street, Richmond, Virginia. Entered as second class matter at Richmond, Virginia, under the act of March 3, 1879, for mailing at special rate of postage in Section 412, Act of October 3, 1917. Terms: Domestic subscriptions, individual and organization, $3.00 per year. Foreign, $3.50 per year. Canada: including War Exchange Tax, $3.50. All subscriptions payable in advance. Single copies, 75c. Extra copies to subscribers, 50c. THE CAVALRY JOURNAL does not carry paid advertisements.

MODERN RECONNAISSANCE

This long awaited and much needed book has been compiled and edited by *The Cavalry Journal* staff.

Many of the articles are based upon personal combat experiences. All of them contain valuable information and training data for reconnaissance units. They include training material for the squadron, troop, company and platoon . . . reconnaissance methods for the infantry division, the armored units, and the T-D battalions . . . reconnaissance peculiar to the desert, the jungle, and street fighting. . . .

TABLE OF CONTENTS

INTRODUCTION—by Colonel Edwin M. Sumner, G.S.C. (Cav.)

RECONNAISSANCE—by Brigadier General H. S. Hawkins, Retired

PRINCIPLES AND MODERN METHODS OF RECONNAISSANCE—by Lieutenant Colonel Allen D. Hulse, Cavalry

GERMAN RECONNAISSANCE—by Lieutenant Colonel John R. Lovell, G.S.C. (C.A.)

ARMORED RECONNAISSANCE—by Major General Charles L. Scott

VEHICULAR RECONNAISSANCE—by Lieutenant Colonel Brainard S. Cook, Cavalry

THE DIVISION RECONNAISSANCE—TROOP AND SQUADRON—by Major Robert G. Fergusson, Cavalry

G-2 AND RECONNAISSANCE TROOP TRAINING IN NEW DIVISIONS—by Lieutenant Colonel James W. Bellah, G.S.C. (Inf.)

TRAINING THE BRIGADE RECONNAISSANCE PLATOON—by Major James B. Scott, Cavalry

THE RECONNAISSANCE SQUADRON IN THE MOTORIZED DIVISION—by Lieutenant Colonel Brainard S. Cook, Cavalry

THE RECONNAISSANCE SQUADRON, ARMORED DIVISION — by Major Roberts S. Demitz, Cavalry

COMBAT INTELLIGENCE FOR ARMORED UNITS—by Major Karl L. Scherer, Cavalry

COMMUNICATIONS NOTES—by Captain John W. Hopkins, Cavalry

RECONNAISSANCE WITH AN ARMORED DIVISION — by Colonel Peter C. Hains, III, Cavalry

BATTLE LESSONS ON RECONNAISSANCE—by Lieutenant Colonel Bruce Palmer, Jr., G.S.C. (Cav.)

RECONNAISSANCE LESSONS FROM TUNISIA—by Lieutenant Colonel Charles J. Hoy.

PATROLS AND OP's OF THE 81ST RECONNAISSANCE BATTALION IN TUNISIA—by Lieutenant Colonel Charles J. Hoy, Cavalry

MECHANICS OF BATTLEFIELD RECONNAISSANCE — by Lieutenant Colonel Charles J. Hoy, Cavalry

91ST RECONNAISSANCE SQUADRON IN TUNISIA—by Major Jack H. Ficklen, Cavalry

91ST RECONNAISSANCE SQUADRON IN TUNISIA — by Lieutenant Colonel Harry W. Candler, Cavalry

A DESERT RECONNAISSANCE — by Captain Marvin H. Smith, Infantry

A PROVISIONAL RECONNAISSANCE UNIT —by Technical Sergeant Robert Geake

A RUSSIAN ILLUSTRATION OF THE VALUE OF RECONNAISSANCE

A SOVIET RECONNAISSANCE PLATOON IN ACTION

RED CAVALRY RECONNAISSANCE BEHIND ENEMY LINES—by Cyrus L. Sulzberger

RECONNAISSANCE IN STREET FIGHTING—by Major General I. Ziberov, Red Army

RECONNAISSANCE LESSONS FROM STALINGRAD—by Colonel General V. I. Chuykov, Red Army

JUNGLE RECONNAISSANCE—by Major Willard O. Foster, Cavalry

JAPANESE RECONNAISSANCE FOR NIGHT ASSAULT

GERMAN AERIAL RECONNAISSANCE

THE AIR-CAVALRY TEAM IN RECONNAISSANCE—by Major Roy C. Flannagan.

AIR-TANK-CAVALRY IN ACTIVE RECONNAISSANCE—by Major General Alexei Ignatyeu, Red Army

Order Blank, page 79

Price $1.50

The United States Cavalry Association

Organized November 9, 1885

The aim and purpose of the Association shall be to disseminate knowledge of the military art and science, to promote the professional improvement of its members, and to preserve and foster the spirit, the traditions, and solidarity of the Cavalry of the Army of the United States.—Article III, Constitution.

OFFICERS

MAJ. GEN. JOHN K. HERR
U. S. ARMY RETIRED
President

BRIG. GEN. H. S. HAWKINS
U. S. ARMY RETIRED
Vice-President

COL. EDWIN M. SUMNER
(CAV.), G. S. C.
Secretary-Treasurer

☆

EXECUTIVE COUNCIL

MAJ. GEN. GUY V. HENRY
BRIG. GEN. KARL BRADFORD
BRIG. GEN. PAUL McD. ROBINETT
BRIG. GEN. WALTER BRAXTON PYRON
COL. ALBERT STOVALL
COL. C. H. BRYAN
COL. E. H. CARNS
COL. DANA McBRIDE
COL. GORDON B. ROGERS

THE CAVALRY JOURNAL, published under the auspices of the United States Cavalry Association, is not an official publication. Contributions appearing herein do not necessarily reflect official thought or indorsement. Articles appearing in this Journal represent the personal views of the author and are published to stimulate interest in, provoke thought on, and provide a free forum for the decorous discussion of cavalry affairs.

The Cavalry Journal

Published Bimonthly by The United States Cavalry Association

COLONEL EDWIN M. SUMNER, *(Cav.) G.S.C., Editor*
CHRISTINE HARBOUR, *Associate Editor*
EVELYN S. DRAYTON, *Book Editor*
M/SGT. HOWARD M. COLLINS, *Circulation Manager*
CORPORAL JOHN J. CORNETT, *Asst. Circulation Mgr.*

Volume LIII JULY-AUGUST, 1944 Number 4

THE LIBRARY OF ... 1944

CONTENTS

TRIPHIBIOUS TRIUMPH 2
By Brigadier E. C. Anstey

BEACHHEAD IN FRANCE 6

A BATTLE IN NORMANDY 8
By Leonard Mosley

THE FRENCH MAQUIS 10

VITAL ROLE OF SOVIET CAVALRY 14
By Colonel I. Pronin

NEED FOR HORSES IN ITALY 16
By Major General John P. Lucas

A TD BATTALION AT ANZIO 20
As told by Captain P. C. Meacham to Lieutenant L. R. Barnhill

TANK TRAINING AT ANZIO 24
By Master Sergeant Robert C. Geake

THE GERMAN GOLIATH AND B4 TANKS 26
By Major James H. Quello

THE GERMAN ROBOT BOMB 28

GENERAL HAWKINS' NOTES, The Scope of Employment of Armored Forces—Tactics and Conduct 29

EDITORIAL COMMENT 32

SURVIVAL IN THE PHILIPPINES, December 22, 1941-March 1, 1942 34
By Major Arthur K. Whitehead

EYES, EARS AND NOSE IN JUNGLE PATROLLING 43
By Major Robert M. White, II

ON THE ROAD TO ODESSA 48
Kuban Cossacks, By Major V. Kirsanov
General Pliyev's Cossack Guards, By Bayev

CAVALRY IN THIS WAR 52
By Lieutenant Colonel Benary

BREAKING THROUGH GERMAN REAR DEFENSES 54
By Major A. Bukirev

CORRECTING ARTILLERY FIRE FROM TANK 56
By Senior Lieutenant G. Sidorov

TANK ASSAULT IN SWAMPY TERRAIN 57
By Major P. Slesarov

INTERACTION OF AIRCRAFT AND TANKS 58
By Colonel M. Kotelnikov

TACTICAL AIR OPERATIONS 60
By Colonel H. A. Sears

BRITISH PACK MULES AID ARMY ON THREE FRONTS 66

MECHANIZED CAVALRY ON RECONNAISSANCE 68

RECONNAISSANCE AIDS FOR RANGE DETERMINATION 71
By 1st Lieutenant Paul E. Koefod

DETERMINING INITIAL DIRECTION FOR MORTAR FIRE 74
By 1st Lieutenant Paul E. Koefod

BOOK REVIEWS 75

Publication date July 20, 1944. Deadline date, next issue: August 10, 1944.

THE CAVALRY JOURNAL IS NOT RESPONSIBLE FOR OPINIONS EXPRESSED IN PUBLISHED CONTRIBUTIONS

Editorial offices: 1719 K Street, Northwest, Washington 6, D. C. Copyright, 1944, by the U. S. Cavalry Association. Publication offices: 1406 East Franklin Street, Richmond, Virginia. Entered as second class matter at Richmond, Virginia, under the act of March 3, 1879, for mailing at special rate of postage in Section 412, Act of October 3, 1917. Terms: Domestic subscriptions, individual and organization, $3.00 per year. Foreign, $3.50 per year. Canada: including War Exchange Tax, $3.50. All subscriptions payable in advance. Single copies, 75c. Extra copies to subscribers, 50c. THE CAVALRY JOURNAL *does not* carry paid advertisements.

TRIPHIBIOUS TRIUMPH

*by Brigadier E. C. Anstey, D.S.O.**

TRIPHIBIOUS warfare is not merely amphibious warfare with an air component added. As developed today and exemplified on the beaches of Normandy it is far more than that. The recent invasion of Europe differs as much from an overseas operation of the last century as the teamwork of a football match differs from that of a relay race. One is the consecutive activity of two agents with a brief communal overlap; the other is the intimate relationship of a close marriage partnership.

Weave the operations of a mighty air force into those of the land and sea forces—coöperative, sometimes alternating, often contemporary, and always intimately related—and it is possible to get some analogy with the remarkable development of warfare that is called triphibious. Nothing comparable has been seen in any previous war.

Former Conception of Army-Navy Relationship

The ships which bore troops to the Crimea or down the Potomac to the Yorktown Peninsula and the James had fulfilled their task when the men reached the shore. The short range and the primitive gunnery of the ship's guns forebade much assistance to the fighting on land.

Even in the Dardanelles, where the British fleet silenced Turkish batteries and gave some support to the landing and further fire in support of the troops ashore, the effectiveness of the support was limited by the naval gun control system of the period. Gun sights designed to engage targets at sea level could not readily be adapted to the needs of land warfare on an undulating shore. The art of indicating land targets and of firing indirect at a hidden enemy had not yet been developed.

Aircraft, radio and the internal combustion engine, which makes the first two possible, have revolutionized war. That, of course, is not trite. But more than those factors was needed for the development of triphibious technique as it is known today.

Lessons From the Pacific

The conceptions which bore such rich fruit in the Allied invasion of France derived directly from the experiments, experience and achievements of Americans and Australians in the Pacific. From the landing at Guadalcanal onwards, the extraordinary spirit of brotherhood and unity which attained such perfection there has resulted in an interplay of activity by the three services which is continuous and which has consequently affected not only the tactics and the technique of an overseas operation, but the strategy as well.

The American and Australian experiences in the Solomon, Gilbert, Marshall, and Admiralty Islands furnished the background of a perfect school for the successful invasion of Normandy. Fighting in an archipelago is the quintessence of triphibious warfare for the reason that throughout the battle the navy continues to participate as an active element of combat. This continued coöperation appears in its highest form in the attacks on atolls in the Pacific, where the ground surface is so small that it is never out of range or observation from the sea.

Development of Triphibious Warfare in European Theater

Such conditions have not been present to the same extent elsewhere. Britain's navy helped Montgomery on many occasions with gun and monitor fire on his extreme right flank in the long advance from El Alamein to Tunisia, and supported the initial landings in Sicily. At Salerno when the enemy's armor came within view, naval fire smashed back the most dangerous tank attack that the Germans made.

In France the supporting naval gunfire was brought to a much higher pitch. Great as the value of the Pacific experience has been, the scope and conditions of the operations in Europe demanded special study and treatment. The size of the invasion armada immensely complicated the naval problem. The cramped conditions in a small country like England made the assembly and dispatch of armies more difficult. And the fixed defenses of the French coast had been developed to a pitch of complexity unmatched in the Pacific.

Collection of Information for Invasion

The first direction in which the coöperation of the services was necessary was in the collection of information about the problem in all its aspects. Much was learned, of course, of German defensive measures from the attacks on Dieppe and St. Nazaire. But detailed knowledge of the whole coastline within air cover of Britain was necessary, and the Air Forces flew thousands of sorties to obtain the enormous string of photographs which eventually covered the western shores of France and their land approaches.

Admirable as these photographs were they could disclose little about the nature of obstacles in and out of the water, the minefields and the geological details of the sea bottom, the beaches and the hinterland.

Guided by the photos taken from the air, parties of engineers were landed by the Navy without discovery at various points of the coast eventually chosen for attack. They examined the obstacles without discovery, probed the soil, tested the going for tanks or track vehicles, and came back with specimens of sand and soil which allowed essential precautions to be taken to prevent vehicles being stuck as they landed on certain beaches.

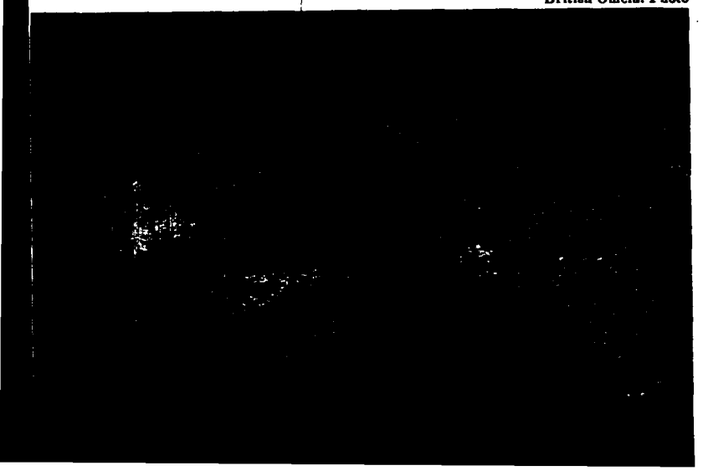
The Strategic Plan

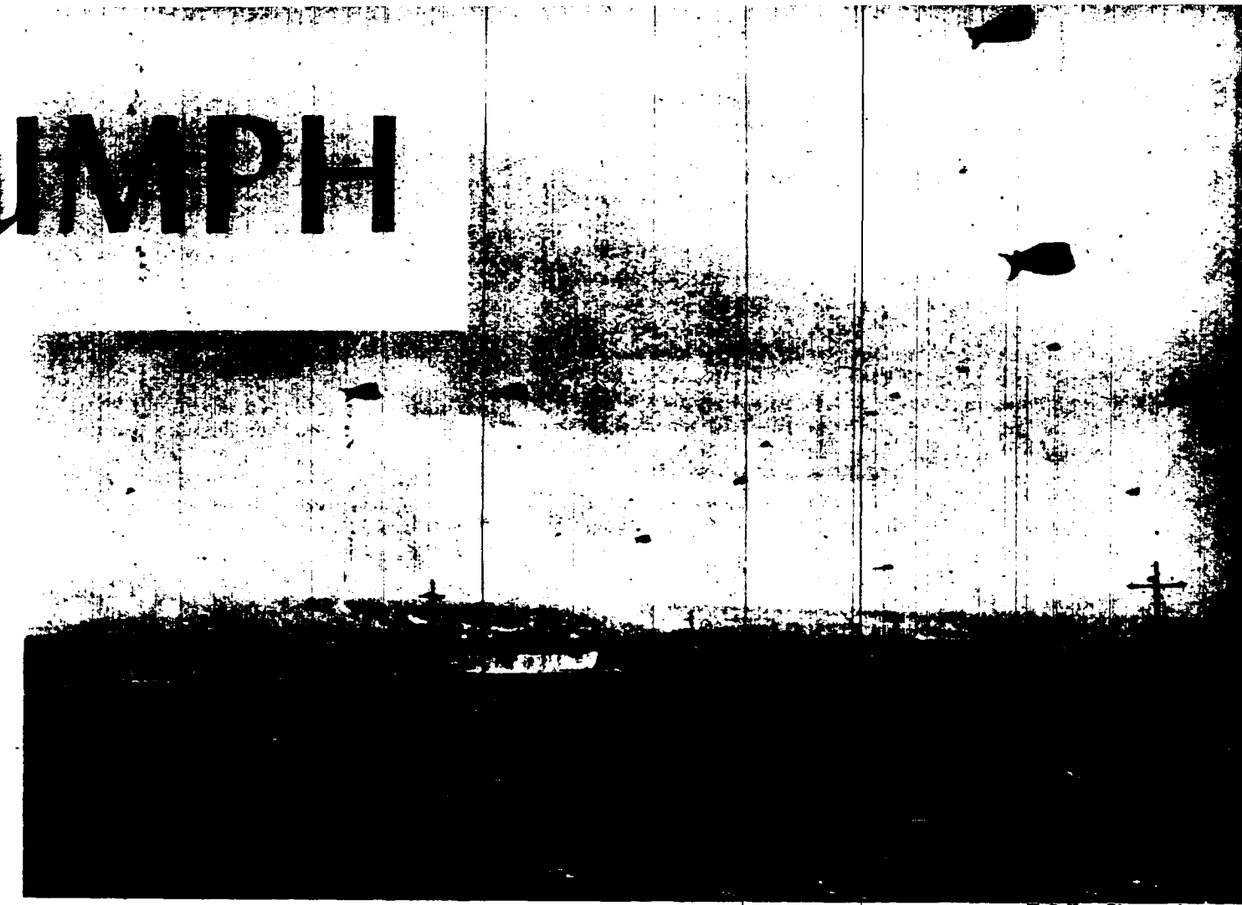
With all this mass of information so laboriously collected by the combined exertions of the three services it became possible to make a strategic plan. The extent to which triphibious warfare affects strategy at once became apparent. Formerly the main consideration was to find suitable landing beaches conveniently placed for the land objective that the army wished to take.

Now the objectives themselves had to be considered from three angles. The soldier wishes to land where he can bring the enemy's army to battle in unfavorable conditions for the enemy and in the most favorable conditions for himself. He demands that his air force

*Military Correspondent of the *Sunday Times* and *Daily Sketch*, London.

D Day on a Normandy beach. Men and matériel pour ashore from transports in background. Dead and wounded are lying on reef where they fell from German fire.
British Official Photo





U. S. Navy Photograph

Like a low-hanging bank of fog, the French coast can be seen in the background as a huge Allied task force moves in against the foe on D Day plus one. Battleships, destroyers, landing craft of all kinds and sizes participated in landings.

should achieve superiority over the battle area before the operation starts and should maintain it throughout. And he requires the largest possible force flung ashore in the shortest possible time and supplied with all the requirements of a great army in the field.

In the Pacific where the land objectives were atolls and islands of small extent, or countries where the difficulties of nature confined fighting to restricted areas, the initial air superiority could be attained by carrier-borne aircraft.

On a continental battlefield with its deep hinterland, covered with a maze of enemy-controlled roads and railways, ammunition dumps and arsenals of military stores, with its deep defenses and powerful coast batteries, its minefields and its radio installations—all of which had to be destroyed or damaged seriously before a landing could be launched—it was essential that the theater chosen for invasion should be within fighter flying reach of Britain.

In the next place, the area chosen had to contain airfields or landing grounds, or sites which could readily be converted into landing strips in order to provide the essential air cover and support for the battles after landing.

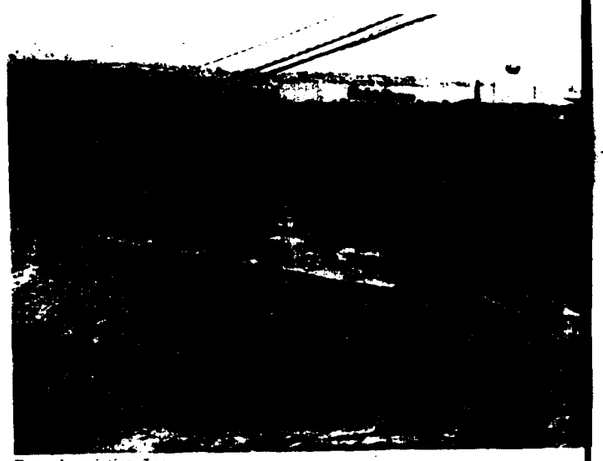
Third, it was necessary that the chosen theater afford sufficient suitable beaches within cruising range of the specialized landing craft.

Last, there had to be a deep-sea port nearby which the army could capture within a reasonably short time and relieve the strain on the naval personnel necessitated while landing all men and matériel on beaches. In the end, a port is essential for landing the quantity of heavy paraphernalia that armies eventually require.

Ahead of the Army of Liberation, Allied Air Power pounded German coastal fortifications, made gaps in Hitler's concrete defenses. Here a U. S. soldier examines one end of a connecting tunnel between strong points and underground fortresses, wrecked by bombers attacking invasion areas in northern France prior to D Day.

Logistics

It is not necessary to expend here on the immense complications to the working out of such plans afforded by the problem of shipping. The claims of the maintenance of Britain, the operations in the Mediterranean and the Pacific, the supply of oil to the navies and air forces, the transfer of American forces to Europe and the armada needed for the invasion itself provided a whole series of problems in which all three services as well as many civil ministries were intimately concerned. The combined operations of the Allied navies and air forces in combating the U-boat menace with such wonderful success were of paramount importance in clarifying the dubious merchant shipping situation.



Press Association, Inc.

Shells from Navy guns knocked out this German fortification overlooking a Normandy beachhead point. The installation was soon converted into an Allied Command Post.

As D-Day approached the invasion troops began to move into assembly areas from which they were to be embarked. The navy had chosen the embarkation ports and beaches, assembled the craft and fixed the times when loading must be completed. The army, working hand in glove with the navy, prepared the loading tables and timings and moved the troops in their right order to the right places. And the air forces maintained constant watch and ward over all.

Air-Navy Preinvasion Preparation

But it was in the landing operation itself that the most perfect coördination of the activities of the sailor, the soldier, and the airman was displayed. The pounding of the defenses from the air, the suppression of all enemy air interference, the cutting off from the interior of the area under assault and the provision of last minute information about enemy movements, carried out so brilliantly by the combined air forces on a colossal scale, were supplemented by the terrific fire of the fleet's guns directed with an accuracy and rapidity which has never hitherto been attained.

Press Association, Inc.

This view from the interior of a large German coastal defense gun emplacement shows German gun crew killed and gun knocked out by Allied artillery and naval guns. Action took place during the American advance across the Cherbourg Peninsula, which isolated the German garrison.

Greater progress has been made in this aspect of naval gunnery than in any other direction. Nowadays artillery officers using wireless, following the troops closely, can direct the fire of ship's guns with amazing success and quickness, and reports have been received of some phenomenal shooting on targets far inland which has had an immense influence on the fighting. The coöperation of the warships with the army has been extended from targets they could see on beaches to the limit of their range inland. But the full and constant exploitation of this invaluable naval gunnery would have been impossible if the air forces had not afforded the ships the immunity from air attack which they did.

Navy-Army On the Beaches

On the beaches too the intermarriage of navy and army is closer than it was. The dividing limit of responsibility has of course always been high-water mark. Formerly, landing parties leaped from boats as they grounded and splashed ashore, and the naval responsibility ended. The art of waterproofing men and vehicles and the development of specialized landing craft have altered that.

Disembarkation from these barges into deep water has become an art which the navy was vitally concerned that the army should learn. Accordingly, naval officers had to take a hand in the training of the soldiers. Moreover, army operations begin in deep water where the enemy's mines and obstacles are located. The engineers, who have to lift the mines and destroy the obstacles, were dependent to a very great extent on the way the naval men handled the boats or barges which brought them inshore. The whole operation, which is one of the most difficult in war, and on the performance of which the success of the great invasion of Europe greatly depended, was a fine example of the collaboration attained by the navy and army in the study, preparation and execution of a combined operation.

Army-Air in Air-borne Landings

While the soldiers and sailors were working hand in hand in this fashion on the beaches, the air force and the army were collaborating brilliantly some miles inland, in the biggest and most ambitious airborne operation yet attempted. The analogy with the sea-borne force was a very close one. Instead of the navy, the air force carried the troops, either as parachutists or in gliders, and troop-carrying transports, watched over them during their journey and acted as their artillery after landing.

The complicated problems of assembly, of timing departures, of forming up convoys and of landing them accurately to time and place, solved in such perfect fashion by the navy, were closely paralleled in the air-borne part of the operation and were solved with equal brilliance.

For conception and execution the part played by the air-borne divisions in the landings in Normandy has never been equalled. More credit rests on those divisions for the success of the invasion than has yet been realized. Their part was not finished with the landing, any more than the participation of warships in the battle ended with the first beaching.

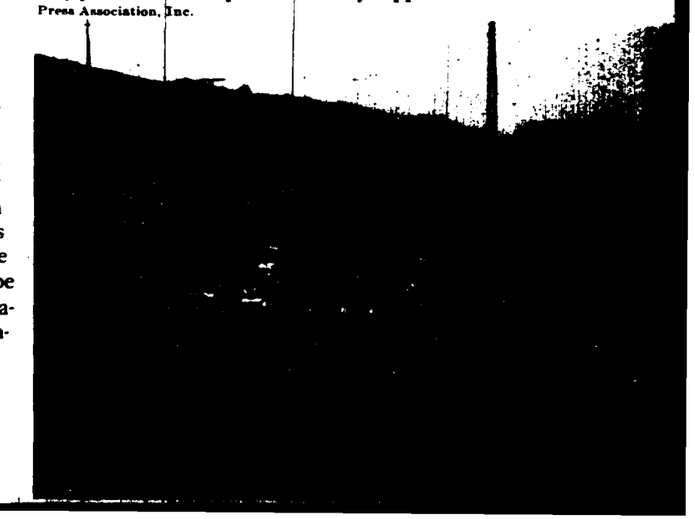
Triphibious Triumph

As these words are written, United States troops are fighting their way into Cherbourg. Ships of the British and United States Navies are pounding the port's defenses. Bombers rain their missiles on the great concrete-emplaced batteries. And as the Americans fight their way forward, their British and Canadian comrades hold the German panzer divisions in their grip and so protect the American rear.

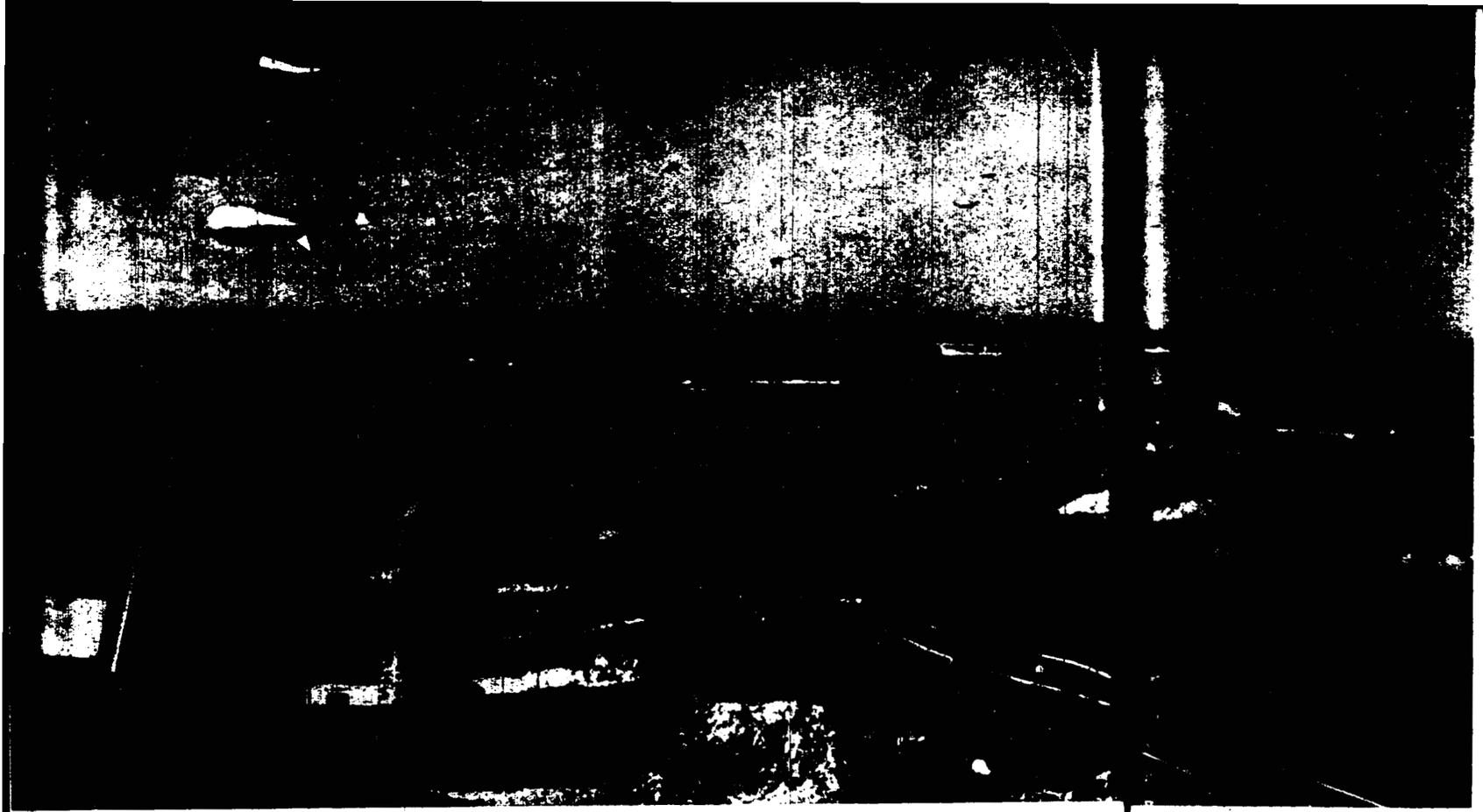
The fall of Cherbourg will be a triumph for all three elements of the service—land, sea, and air—acting as a perfect triphibious team under the inspiration of General Eisenhower and the technical leadership of General Montgomery.

Troops cautiously pass a burning German pillbox two miles from Cherbourg. Dead Germans lying outside the blasted enemy stronghold are grim testimony to the fierce fighting before the outer defenses of the port were breached. Cherbourg fell to troops of the U. S. First Army June 30. 34,000 prisoners, many supplies were taken.

Press Association, Inc.



Beachhead In France



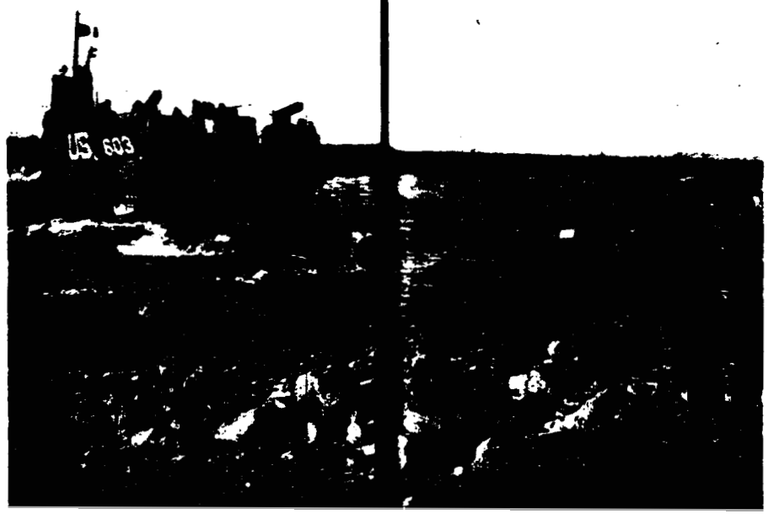
From this invasion beach on the coast of France, 8 June 1944, masses of men and equipment pour inland from the various landing craft off shore. From D Day on, more than 3,000 vessels plied across the English Channel. Naval fire knocked out enemy guns and tanks. Planes formed a protrella for land and sea, dropped bombs, ferried airborne troops. Ground forces through heavy enemy fire, mines and underwater obstacles, over bodies of com established a foothold in Hitler's Europe.

U. S. Signal Corps Photos

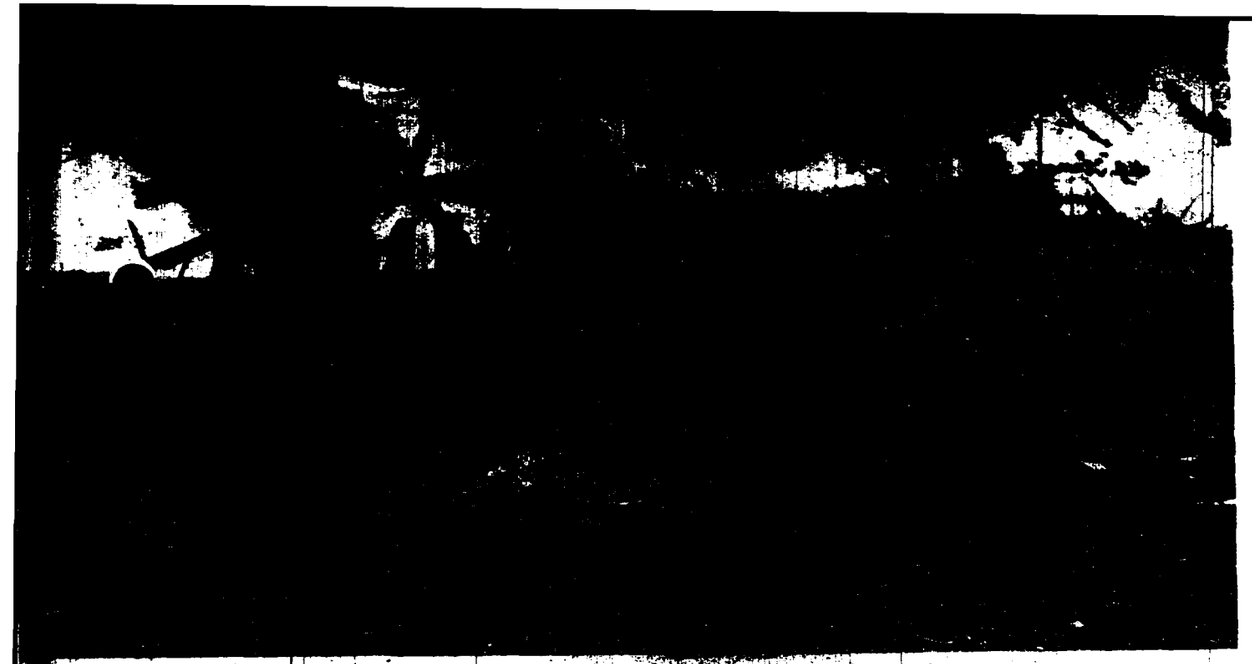
American paratroops, moving cautiously into a French village, take cover and concealment from trees and buildings. Paratroops landed behind German lines on D Day cut vital communications, destroyed gun positions, held bridges.

American troops take a "breather" in the comparative safety of a concrete wall. Others move over the crest to the interior. Casualties on most beaches were heavy.

LST grinds ashore, spews forth four jeeds their utility to the ever-increasing amount of matériel flowing onto the co. Return trip will carry wounded.



American assault troops, full pack, including a machine gun, move along a cliff. Quantities of equipment, brought ashore from landing craft, lie at the base.



A Battle In Normandy

*by Leonard Mosley**

British Official Photos

British airborne troops, landed in Normandy on D Day, dig into positions ahead of the field in which they were landed.

"THIS," said the paratroop captain, "is going to be good. Do you remember the gap we left in our lines just around Breville? Well, Jerry's found it at last and he's coming through. We have a report of at least 600 panzer grenadiers advancing through the woods and believe that they're to try to drive through Ranville to break our line. Well, what we are going to do to those Jerries should make a nice little story for you. Look."

He pointed along the walls and through the orchards and when you looked hard you could see British troops everywhere.

They were well dug in among bushes and grass, and only the green camouflaged tops of their helmets poked above the skyline—that and the muzzles of their Brens, heavy machine guns and Stens.

It was just before noon that we saw the first Germans. Over there on the other side of the dropping zone you could suddenly see figures moving among trees. We watched them forming up into batches of 10 to 15 men.

No one fired. Only the dull boom of artillery from somewhere away in the distance, and the busy hum of fighting planes disturbed the placid Saturday morning.

Shortly after noon the German attack began. In batches of 10 and 15 spread out over 200 or 300 yards, the German infantrymen came in at a run. They plowed over the waving corn in the black plough-land until they reached a line of wrecked gliders. Then, they fell on their faces and lay there. After a few minutes they got up again, ran forward, then fell flat again. It went on like that for about 400 yards. Still, no one fired.

From somewhere in the woods, a German mortar gun was going into action and its shells fell all around us and in the serried rows of gravestones in a churchyard. Splinters fell among us. There were casualties. But there was no retaliation.

*With British Sixth Airborne Division, France, June 12 (Delayed) (U.P.)

Stretcher-bearers wriggled forward and dragged wounded men away, but never showed themselves against the skyline.

Now the enemy was gaining confidence from the stillness. Smelling no danger, his loping advances were longer, his periods flat on the ground of only a few seconds duration. He came on fast, kept on coming until he was about 100 yards away. Then at a prearranged signal every automatic weapon, every rifle in the paratroops' line opened up. It was a roar that set your teeth chattering with shock.

You suddenly saw the Germans grimacing wildly clutching their bodies, throwing up their hands, then falling by the dozens into the corn. Then they all flung themselves down and the British paratroops continued their fire.

A rain of bullets surged across these 100 yards of French farm land and battered into the huddles on the grass. The earth was scuffed up in showers of corn and went down as if under a flail. But the Germans weren't beaten yet. One of their officers rose to his feet and called to his men, and those still not wounded charged once more. This time the paratroops held their fire even longer, and it was 25 to 30 yards now when the small arms barrage hit the enemy.

With cool, superb and absolute discipline, fingers squeezed triggers almost simultaneously, and down in writhing heaps went the Germans again. And now the remnants who remained alive turned and began to flee.

Bullets chased them across the field as they raced for the woods. But only a few made that shelter, for now the shells and mortars came into play and plastered a river of steel between the enemy and the sanctuary for which he was racing.

By 1 o'clock it was all over, and the dropping zone was littered not only with gliders and containers but with hundreds of enemy dead and enemy wounded.

Back in the woods those Nazi troops who had made it were joined by reinforcements, and there, among green shadows, they re-formed and planned how to get out.

But they were not to be given the chance. All through the woods hidden in trees, ditches, and slit trenches the camouflaged British paratroops were waiting for them. Around 4 o'clock a squadron of Sherman tanks rumbled up to where most of the Germans were concentrated and poured a five-minute barrage from their big guns into the trees.

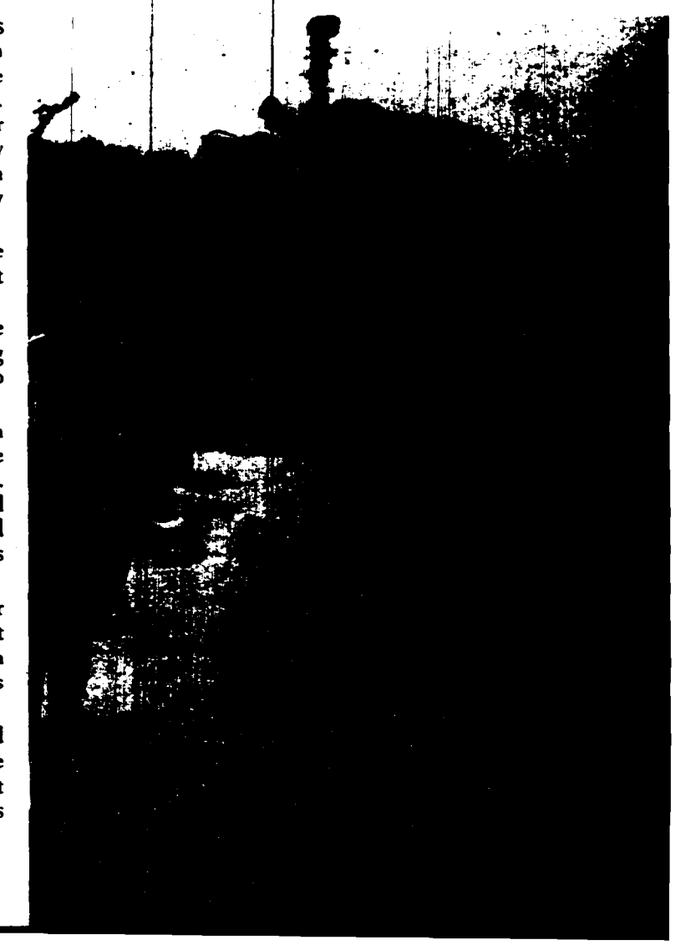
The Germans turned and began to retreat. Their retreat was the wrong way for them and once more it was massacre. Sten-gun bullets hit them from such range that they were torn to pieces. The paratroopers could touch their victims as they opened fire.

The terrified Germans threw up their hands and tried to surrender. If they were in time they were allowed to. Those who waited until too late got a burst that flung them to the ground. Only a few snipers were left by Saturday evening, and their fire was sporadic.

—The story of how a British airborne unit annihilated a German regiment during an early phase of the invasion of France.

I went into the woods to see the flotsam and jetsam this short but bloody war had left. Everywhere was death—Nazi death. At least 400 had been killed and nearly 2,000 made prisoners. And in breaking the whole of a German regiment and capturing its commander, British losses did not number over 50 all told, including wounded.

German prisoners on their way back to a Prisoners of War cage pass advancing British airborne troops, who are carrying equipment in collapsible trailer shown at lower right.



THE FRENCH MAQUIS*

—An Underground Army Prepares for Conquest and Liberation

Pictures from the Film "Fighting Men of the Maquis."

Among the Maquis, firearms of any kind have been so scarce and so hard to obtain that the penalty for loss was death. Note the number of unarmed men in above picture.

These young Frenchmen joined the Maquis to resist the criminal laws of deportation. In taking these pictures the photographer did not have time for lighting effects or timing. They are meant to show the spirit and discipline of boys who prefer the Maquis' dangerous life and innumerable daily risks to imprisonment in German factories.

AS the day of invasion approached and French liberation grew nearer, French resistance took on a new aspect. For several months prior to the Allied landings on the coast of France, organized patriot guerrillas openly fought the German army and its accomplices—the French Militia, and the Vichy Gardes Mobiles.

The French Militia is a Nazi-directed police organization under the direction of Joseph Darnand, Minister of the Interior in the Vichy cabinet. It was especially created to combat French patriots or to denounce them to the Gestapo. It is armed by the Germans and takes its orders from them.

The Gardes Mobiles is a French police organization which existed before Vichy came to power. It takes its orders from Vichy, and it is one of the most hated police organizations in France on account of its activities against those Frenchmen who have refused to abandon the fight against the Nazis.

In defiance of these Nazi controlled collaborationists, there gradually developed a patriot underground organization known as the Maquis, which recruited patriots of all political parties—men who refused to bend beneath the Nazi heel and become slaves in German industry. Many recruits were ex-army officers of the defunct Vichy armistice forces. All had one common enemy and one common goal.

The name "maquis" was borrowed from Corsica where it designates a kind of very thick underbrush in which Corsicans used to hide after they had participated in some act of *vendetta*—family feuds. During the years of Nazi occupation French patriots have had to hide away in the mountain caves or in the snows of the Alps and the Pyrenees to escape death or deportation by the Germans, and to organize as an army—the French Underground Army which is now playing an important rôle in Allied operations in France.

The Maquis is divided into numerous groups, as a rule small in number in order to facilitate the problem of supplies both in food and arms. In some cases a group may be 200 strong. Each group has had to establish its own defense and warning system, but often when necessary several groups have been called to act together. These groups have been scattered all over France and their liaison and organization were one of the most difficult tasks the leaders of the French Underground had to assume.

A man became a member of the Maquis only after going through a specialized course involving a very high moral training, for any member of the Maquis who turned out to be a stool pigeon would endanger the lives of his companions. Another reason for that particular training was that once captured by the Gestapo, the chances of being tortured to reveal information before being put to death were—and still are—very great. Every day incredible tales of the torture of men as well as women have come out of France through sincere and reliable sources.

Instructions to the Maquis

Admission to the Maquis entailed severe tests of character, endurance, courage and loyalty. Following are excerpts taken from the instructions regarding requirements:

"Every man who applies to join one of the united resistance underground groups is considered to be . . . a volunteer member of the guerrilla forces and an auxiliary belonging to the French army.

"He agrees to submit to the very strict discipline of the underground organization, and to obey without question all orders received. . . .

"He must give up any attempt to communicate with his family or his friends until after the war. He must keep absolutely secret the location of the hideouts, the identity of his leaders and his comrades. He knows that any infringement of this order will be punished by death. . . .

". . . He will respect the private property and the lives of civilians—whether they are French, Allied, or neutrals; not only because the existence of the underground movement depends upon good relations being maintained with the population, but also because the men who have joined the underground are the élite of the nation and they should set everyone an example and make proof of bravery and honesty, which are the chief traits of real Frenchmen.

"In order to feed and clothe members of the underground, we may be compelled to order the looting of shops, of the Vichy police stores, and even food and clothing from the depots where the societies for National Relief and Prisoners' Aid are keeping reserves.

"Such raids will be limited to the minimum and made only when it is absolutely unavoidable because our men must at all cost be kept alive. They will be performed by our best men who have been chosen with particular care, because of their high moral character. As soon as we have enough weapons, we shall carry out such operations against the stores of the army of occupation exclusively.

"It goes without saying that no religious or political distinction is made when admitting members. Catholics, Protestants, Moslems, Jews, or atheists, royalists, radicals, socialists, or communists — all Frenchmen who want to fight against our common enemy are welcome in our ranks. Each volunteer promises to respect the opinions and the beliefs of his comrades, tolerance being one of the finest virtues of Frenchmen. Only Hitler's flunkeys have tried to invent fanaticism in France. Not only will any man in the underground respect the opinions and beliefs of his comrades, but he will be a devoted friend to them, a true brother-in-arms. The safety of all depends on this, and it is the only thing which makes existence bearable in resistance hide-outs.

". . . No wounded man must ever be abandoned. The dead must be carried off and given decent burial whenever this is humanly possible.

"A volunteer in the underground is furnished with weapons only when his powers of endurance, his training and his obedience to discipline have proved him worthy of receiving any of our very rare, and therefore very precious, guns. He must take the greatest care of a gun, keep it scrupulously clean, have it within reach, or in safe hands except when he has to entrust it to the camp gunsmith. The losing of a weapon will be punished by death. This penalty is

Instructions to the Underground on D Day

LONDON, June 8 (U.P.)—Allied orders to the French underground went out yesterday by courier plane and radio broadcast for the sabotage of German communications and the immediate evacuation of towns about to be attacked by Allied bombers.

Other instructions were broadcast as "personal messages" to leaders of French resistance groups, in codes which they alone could understand, such as—"Jacques LaPorte please immediately deliver your fresh cakes to grandmother in Paris"; "Madeleine the flowers which you planted have wilted," and "Roger your laundry will be ready Tuesday."

One immediate result, according to a Vichy report reaching here by way of Stockholm, was the blowing up at 42 points of the Lacluse-Nantua-Bellegarde Railway by French Partisans. This is one of the routes over which German troops in Italy and Southeastern France might be sent to the French Atlantic or Channel Coasts.

Demonstrations were staged by French patriots in Paris, Lyon, Marseille and other cities, featured by street singing of the French National Anthem. German authorities, fearful of using German soldiers against the crowds, called out the Vichy militia to quell the manifestations.

*For obvious reasons, neither the source of this material nor the name of the author can be divulged at this time. Information contained, however, is authentic.

harsh, but obligatory for the safeguarding of everyone.

"A volunteer must keep his belongings and his person as clean as possible. His physical and moral health depend on this, and they are valuable for the Nation's salvation. Every member of the underground is an enemy of Marshal Pétain and the traitors who do his bidding.

"France is alive and will continue to live."

Arms and Operations

In spite of its increasing potentiality as a war factor in the liberation, the Maquis had great difficulty getting even partially armed. At first it had to capture its arms from the Vichy stocks, the gendarmes', or even the German army stocks or personnel. In the regions which were under Italian occupation, the Maquis captured also some of the Italian army's weapons. The possession of arms from several armies, of all caliber, and of practically all descriptions, made a genuine puzzle of the problem of supplying armament to the Maquis. Later, arms came from the Allies—arms of a type more convenient to hide and more properly adapted to the guerrilla warfare—the principal rôle to be played by the Maquis.

Living in the country, the Maquis found it necessary to rely for its food supplies on the local production—or on the local German or Vichy stocks. Often one of the first operations of the Maquis was to raid a certain "Chantier de Jeunesse" depot to obtain shoes or food. The men began early to apply what they learned in their camps—security, warning system, liaison, etc. If the first operation proved successful, the next raid was likely to be directed at a German ammunitions depot.

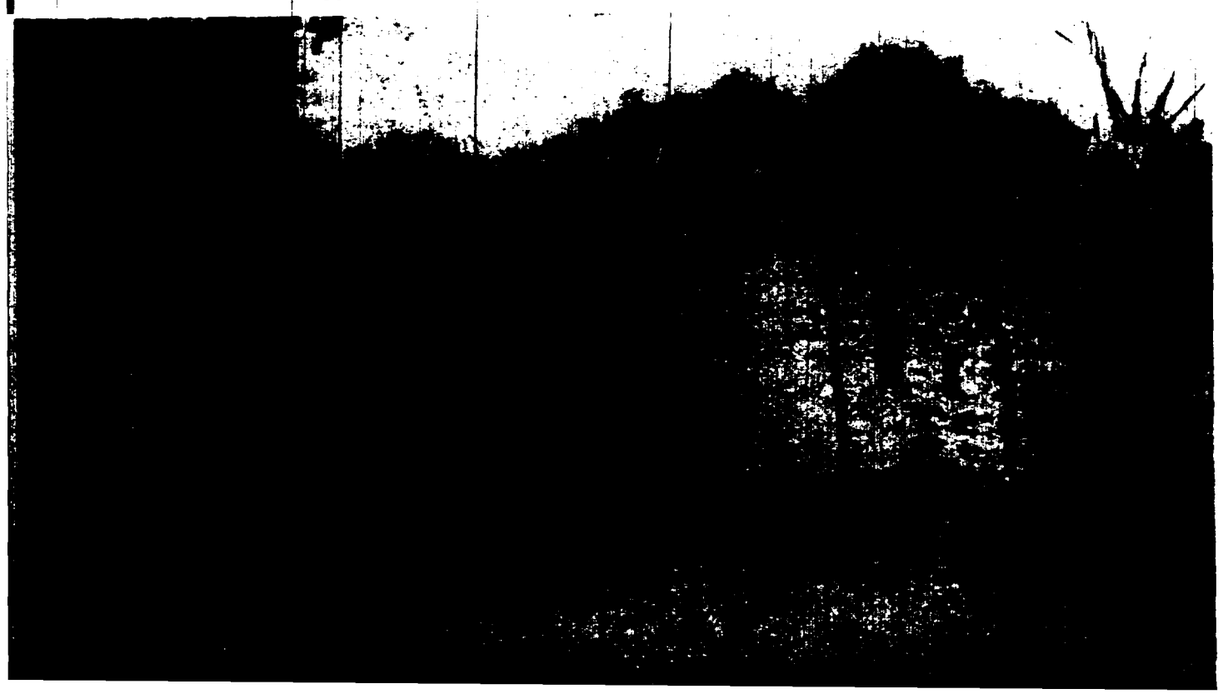
Some of the Maquis group may have received orders to blow up a bridge or a railway line, or to derail a train of German soldiers on leave. The Vichy and the Paris radios have often reported these activities. Sometimes also the Maquis has been directed to destroy factories working for the Reich—especially electrical plants—or, in the Alps, to blow up certain water pipes feeding the big hydro-electric plants, or destroy pylons supporting electric lines and thus make short circuits which have often caused damage to the power plants.

The Maquis as an Army

The Maquis has occupied certain regions of France of considerable importance. Long before the Allied invasion, the German staff realized that fact and ordered operations against these camps of the Maquis. To wipe out the Maquis completely, the German General Staff estimated at one time that it would require from three to five divisions. An account of a typical fight which occurred in the spring of 1944 between the German army and the Maquis illustrates this point.

In the course of the second half of March the patriots, entrenched on the Glières Plateau in the Province of Haute-Savoie, were attacked by German troops in considerable strength. The men of the Maquis were finally overwhelmed by the attacking force after inflicting upon the Germans considerable losses. The fighting started early in February when the militia was ordered to clean up the region of the plateau. These operations,

Thousands of the Maquis have endured hardships and loneliness and braved attacks by the Vichy Militia and the Germans. Reasons of supply and security have necessitated that this great Underground Army train in small groups.



carried out on orders from Darnand, were a total failure.

During one of the first engagements, on February 12th, near Petit Bornand, a group of about 50 Gardes Mobiles from Chateauroux and the Cevennes region had to fall back with the loss of 11 men, including their commanding officer. This setback suffered by Colonel Lelong's troops was made complete in the engagement of March 13, when 200 soldiers of the Maquis under the command of Lieutenant Morel, a former instructor in the Military School of St. Cyr, came down from the Glières Plateau, attacked the post of the Gardes Mobiles at Entremonts, and took 60 prisoners, including two officers.

Thereupon the German troops, which had surrounded the Glières Plateau several days before, were ordered to attack. The troops of the Maquis, numbering 500 men, were commanded by officers and noncommissioned officers, most of whom had belonged to the 27th Battalion of the Chasseurs Alpins. The German troops engaged in these operations consisted of five battalions of Alpine infantry, two battalions of SS, two groups of heavy artillery, one group of mountain artillery, 10 light tanks, as well as antitank and antiaircraft equipment. The German aviation took an active part in the operations.

In spite of the enormous difference in numbers and equipment, the resistance of the patriots lasted two weeks. For ten days the plateau was subjected to an intense bombardment by enemy aviation and artillery. On the eleventh day the defenders of the stronghold of Glières, who had fallen back to new positions upon orders from their officers, tried to break through the enemy lines. Simultaneously, a detachment commanded by Lieutenant Jérome attempted to join forces with the surrounded patriots by piercing the enemy lines from the outside. In the course of this bold diversion maneuver Lieutenant Jérome and all his men were killed.

The cost of this victory to the Germans was 400 killed and 300 injured. The defenders of the Glières Plateau shot down two enemy planes. As late as April 4th the fighting continued in the prohibited zone.

This feat of arms, worthy of French military tradition, ought to be known by the free peoples of the world. A second Bir Hakeim, the battle on the Glières Plateau bears witness of the will of France to maintain the tradition of French military grandeur. The enemy himself had to pay homage to the epic fighting spirit of these badly armed heroes.

The losses of the Maquis in this operation were estimated for the time being at 100 killed and 150 prisoners. The officers inspired their men by their gallant fight at the head of their troops. The proportion of losses among the officers was very great. The retreat was accomplished in perfect order and discipline. One of the German officers who participated in this action is quoted as having said: "These men are full of fighting spirit; as to the Militia, they are no damn good!"

Killers to the cannon and killers to the knife,
quick to the fight!
Saboteurs, watch your load, it's packed with dynamite!
For we are the Underground, we'll break the prison seals,
With hunger at our throats and hatred at our heels.

—French Underground Marching Song.

* * *

Traffic in France Stalled By Interior Army Sabotage

Allied Supreme Headquarters, London, July 6 (U.P.) – Lt. General Joseph Pierre Koenig's French Forces of the Interior, estimated at 500,000 armed men, have sabotaged German communications in France so completely that the Allied air force now is concentrating on fewer targets, and the Nazis are forced to channelize their movement into the battle zone, spokesmen disclosed tonight.

(General Koenig, fighting French hero of the North African front, has been named officially by Supreme Allied Headquarters to command the resistance forces of French patriots.)

A special communiqué said that five French departments—Vercors, Gers, Doubs, Ain, and Ardeche—had been liberated.

A spokesman interpreted this to mean that the sectors were under Maquis control, and that no enemy movements through these areas were possible unless heavily escorted.

A French spokesman said traffic was entirely stalled in Brittany in northern France, in the Pyrenees-Lyon area, and on nine main routes, including the Calais-Reich and Paris-Belfort lines, which are being cut an average of two to five times daily.

A spokesman said it now takes a German division moving from Russia to Normandy three times longer to travel the 300 miles from the Franco-German frontier to the battle zone than it does for it to come the 1000 miles from Russia to the border.

Vital Role of Soviet Cavalry*

by Colonel I. Pronin, Red Army

DURING three years of war Soviet cavalry, widely employed on *all* battlefronts, has proved that it is still *the most effective branch* of an army which has retained all of its former fighting qualities and developed new ones. Cavalry has proved that it could conduct large scale independent operations and carry out vital operational tasks. This mobile branch of the service is just as maneuverable at any time of the year and in every kind of weather.

Throughout various stages of the war, the Soviet command has made good use of cavalry armed with the most up-to-date weapons.

Covering Withdrawals—Fall 1941-Spring 1942

During initial stages of the campaign, when the enemy's armored divisions were pushing eastward, the mission of cavalry, as well as that of all other branches of the Red Army, was to wear down the enemy. Utilizing the utmost of its maneuverability, cavalry dealt blows on the flanks and rear of enemy groupings, secured the flanks and formed links within the armies and fronts, and covered the Red Army during its withdrawal to the east.

Cavalry was also most effective in the German rear where, by disrupting communications and destroying command posts, enemy troop movements and dispositions were made very difficult.

During these early operations, Soviet cavalrymen displayed exceptional endurance and utter contempt for danger. Cavalry units under the command of Generals Belov, Dovator, and Kruchenkin particularly distinguished themselves at that time.

Operations of the II Cavalry Corps against groupings of the enemy near the town of Balta serve as a good illustration of the gallantry of Soviet cavalry in the early phases of the war. Mobile German units had occupied the town of Balta and pushed on to Pervomaisk. By a forced march the Soviet cavalry corps arrived in the Balta sector and, by immediately launching a surprise attack on the main enemy grouping, routed the 293d and 197th Infantry Divisions and the 19th Motorized Division. The corps captured Balta and liquidated a threat to Pervomaisk.

During the temporary setback in the spring of 1942 operations of the V Cavalry Corps, which covered the withdrawal of a Soviet Army in the Izyumbarvenkov direction, is also worthy of note. By active defense on a wide front between May 17th and 27th, the corps covered the withdrawal of an army to the left bank of the northern Donets River and bore the brunt of the fighting against a superior enemy force comprising two tank and three infantry divisions. By skilful maneuvering in this action cavalry enabled the Soviet units to take up new positions and prevented the Germans from crossing to the eastern bank of the northern Donets, which was the objective of the enemy's main forces. During these 10 days of fighting, Soviet cavalry inflicted heavy casualties on the foe. In killed alone the Germans lost 5,000 soldiers and officers.

Offensive Tactics—Winter 1942-1943

The rout of the German forces, begun on the approaches to Moscow in the winter of 1941, was followed in 1942-43 by the annihilation of German armies on the approaches to Stalingrad and in the Caucasus. At that time, the tactics of cavalry units, like those of the entire Red Army, changed completely. Soviet armies on many fronts passed over to the offensive. The Germans, under the onslaught of Soviet troops began to retreat. Clinging tenaciously to every favorable position, the Germans fought for every yard of Soviet soil that they were forced to relinquish.

When the Red Army assumed the offensive in the fall of 1942 efforts of Soviet cavalry were directed toward (1) developing any break-through in the main direction and (2) making *raids** behind the enemy front lines. In coördination with tanks, motorized infantry and other units, cavalry encircled and exterminated thousands of enemy troops. It pursued the foe during his retreat, encircled, and wiped out or made prisoners whole units of German soldiers.

On 6 January 1943 the VI Cavalry Corps entered a gap south of Rossosh in the region of Kantemirovka. Its assignment was to push on to Valuiki, capture the railway junction of Urazovo, prevent Germans from bringing up reserves from the rear, and cut off any path of retreat for German troops in the sector attacked by Soviet tanks.

In four days the corps advanced 180 kilometers, took Valuiki and Urazovo, inflicted heavy losses on the enemy, and captured rich booty. Later in an engagement with the enemy's reserves, the Soviet commanding general ordered an infantry division, under his command as reinforcements, to hold Valiuki, and with his main force he started out in pursuit of the retreating Italian Alpine Corps. Cavalrymen cut down more than 2,000 of the enemy, and took prisoner as many as 14,000 soldiers and officers, including two generals.

Offensive, 1943-44

In the winter of 1943-44 the IV and V Cavalry Corps pursued Germans from Taganrog down to the Dnepr and routed and prevented them from establishing themselves on the river. The cavalrymen then forced the water barrier, and on the western bank of the Dnepr prepared positions for further action.

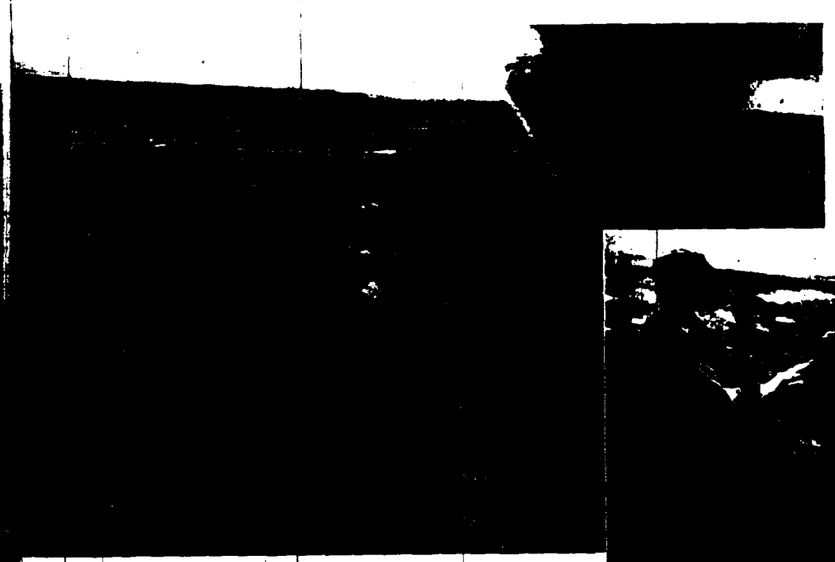
During the 1944 spring offensive the V Guards Cavalry Corps took part in the encirclement and annihilation of the German grouping in the region of Korsun-Shevchenkovsky. Operating on an outer circle, a ring of cavalrymen engaged enemy reserves striving to break through to their encircled troops, and in so doing played an important part in the successful outcome of the operations in which 10 divisions and one brigade of German armor and infantry were surrounded and liquidated.

Outstanding Rôle of Cavalry

Not a single big scale operation has been undertaken on the Soviet-German front without active participation of cavalry. Mounted forces have consistently attacked German flanks and rear and helped materially in the encirclement and rout of the enemy. One word, "Cossack," is enough to cause fear and create confusion in any enemy camp.

The experience of this war proves that despite various new weapons of warfare, Soviet cavalry is a powerful force for developing a successful offensive and is highly effective in defense.

Allied military men recognize the Russian offensive as the biggest thing that has happened in the European war. In the number of men and machines involved, in the length of line and speed of advance, in the size of Nazi losses, and in potential, this offensive is historic. While Americans and Britons are naturally more interested in the progress of their own forces on the Normandy front, they are not unaware of the larger front in eastern Europe.— **Washington News, *July 6, 1944.***



Left: **A machine gun installed on a famous Russian *"tachanka"* supports a cavalry charge. Note saber.**

Below: **Commander of a cavalry unit gives combat assignments to junior commanders of his group.**

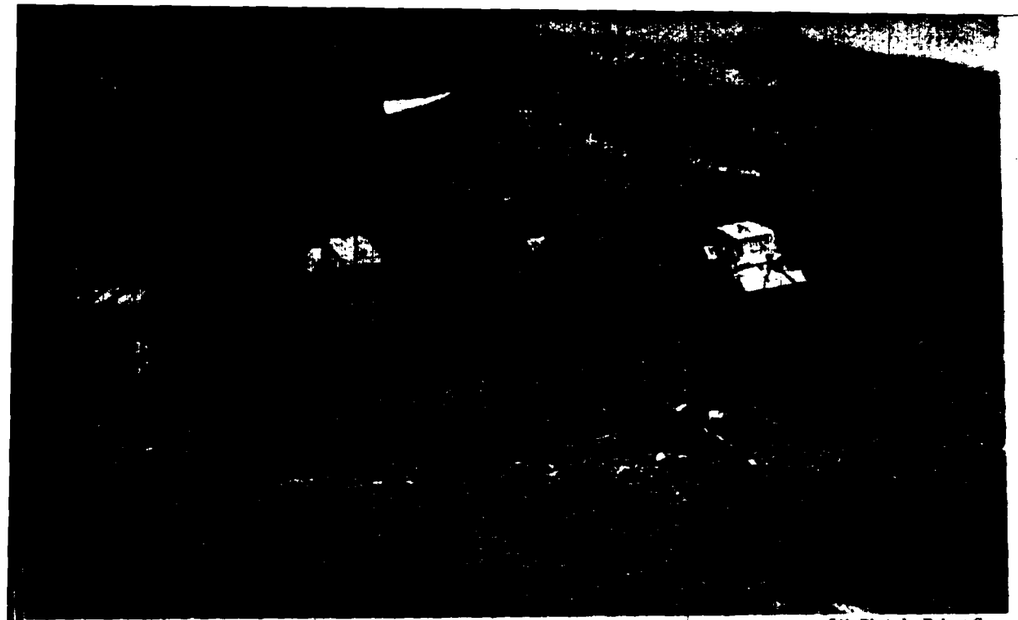
Sovfotos

*By cable to The Cavalry Journal from War Department U.S.S.R., Moscow, July 4, 1944.

*The word *raid*, descriptive of cavalry tactics in the American Civil War, was borrowed by the Russians, who had no equivalent term. The Russians also borrowed the tactics.

Need for Animals in Italy

*by Major General John P. Lucas**



A mule pack train winds its way through the mountains of Southern Italy. Such trains were the only means of supply to U. S. foot soldiers driving Germans from dug-in mountain position.

Life Photo by Robert Capa.

Terrain

DURING the period from September to December, 1943, the U. S. VI Corps of the Allied Fifth Army advanced northwest from the Salerno Beachhead, roughly within the zone left (west) boundary: Battipaglia—Nola—Maddaloni—Caserta—Mignano; right (east) boundary: San Gregorio—Andretta—Highway 91—Melito—Benevento—San Giuliano—Isernia—Pizzono.

The area was mountainous throughout. Elevations in the southern part, on either side of the Sele and Tanagro Rivers, averaged 200 meters, and these increased to as much as 1500 meters in the central portion. In sections of the northern part the heights rose to more than 2000 meters.

At all times the mountains proved to be serious military obstacles to the advance of the corps, which had the additional problem of negotiating the Calore and Volturno Rivers. The Volturno had to be crossed twice in each of two major operations.

Roads were few, and throughout the entire advance the corps was limited to one main road with an occasional auxiliary road available for short intervals. All roads traversed mountainous country and had numerous side-hill cuts and severe grades. Traffic alongside or parallel the roads was impossible.

*Commander of the U. S. VI Corps in Southern Italy, during fall and winter, 1943-1944.

"Motors were tied to the roads by the inaccessible terrain. Horses and men on foot were the only things that could move."

The ridge lines did not follow any general direction, but ran to excessive heights, with the conformation such that the more severe slope was always presented to the advancing troops. The defending German force was in possession of dominant terrain throughout the entire zone of advance.

The retreating Germans, therefore, always had the advantage of commanding observation.

The terrain decidedly favored the defender and was entirely unsuited for motorized or mechanized warfare.

Enemy Tactics

The German plan was to accomplish the maximum possible delay preparatory to defending a strong natural line south of Rome, and thus prevent the seizure of that Axis capital by Allied forces. There is no doubt but that the German command intended to make the first stand behind the line formed by the Volturno and Calore Rivers. The area between the Sele and Tanagro Rivers on the south and this defensive position on the north was ideal for delaying action. The entire section was mountainous throughout with elevations in the southern part averaging 200 meters. Peaks rose as high as 1700 meters in the west central area and averaged approximately 600 meters along Highway No. 7.

The Germans, fighting savagely and expertly to delay our advance, proved especially efficient in defensive warfare, and their selection of ground and use of weapons for defensive purposes forced our admiration. All bridges were blown and roads destroyed. Streets in towns were blocked with rubble. Mines were sown in great numbers to cover possible by-passes, and the enemy's fire power was always so placed as to prevent the removal of obstacles by direct attack. Of necessity the enemy troops had to be removed before the engineering work, allowing a further advance, could be accomplished. This required infantry maneuver over rough and difficult country, which consumed many hours of time and became heartbreaking from its repetition. The enemy, of course, had the advantage of good communications, and little could be done to interrupt them. Air power was of scant value against small point targets, because nothing except infantry could move off the roads, and German infantry could march as fast and as far as could American.

In spite of the many obstacles to its advance, the VI Corps reached the line of the Volturno—Calore Rivers before the German forces were prepared for an all-out defense, and, after a careful reconnaissance, made a successful crossing on a broad front.

The area between the line of the Volturno and Calore Rivers on the south and the new line on the north was even more favorable for delay. Except for the broad Volturno Valley, the area was highly mountainous with elevations in some localities running to more than 2000 meters. Again, the advance, though painfully slow, was steady, and the VI Corps once more arrived on the Volturno and after forcing a crossing, seized Venafro, Montaquila, and Colli. This action pierced a defensive line which the enemy had intended to hold until April.

U. S. Signal Corps Photos

This blown bridge over the Volturno, south of Venafro, is quite typical of enemy demolitions in Southern Italy.

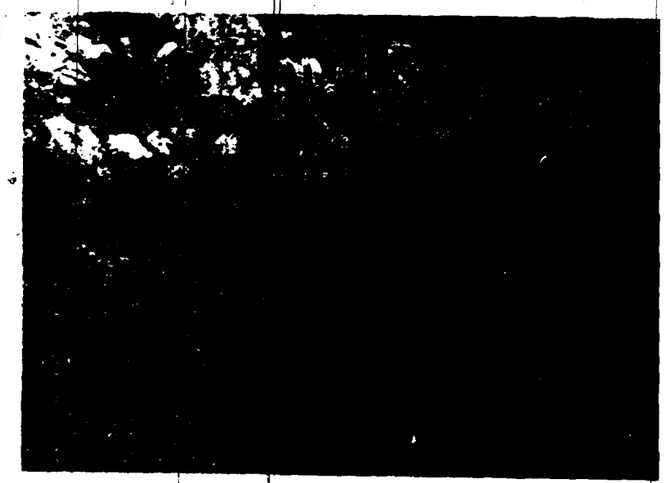
The physical condition of the troops, which had gone beyond the point of exhaustion, and the inability of other units to advance on the flanks, made exploitation of this success impossible.

The tactics employed by the enemy to accomplish sufficient delay to allow organization of each new defense line were very simple. As has been outlined, the Germans would seize and occupy dominating ground, which furnished them excellent observation, and, through well planned and well executed demolitions, they would then create an effective obstacle. This was generally over a stream at the site of a bridge or at a precipitous section of the road where the steep embankment could profitably be blown, and there seemed to be a countless number of locations where such demolitions were possible. Then, the block thus created was covered by accurate artillery and automatic weapons fire, while the defending enemy troops manning these weapons prepared to stay in position until the last possible moment.

Need for Horse Cavalry

Before an obstacle of the kind invariably left by the Germans could be cleared or repaired by engineers, it was necessary for the infantry to move over extremely difficult terrain in order to outflank the hostile resistance. The infantry accomplished wonders, and I am convinced that no other foot soldiers in the world can equal the stamina of the American doughboy. However, their progress was necessarily slow, the work tedious, and it soon became obvious that, *unless a highly mobile force could encircle the withdrawing enemy, it*

A bulldozer clears rock from blown road near Colli. Road can be seen in upper right corner of picture. Blasts along precipitous road banks retarded all road-bound traffic.



would be impossible to kill him in any really decisive numbers.

During these operations I made strenuous efforts to get at least a regiment of horse cavalry. There was a desperate need for some type of unit that could penetrate cross-country and get through the difficult mountains at a decidedly faster rate than the infantry. *Motors were tied to the roads by the inaccessible terrain. Horses and men on foot were the only things that could move.* I am convinced that if I could have gotten some type of troops behind the Germans to work on their lines of communication in order to execute demolitions in their rear, the results in southern Italy might well have been decisive.*

Mounted units, schooled in the American cavalry doctrine, would have been the perfect solution. Hardened and well trained horsemen possessing mobility and fire power, could have infiltrated through the extended German lines, encircled the delaying detachments, and would have captured or destroyed those elements. This would have permitted the maintenance of pressure on the retreating enemy main forces by our infantry divisions in their direct pursuit and would not have given the Germans sufficient time to prepare strong defensive positions to the north. As it was, there was no cavalry available. There were only men on foot—and German infantry withdrawing on good roads could move more rapidly than American infantry could move over rugged and mountainous terrain.

*See articles from Russia, "Vital Rôle of Soviet Cavalry" and "On the Road to Odessa," Pages 14 and 48.

Animals Available

To insure the success of the infantry during the operations against the Germans in southern Italy, it was found that pack transportation was absolutely essential. It is something that will always be needed in war, because wars are never fought on favorable terrain. In some cases pack artillery was used, but there was never enough of it to rely on to any great extent.

There may have been some American mules in southern Italy, but I do not remember seeing them. The only ones that I saw were the little Italian mules, which can carry only a comparatively light load. Despite their small size and the fact that in many instances time did not permit proper conditioning, these animals proved to be *most valuable*. Of course, the number available was entirely insufficient.

Cavalry Forges Ahead On Soviet Northern Front

MOSCOW, June 30. By M. S. Handler, United Press Staff Correspondent.—Marshal Rokossovsky's First White Russian Army poured across the Berezina River, last natural defense barrier before Minsk.

Cavalry, leading the pell-mell pursuit of the disorganized enemy legions, forged ahead to a point 30 miles southwest of Minsk in a drive that raised a threat of encirclement against the White Russian capital, next obstacle on the ancient invasion route to Warsaw and Berlin.

The Soviet High Command reported the Germans were fleeing so rapidly and in such disorder that they had no time to man their intermediate defense lines. One Russian general writing of the scene said, "No army in the world has ever suffered such defeats as has befallen the Wehrmacht. *During the worst days of 1941, we did not live through one-tenth of what the Germans are experiencing today."*

LONDON, July 3—Associated Press. From 200,000 to 240,000 German defenders of Minsk were clamped in a steel vise today as Russian columns, plunging into old Poland at the rate of 40 miles a day, snapped their two railway escape routes and in a frontal assault swept to within 12½ miles of the city. . . .

Premier Marshal Stalin, in orders of the day, sent his congratulations to General Ivan D. Cherniakhovsky, whose troops cut the railway on the northwest, and Marshal Konstantin K. Rokossovsky, who struck from the southwest.

Cherniakhovsky's cavalry pressed on 10 miles into Poland and captured Wilejka, 47 miles northwest of Minsk, and 67 miles southeast of Wilno.

Stalin said the attacks from north and south were launched simultaneously, and cavalry, tanks and infantry dealt a succession of blows in the south.

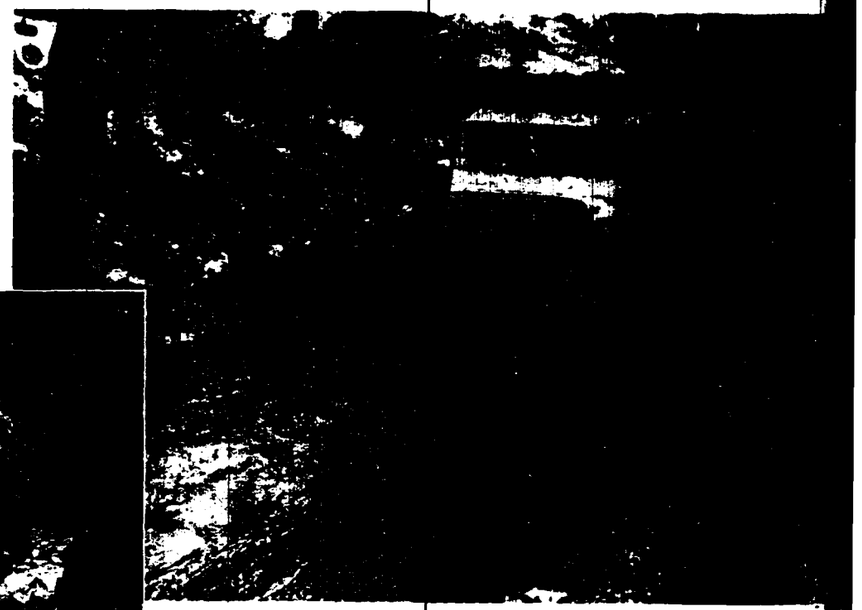
The spearheads of tank and Cossacks by-passing Minsk left open to the Germans only the desolate and difficult marshland for a retreat to the next lateral rail junction at Lida, 120 miles west.

MOSCOW, July 6—Associated Press. The Red Army unleashed a great new offensive today in the direction of Pinsk and Brest-Litovsk, while vanguards of General Ivan Cherniakhovsky's Third White Russian Army were reported within 45 miles of Wilno, gateway to the Northern Baltic republics. . . . General Cherniakhovsky's advance on Wilno from the southeast carried through Smorgonie, where his cavalry units were only 140 miles from the borders of East Prussia.

MOSCOW, July 12. By M. S. Handler, United Press Staff Correspondent.—The Stockholm Aftontidningen *reported the "biggest state of alarm" in East Prussia with Nazi authorities closing the frontiers and mining the approaches.*

Russian cavalry and infantry pushed along a secondary road through the Pripet Marshes for an imminent attack on Pinsk and threatened the escape route of other German forces falling back along the Gomel-Pinsk railway from Lovcha, 21 miles northeast of Pinsk, under heavy attack by another Russian force.

LONDON, July 14—The German High Command today acknowledged the loss of Pinsk, last big defense bastion of the Pripet Marshes, and the German Transocean News Agency reported that the Russians had broken into Grodno, main bastion on the approaches to East Prussia. The fall of Pinsk indicated Marshal Rokossovsky had completed the conquest of the swampland and was ready for a push 100 miles west against Brest-Litovsk on the road to Warsaw and Berlin.



Right: Photo shows a stretch of the main supply road of the VI Corps in the Capriati sector in southern Italy. Roads were churned to slush.

U. S. soldiers pack rations along a stream bed in the Demanio Area.

Signal Corps Photos

Personnel

In southern Italy the Allied command had considerable difficulty in finding enlisted personnel who understood animals and could take care of them. It does not take very long to teach a man to pack, but very few people have the background and experience necessary for the proper care of animals. On one occasion, I asked for some men of this type from the United States and requested that they be flown over.

Equipment

Another difficulty was the securing of sufficient and suitable equipment. North Africa, Sicily, and Italy were combed and a varied and peculiar assortment of pack equipment was obtained. There were a few Phillips packs, together with many different types of French and Italian pack saddles. With inexperienced pack personnel, poorly conditioned animals, and lack of uniformity of equipment, the divisions were constantly pressed to keep the pack trains functioning.

Forage

The matter of forage was a constant headache. It was entirely inadequate. Some grain of a very poor quality was picked up in North Africa and Italy, but there was no central source where hay could be obtained. It was necessary to cover all outlying districts in order to requisition forage in an attempt to fill the needs. Of course, grazing was resorted to whenever possible. Under ordinary conditions, forage was transported by truck. No attempt was or should be made to carry it by animal train.

Future Operations

It is my personal opinion, aside from any appreciation of the value that American trained and equipped cavalry might have under conditions such as experienced in Italy, that each infantry division operating in mountainous or rugged terrain should have available a train of 500 mules. These should be divided into ordinary pack trains of approximately 50 animals each. There will be considerable losses among them, not only from enemy fire but from exhaustion, so there should be some method of replacement for animals. Also, in order to reduce wastage, there should be a veterinary set-up of some kind. Possibly, a Veterinary Platoon, as an organic part of the pack train, should be included in the Table of Organization.

A TD Battalion at

*As told by Captain P. C. Meachem**
to Lieutenant L. R. Barnhill

"THIS is it," came the warning over the battered field phone in the cave-like dugout of the tank destroyer reconnaissance company command post. It was 0500 hours on the icy cold morning of 15 February.

The terse message signaled the opening of the third and fiercest German armored attack upon the Allied positions on the Anzio beachhead established 22 January. It was also the last offensive threat by the Germans, before the Allies shattered the steel ring about the beachhead in late May and surged northward to engulf Rome.

For weeks the Germans had been stepping up the tempo of their artillery fire on the beachhead. Increased activity of German armor had been observed north of the Allied lines. Other information had confirmed reports that the enemy was preparing for a major "show."

Within seconds after the first warning flash, reports from OP's were pouring into the tank destroyer reconnaissance command post. Men in the OP's were giving the location of advancing tanks and troops and calling for artillery fire. The attack was underway.

For three days the action thundered in and around the Carroceta sector. For three days the tank destroyer battalion held fast, bearing the brunt of the armored thrust. After the inevitable smoke and dust of battle had cleared and the last German tank had withdrawn, the tank destroyer battalion racked up official credit for smashing 25 Jerry tanks and stopping dead the most determined of all the Panzer efforts to crush the beachhead forces. It was not a one-sided fight. The tank destroyers lost, too—in guns and men—but not to the same wasteful extent as the Germans.

Arrival at Anzio

When the tank destroyer battalion landed at Anzio at 0200 hours on 28 January, six days after the initial landing of Allied troops—the beach was reassuringly quiet. The battalion rolled off LST's and moved into an assigned bivouac area just as if it were on a field problem in the States. Everyone was careful, however, to maintain at least 100 yards' dispersion between vehicles. It was known from experience what havoc German bombers could wreak among bunched vehicles.

Even before all of the vehicles were de-waterproofed and camouflaged, the reconnaissance company was committed to road reconnaissance.

Just before the battalion left Naples all half-tracks had been replaced with M8's and M20's, and at Anzio the men were using them in combat for the first time. It was soon learned from actual tests on the Anzio terrain that with tire chains the newly acquired wheeled vehicles could traverse just as difficult routes as could the half-tracks. This did not mean much on Anzio. Even the full-tracks were confined for the most part to highways, because of the solid network of drainage canals slicing across the beachhead sector.

For two days two platoons of the reconnaissance company were on continuous road reconnaissance. One platoon ran out all of the roads extending left of the main highway which ran through the beachhead from Anzio to Carroceta, and the other platoon did the same on the right. Notes were made on class of roads, blown bridges, fords, possible points for by-passes, and weight limits of existing bridges. This information was placed on the battalion situation map and disseminated throughout the battalion. It also was passed on to the 1st Armored Division.

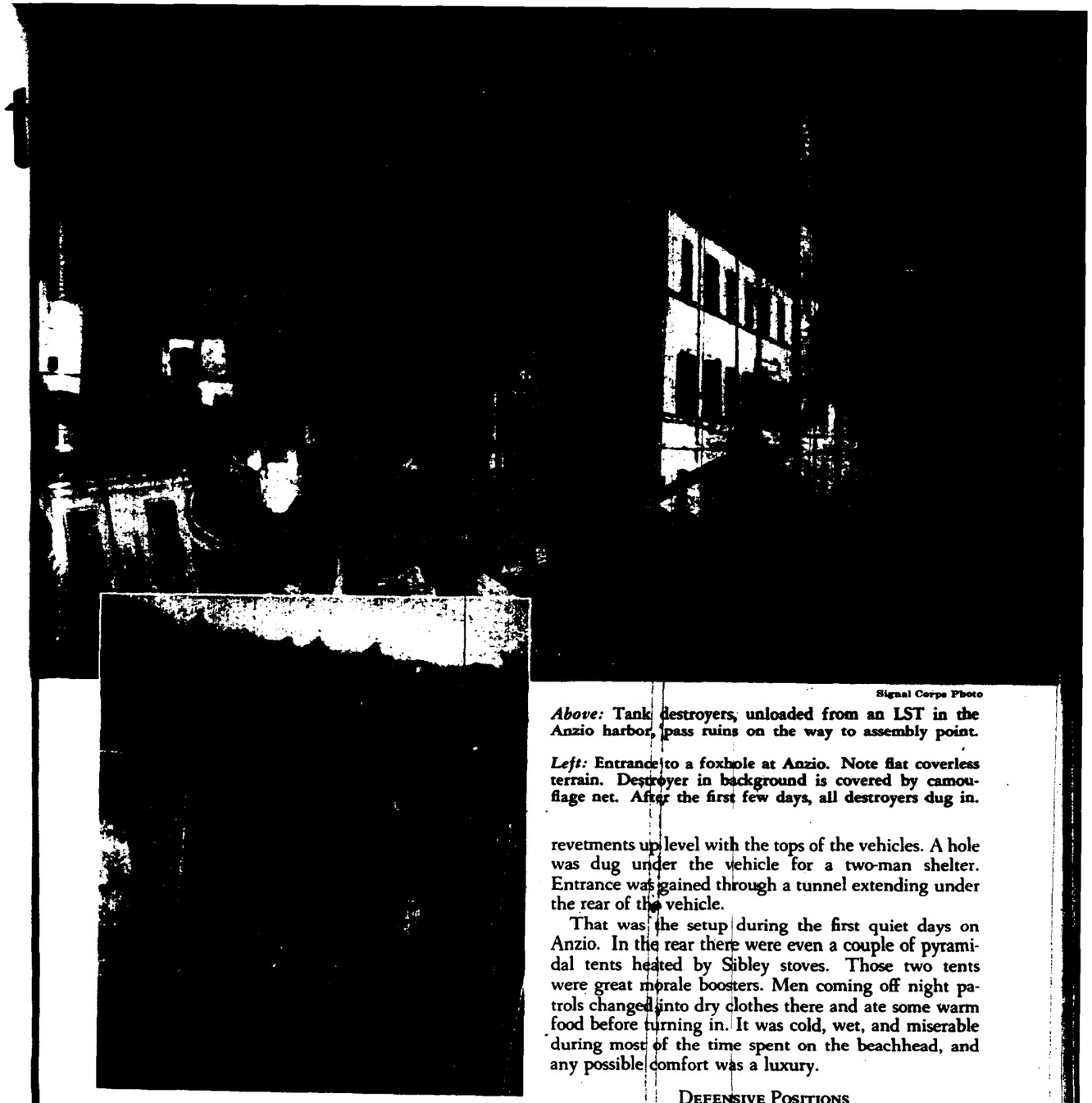
Digging In

Because of the high water table on the low, flat area, the matter of digging in posed a new problem for tank destroyer units, accustomed to digging as deep as they wished on the rocky mountain slopes south of Cassino without reaching water. At Anzio the crews struck water within two and three feet of the surface, so burrowing tactics had to be revised. Regular caves were built to house two or four men. Up-ended three-inch ammunition boxes filled with sand provided solid walls. Timbers and boards gathered from shell-wrecked buildings in Anzio provided roof supports. On top of these the men placed canvas and a layer of dirt. This provided a shelter that protected the crews from everything except a direct hit.

The reconnaissance company CP was arranged in a similar fashion. The CP tent was placed in a hole two or three feet deep, depending upon the water level. A row of up-ended, three-inch ammunition boxes filled with sand was placed around the tent. Another row of ammo boxes, laid on their sides, was placed on top of the up-ended boxes. This brought the protective wall to the height of the CP tent. A camouflage net was then thrown over both the tent and the wall of boxes.

Light was provided by a sealed beam automobile headlight connected to a 12-volt battery, cannibalized from a wrecked vehicle. A member of the maintenance section kept the battery charged.

*Commander, Reconnaissance Company, Tank Destroyer Battalion on the Anzio beachhead, Italy



Signal Corps Photo

Above: **Tank destroyers, unloaded from an LST in the Anzio harbor, pass ruins on the way to assembly point.**

Left: **Entrance to a foxhole at Anzio. Note flat coverless terrain. Destroyer in background is covered by camouflage net. After the first few days, all destroyers dug in.**

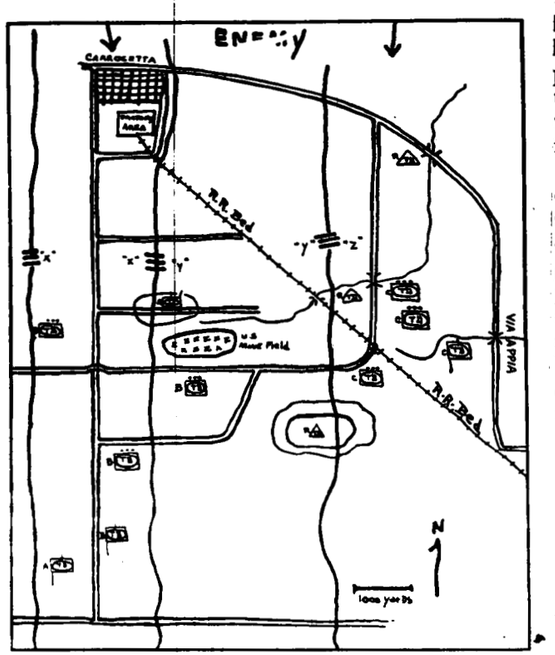
Direct wire communication ran from the reconnaissance CP to battalion headquarters. Radio communications in the CP was provided through 608's on two M20's dug in on each side of the CP tent. One of the radios was in continuous operation.

Everything on the beachhead was dug in, even the M8's and M20's. The men dug the self-propelled guns down to the fenders and then used sandbags to build revetments up level with the tops of the vehicles. A hole was dug under the vehicle for a two-man shelter. Entrance was gained through a tunnel extending under the rear of the vehicle.

That was the setup during the first quiet days on Anzio. In the rear there were even a couple of pyramidal tents heated by Sibley stoves. Those two tents were great morale boosters. Men coming off night patrols changed into dry clothes there and ate some warm food before turning in. It was cold, wet, and miserable during most of the time spent on the beachhead, and any possible comfort was a luxury.

Defensive Positions

Soon after the TD battalion arrived on the beachhead, two of the gun companies and two of the reconnaissance platoons were committed to defensive positions. The other gun company and reconnaissance platoon were held in reserve. During this period there was set up a rotation system, which used reserve units as a source of replacements for the men in the front lines. It was found that men could stay in the front



lines for about four days before they began to lose their peak combat efficiency. Then they needed a rest.

The mission of the reconnaissance platoons was to establish listening posts as close to the front lines as possible. This quickly developed into having a series of OP's right in the front lines.

A 610 radio provided communicaitons. Hourly reports were made unless an emergency arose. If headquarters had to contact an OP between hours, a messenger was sent forward. All OP's were situated so as to cover important lines of communications such as crossroads, blown-out bridges, and likely approaches.

At first the gun companies used stone houses for cover. They either knocked out the rear walls and pulled the M10 tank destroyers right into the buildings or placed them in position behind the houses so they could pull out and take enemy tanks under fire.

Around the 10th of February the Germans began a systematic destruction by artillery fire of houses around the perimeter. This forced the destroyers to abandon the buildings and to seek what defilade they could find in the flat open terrain. The pioneer platoon was put to work helping to dig in the 32-ton destroyers. Various positions were dug for each gun.

Enemy Artillery Bombs

During this phase the whole battalion had a good opportunity to study German artillery technique. First the Germans would register with air bursts. Usually, these were too high to do any harm. Then they would follow through with ground bursts. It might be minutes later or hours, but sooner or later Jerry would be dropping ground bursts on areas over which he had registered with air bursts. The Krauts mixed mortar fire with the artillery rounds to make the showing of increased interest.

On one occasion, three mortar shells exploded in quick succession in one of the buildings used for an OP. The rounds whistled in through a window and exploded in the room next to the OP room. Each explosion knocked the man on duty to the floor. He had just time to pick himself up when the next round slapped him down again. After the last round he made a quick check of his physical condition and found that by some miracle he had suffered, in addition to a bruised dignity, only minor scratches from flying pieces of masonry. After that the OP was moved to the first floor.

About that time, the Germans also stepped up their night harassing fire. It consisted mostly of single planes flying over to drop strings of incendiary and antipersonnel bombs by the light of flares. The Germans aimed at supply dumps, but troops were crowded so close together on the tight little beachhead that each bomb sounded to each soldier as if it had his name on it. All that anyone could do was to sit tight and sweat it out.

One string of bombs punched out a neat row of craters in the soil between the reconnaissance company and the TD battalion CP. One of the explosions tore away the top of the company CP tent, as neatly as if it had been cut by a huge knife, and flipped one of the men sleeping in the tent out of his cot. He was dazed but otherwise unhurt.

TD Reconnaissance OP's

The reconnaissance company had three OP's established at that time—two within the area of the German attack. One was at a crossroad 3500 yards directly east of Carroceta and right on the outer edge of the beachhead perimeter. The second was at a road junction 2500 yards southeast of Carroceta.

Company C destroyers were in position on an 1800 yard front beside a highway curve 4000 yards southeast of Carroceta with a good field of fire along two roads leading toward the German lines. Like the beachhead forces, the Germans would have to stick pretty much to the roads in making any move with armor.

A tank destroyer fires from a dug-in position near Mignano, Italy. At Anzio maneuver was limited, dug-in positions essential. 3-inch guns used regular artillery sights.

Italian houses on the beachhead's perimeter were used for OP's. During the first days they were used as shelter for vehicles, but this cover was found inadequate, abandoned.

Company A was in position along a dead-end road 2500 yards directly south of Carroceta with an excellent field of fire covering the main highway between Anzio and Carroceta.

One platoon of Company B was just left of the main Anzio-Carroceta highway, 3000 yards south of Carroceta. The other two platoons were held in reserve back with the 1st Armored Division.

That was the situation at the time of the attack. The whole beachhead force was constantly on the alert for a German move. Everybody sensed that something was brewing, but no one knew when it would break.

German Attack

Then came that brief warning on the morning of the 15th. Everything happened at once.

German tanks came rolling out of the north at daylight. They milled around in the factory district near Carroceta and came down the main roads toward the beachhead lines. The company OP's had to draw back early in the fighting. The M8's and M20's were pulled back along the Mussolini canal on the right and placed in defilade, where they could put up a last-stand fight if the Germans broke through.

Company C took the German tanks under fire at 3500 yards as they came down out of some woods east of Carroceta. Company A was firing at about half that range at tanks in the factory district left of Company C. Company B destroyers blasted away at tanks attempting to punch down the Carroceta-Anzio highway.

The gun positions were good. They were the best that could be had under the circumstances. But because of the mud, the destroyers could not move into alternate or supplementary positions. When the attack opened, they had to stay where they were dug in and slug it out.

In addition to the tank fire, artillery and mortar shells were pouring upon the whole beachhead. Allied tanks were outranged by German guns and were quickly knocked out. The noise of battle became an interminable din. Huge clouds of smoke and dust from shell bursts added to the confusion. Observation for both sides became increasingly difficult.

The Germans threw in wave after wave of infantry. It is hard to get the picture and difficult to describe, but as soon as one wave of Germans was stopped another came in to take its place. The foot troops came so close that destroyer crews fired on them with .50-caliber machine guns.

TD Defense

Men of the reconnaissance company removed .30-caliber machine guns from their vehicles and carried them into the front lines, where they fought as infantry. One infantry squad, fighting in a house, took over one of these machine guns and continued fighting after their own gun was knocked out.

The tank destroyers pumped a continuous rain of high explosive shells into the wave of advancing German tanks. The bursts mowed down infantrymen who were advancing among the tanks. Even near-misses took their toll in men. Concussion often stopped the tanks long enough to give the TD gunners a still target, and that was good. Little use was made of APC shell during this action. A near miss with an APC shell does not hurt anybody, but it is different when those HE shells burst among the Krauts!

During that night the fighting died down. Supplies of gasoline, food, and ammunition were brought up, and weary crews grabbed a few hours of sleep. The 16th was much a repetition of the 15th, with the Germans inching forward a few hundred yards, but still unable to make a break-through. That night supplies were brought up again. Wounded were evacuated and replacements were received.

On the 17th the Germans pushed forward again. This time they overran the position occupied by Company A, but later they were driven back and the battalion recovered several of the disabled destroyers. Those beyond repair were left in their positions.

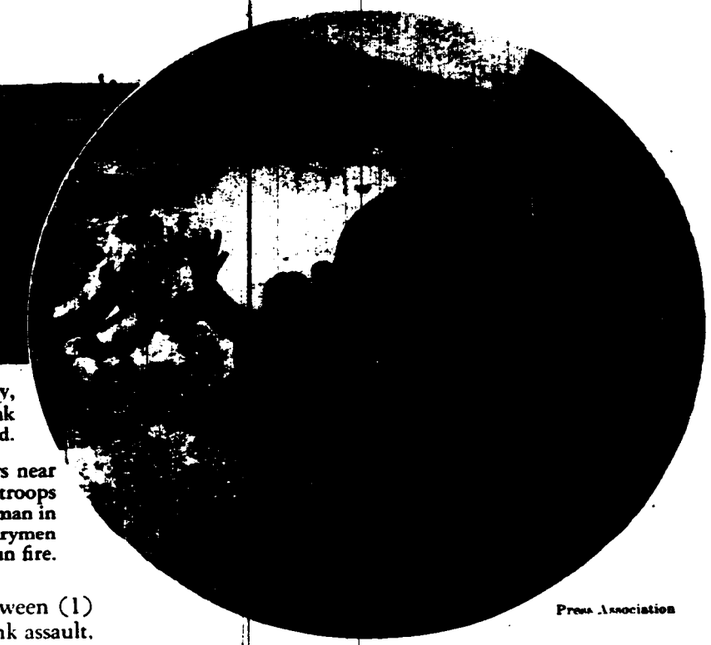
After the 17th the German tanks withdrew and the beachhead reverted to its old status of alert defensive positions. Within 72 hours after the end of the fighting the battalion had received new vehicles to replace all those lost in action. These were dug in and the troops held along that line until the 5th of March.

The battalion's losses, especially in Company A which bore the brunt of the attack at close range, were heavy, but they did not approach those of the Germans. The reconnaissance company lost two quarter-tons when the Germans overran one of the OP's, but the bulk of the thin-skinned vehicles were saved.

k Training at Anzio

*by Master Sergea bert C. Geake**

The Tank-Artillery-Infantry Team, welded under fire at Anzio, paid dividends in battle.



Signal Corps Photo

"A task force was organized on the ratio of approximately a platoon of light tanks to every two platoons of infantry, with tank destroyers and air observation post artillery attached." In the above scene on Anzio beachhead tank destroyers are in foreground, Sherman tanks in background, infantry mounted on both. "Handy-talkies" aided.

Right: **Tanks and infantry capture German prisoners near Cisterna, the first major town taken after American troops finally broke through enemy beachhead defenses. German in the foreground is a sergeant. Note two U. S. infantrymen in the background, crouching from enemy machine gun fire.**

Press Association

PENNED in a small semicircle of lowlands and canals, Fifth Army tankmen on the Anzio beachhead in Italy met their adverse situation by stressing closer coöperation with infantry and artillery.

Much of the crowded beachhead front was a tankman's nightmare—soft fields and marshes criss-crossed by deep ditches, all surrounded by high ground from which the Germans enjoyed ideal observation.

"We had to forget any dreams of a great tank show of mass maneuvers and begin thinking in terms of small, flexible units—companies and platoons—operating in limited areas," said one unit commander.

Tankmen thus found themselves shoulder to shoulder with infantry and artillery. The next step was to lock arms, and they did just that—more effectively than at any time in Mediterranean campaigns.

The Tank-Artillery Team

An excellent illustration of this trend is found in the training program inaugurated by a large tank unit during the four months on the beachhead. With the help of artillerymen, every officer and platoon sergeant in the tank outfit was made a qualified artillery observer. The tank students learned their new job under fire in artillery observation posts at the front, where they were instructed, two at a time, by artillery officers and experienced observers. Finally, each tank officer and sergeant observed alone for a three-hour period.

"The Germans really paid the bill for that course," commented one artilleryman. "The armored boys cut loose every time a Kraut stuck his head up."

As part of this program, two tank companies at a time, rotating through the unit, spent 10 days on indirect firing with artillery units. Each platoon functioned as an artillery battery. Observation was by Piper Cub. Reports were made to the artillery switchboard and from there down to the tanks through their company headquarters, which set up its own fire direction center.

Aiming circles, panoramic sights from .50 caliber machine guns, and gunners' quadrants were requisitioned for this work.

Every night a tank company practiced harassing fire. Artillery compiled data during the day and had missions waiting for the tanks when they rolled up. On one occasion one tank company fired 10 missions, totaling 300 rounds, target to target, in 20 minutes.

Tank-Infantry Communications

In the matter of teaming up with infantry, tank officers on the Anzio beachhead talked of only one thing—communications.

"A man in a tank is half blind and half deaf," pointed out an armored force colonel. "The infantry can be his eyes and ears. We can help each other immeasurably, but we must know where the other fellow is at all times, and that means direct communication."

To emphasize this and other possibilities in a coördinated tank-infantry attack, one beachhead general ordered a field demonstration. Two platoons of tanks and two of infantry staged the show before 300 men and officers of both commands 3,000 yards behind the front-lines. Each tank commander and each infantry platoon leader were equipped with 536s—the standard "handy-talkie" portable radio.

The demonstration was in two phases intended to stress the vital differences—becoming increasingly marked in the eyes of field commanders—between (1) a tank-supported infantry attack and (2) a tank assault, with infantry mopping up and consolidating.

As colored flags, representing enemy antitank guns and machine-gun nests, suddenly appeared in distant terrain, the tanks and infantry platoon leaders talked freely with each other, designated targets, and coördinated every move. A public address system broadcast their conversations to spectators while a lecturer commented on the attack.

Tank-Artillery-Infantry Team in the Pay-Off

Increased coöperation between tanks and infantry and artillery went far beyond the training stage on the Allied Fifth Army's beachhead at Anzio. It paid off in battle.

One particular raid into enemy territory was a model of this type of action. A task force was organized on the ratio of approximately a platoon of light tanks to every two platoons of infantry, with tank destroyers and air observation post artillery attached. Officers from all commands met together for two days to plan a four-hour raid in minutest detail. When they "jumped off" every single man in the task force was thoroughly familiar with the pattern of the raid and his part in it.

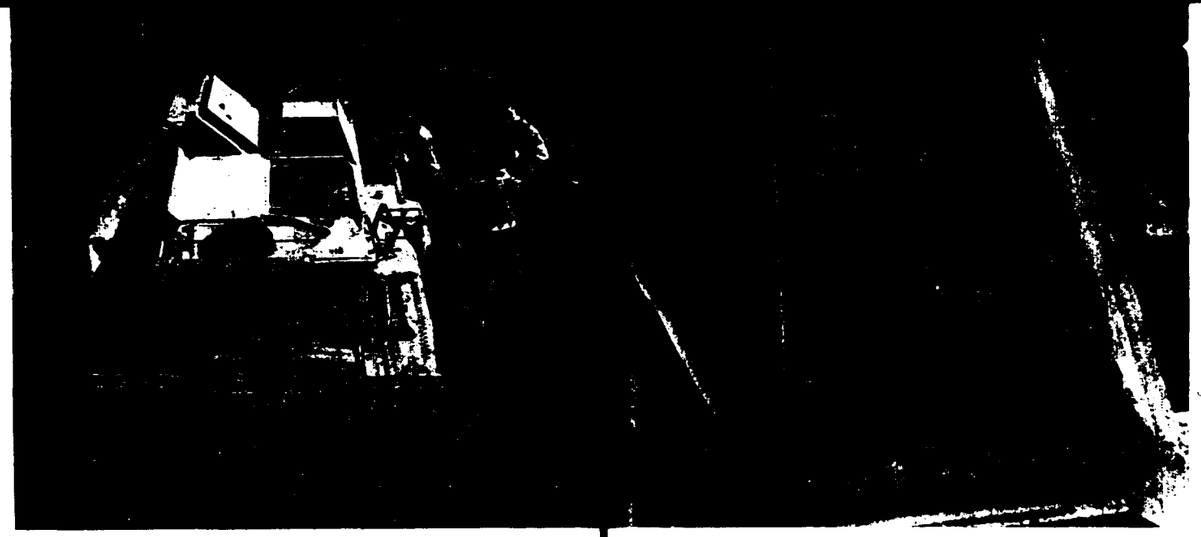
Emphasis was on communications. In addition to his tank radio on company and task force channels, the tank platoon leader communicated by the 536 "handy-talkie" direct to the commander of his company of infantry. This officer was never more than 15 yards from the lieutenant's tank, sometimes in it, and his artillery observer with a 59 battery pack radio was always with him. The tank platoon leader could thus control his own artillery, call up an infantry platoon to dig up mines or immediately come to the aid of doughboys who had radioed for help on a pillbox. The task force commander set up his CP at the jumping-off point.

The results speak for themselves. The raiders killed 10 Germans, wounded many others, captured 61 prisoners and brought back information and equipment. Not a man in the task force was scratched. As the raid ended, infantrymen outposted tank positions, while tankmen called in their artillery and then, withdrawing behind a perfect smoke screen, carried out the infantrymen on top of their tanks.

"It was communications and time all the way," explained a tank commander. "That is what we concentrated on in the limited area of the beachhead—direct, inter-platoon communication with infantry and time to plan and coördinate. There was nothing to worry about but the Krauts. That's the way it ought to be."

*Fifth Army Field Correspondent.

A British soldier looks at a captured German Goliath or "doodlebug" found recently in a dugout in the Normandy beach area of France. First used on the Anzio Beachhead, this type of weapon, carrying a heavy explosive [illegible] operated by remote control, is not retrievable.



This radio-controlled "tank," called by the Germans the B4, is an explosives carrier. Above picture was taken looking down on the tank from the rear. This was recovered with great difficulty, under enemy fire. Unlike the "doodlebug," it can be recovered after demolition is dropped.

The driving seat of a German B4 is shown from above. When the driver is in his seat, the top hatch cannot be closed, and the driver's head and upper half of his chest are protected only by the front flap, which is 5/16ths of an inch thick. German soldiers call the B4 a "death trap."

The German Goliath and B4 Tanks

by Major James H. Luelle

Two German [illegible] the Goliath and the Minenhund, and the German radio-controlled B4 tank, which were put into use in the Italian theater, were both stopped by artillery or mines before reaching our [illegible].

THE GOLIATH

The Goliath, nicknamed the "doodle bug" by American soldiers, is a demolition-carrying tracked vehicle which looks like a miniature tank. In Italy the Goliaths got stuck in the mud and on hills, and sometimes exploded before reaching our lines, wounding German troops. The Goliath was also vulnerable to small-arms fire. Neither radio nor cable control made it effective.

The Goliath was first committed against our positions on the Anzio beachhead in February. Fourteen were knocked out by artillery and none reached our positions.

The Goliath is five feet four inches long, two feet ten and a half inches wide, and one foot eight inches high. Two electric motors (earlier models had gasoline engines) move the midget at four to six miles an hour. The track is of light steel with a 4-bogie suspension and a front driving sprocket. It has ¾ inch of armor.

The motors are mounted one on each side and each drives one track. Directly behind each motor is a wet-cell storage battery which supplies the current. The motors are controlled by electrical impulses sent through a three-strand cable which unwinds from a drum at the rear. Direction is controlled by braking one track or the other. When the Goliath reaches its objective, the operator at the stationary control box explodes it. It cannot be moved in reverse, and is easily stopped in mud, on inclines, and in ditches or shell craters.

The length of the cable, and therefore the radius of action, is about 550 yards. The control box can be operated from a foxhole or from a tank, assault gun, or other vehicle.

The demolition compartment, built to carry 100 to 150 pounds of explosive, is somewhat forward of center and not in front as in the older model. Directly behind this compartment is a detonator compartment. A dry-cell battery in the stationary control unit is used.

THE B4

A B4 radio-controlled, demolition-carrying tank was stopped by a British mine and towed in by British troops near our beachhead positions in April. It weighed about four tons and carried an 800-pound demolition charge on its front sloping plate. Upon reaching its target—a roadblock, pillbox, wire entanglement—the explosive is dropped, the tank moved off, and the explosive then detonated.

The B4 has a speed of nearly thirty miles an hour and runs on a 7¾-inch track, with five bogies, a front sprocket, and a rear idler. It has about ¾ inch of armor in front and sides.

The hull is divided into three main compartments for the engine, the radio equipment and a driver's compartment.

The engine compartment, in the rear half of the hull, contains a 6-cylinder gasoline engine, the radiator, fan, two gas tanks, and a hydraulic mechanism for controlling the tank when it is radio-operated.

The radio equipment compartment is in the front left side of the hull. It houses a radio receiver and relays for the operation of the engine control. A small box on the left of the apparatus, which can be removed by taking out six screws, contains a five-valve superheterodyne receiver tuned to a fixed frequency, and crystal controlled. This seems to have been made easily detachable so that other receivers tuned to different frequencies may be substituted.

In addition to the radio equipment, the compartment contains the transmission which appears to have only two forward speeds and one reverse. The cover of this compartment is made of sheet metal, but has screens for ventilation. There are two aerials, one mounted in center of the front hull plate and the other on the front part of the left fender.

The B4 is used to clear paths through barbed wire and destroy roadblocks and pillboxes. The operator drives it as far toward the target as he can. Then he switches the vehicle over to remote control and leaves by a side door. A stationary control unit, carried by the driver or in a nearby tank, assault gun or other vehicle, then directs the B4 in zigzag fashion to its objective. There the explosive is dropped and the tank is moved off to a safe distance before a time fuze sets off the demolition.

The vehicle, unlike the Goliath, is recoverable. But if there is danger of capture, the operator can set off a self-destroying device in the tank.

The driver of the B4 has a dangerous job. German soldiers call it the "death trap" or "living coffin."

German Fock-Wulf 190

A PRIME feature of the FW-190 is the wide use of electric controls. There is no mixture control. This is taken care of automatically. The familiar hydraulic pressure gauge is missing; it has no hydraulic system; the wheels and flaps are operated electrically. It is one of the few airplanes which uses electric control operating mechanisms to a large extent.

The FW-190 is powered by a BMW (Bavarian Motor Works) engine of the 14-cylinder, 2-row radial type, rated at approximately 1,600 horsepower.

The plane weighs approximately 10,000 pounds and has a wing span of 34½ feet. It resembles the AAF P-47 in flight.

Carrying two wing-tanks, the FW-190 has a long range. Standard practice of the Nazis calls for two wing-tanks with a bomb carried on a rack beneath the fuselage.

Cooling of the radial engine is aided by a power-driven rotary fan geared to the propeller hub. This aids in forcing air back over the cylinder fins.

Two shell-firing cannon are built into the wing roots and are electrically synchronized to fire through the propeller arc. In contrast, the regular fighter model of the FW-190 carries four cannon and two 719 machine guns.

The FW-190 was originally intended for use as a fighter. Its modification by the Germans has entailed numerous structural changes. This modified version under test by the Matériel Command was probably built in 1943. It is model 190-A4U8, the number indicates its designation for fighter-bomber, and the U8 means modification number 8.

It has been described as somewhat of a counterpart of the AAF's P-39s, P-40s and A-36s, and a plane that must not be underrated.

The German Robot Bomb

HITLER'S newest "secret weapon," the robot "plane," is a self-propelled bomb, launched from specially constructed ramps with the aid of jet propulsion. The Germans describe it as having a "rocket propelled gear" and claim that it is launched from "underground emplacements which are indestructible for all practical purposes."

The first enemy robot attacks were directed against southern England during the week following the Allied invasion of France. The British Air Ministry states that the Germans planned to launch the robot attacks much sooner but were thrown considerably off schedule by RAF bombings of the German experimental station at Peenemunde in Prussia as early as August of 1943. Other German factories making special weapons, notably those at Friederichshafen, have been repeatedly attacked and serious damage and casualties caused.

Discharge points in northern France have been bombed consistently since December. The U. S. 9th Air Force has revealed that Marauder and Havoc bombers have flown more than 7000 sorties and dropped almost 11,000 tons of high explosives on the launching installations of the jet-propelled projectiles in Pas de Calais since last November.

The robot plane has a fuselage 21 feet 10 inches long with a maximum width of 2 feet 4½ inches and a wing span of 16 feet. Its speed, estimated by observers, was given as 350 miles per hour and its demolition carrying capacity as equivalent to a 2000 pound block buster. The Germans later announced the speed as 375 miles per hour and said that each robot carried 2240 pounds of explosives.

Although the range determination of the robot is set prior to launching, there is no control during flight. Its use, therefore, is restricted to area targets within a limited range and probably in the general direction indicated by the launching ramp.

Defense against robot attacks has been confined largely to antiaircraft activity and fighter pilot attacks.

In commenting before Parliament, Prime Minister Churchill declared, "The flying bomb is a weapon literally and essentially indiscriminate in its nature, purpose and effect."

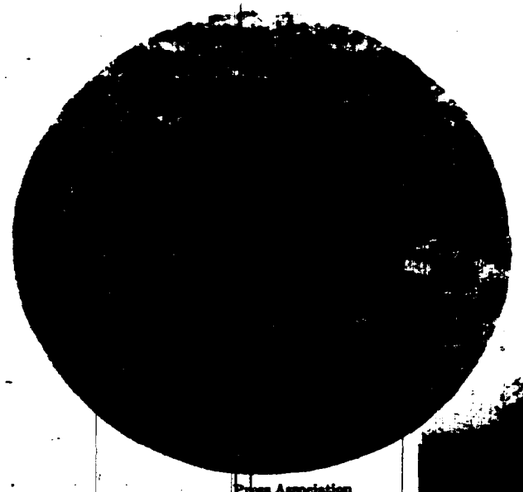
One pilot described his experience as follows:

"The robot was a sort of freakish-looking thing. There wasn't any propeller and its tail looked funny because of that jet thing sitting right on top of the fuselage with fire coming out of it. It has square wing tips and looks something like a miniature Mustang with tapering leading and trailing edges.

"I closed in on him from below—I like that spot because there is a big area to hit. On the fourth burst he caught fire, and big blue flames burst out. He just snapped over and hit the ground in a big field. There was a house in the field and it blew off the roof, smashed all windows and killed a lot of ducks. Of course he made a pretty big crater, too.

"A little later the same night I was out over the Channel when I saw a jet flame moving fast. I caught him about 10 miles inland. He turned into the biggest ball of flame you ever saw and exploded. I was at top of a climb but he bounced me even so. . . ."

As a military weapon the robot is still in a crude stage—with possibilities of future developments that stagger the imagination. The idea of sending machinery to war without manpower may be as revolutionary in the tactics of warfare as the introduction of gun powder or the intervention of air power.



Press Association

A German robot bomb dives toward the earth with flame streaming from its propulsion unit (mounted above and behind tail), after it crossed the southern English coast headed inland.

Signal Corps Photo

The Scope of Employment of Armored Forces--Tactics and Conduct

TANKS must be associated closely with infantry and artillery or cavalry and artillery. The Russians, for the sake of brevity, call these teams infantry-tank teams and cavalry-tank teams. The Russian teams, of course, include artillery, engineers, signal troops, antitank units, etc.

Since the United States and England will have no cavalry in coming European operations, they will have no cavalry-tank teams. The scope of employment of Allied armored forces in France, therefore, will necessarily be smaller than that of the Russians on the Eastern Front, for the Russians use both teams.

The Russian cavalry-tank teams have, whenever possible, been followed, or backed up, by motorized or marching infantry, or both. But the cavalry-tank teams have been able to operate farther away from their supporting troops than the infantry-tank teams can go prudently. Increased cross-country mobility and independence of action enable cavalry-tank teams to make great turning movements and to fight delaying actions with more security, speed and effect.

Without cavalry in Western Europe, reconnaissance in force cannot be carried out so successfully or so safely; security for infantry formations cannot be provided so conveniently and so immediately; and powerful cavalry links between the less mobile infantry-artillery teams and the more mobile armored forces will be impossible to establish. The influence of difficult terrain and bad weather will be of far greater importance.

Motorized infantry does not replace cavalry. In Russia, the cavalry-tank teams have replaced the motorized infantry-tank teams for far-flung or independent operations. The U. S. armored division is an infantry-tank team. Armored infantry has replaced motorized infantry in the armored division because of armored carriers, which have considerable cross-country mobility. But these armored carriers also have their limitations. Like the self-propelled artillery, they often break down on difficult ground. They need much repair. Good roads in the theater of military operations become more and more rare. The failure of the infantry organic element in an armored force to keep up with the tanks has often been disastrous.

The infantry-tank-artillery-airplane team, as represented by the U. S. armored division (providing that the tactical air force supplies the air units), is a powerful and useful organization for attack. But it must be kept within supporting distance of infantry divisions. It must not be used improperly.

The Russians rarely send an armored force to attack without using a detachment of air force, subject to the orders of the ground commander, for both reconnaissance and support. But the methods of support, of communication, of recognition, of change in targets after the planes are in the air, and much else are all prearranged and practiced between the ground commanders and the air commanders beforehand. This procedure is not for any given attack but is a general arrangement with the planes that are to coöperate during a whole operation.

Missions

The missions for armored divisions are various and important. The chief missions are as follows:

1. Counterattacks, not initial attacks.
2. Exploitation of a break-through.
3. Pursuit of a beaten enemy.

Every tank engagement should be opened by use of artillery and antitank units. The tanks attack afterward. Tanks should not be sent to attack superior numbers of enemy tanks. Rather, the enemy tanks should be lured into traps quickly formed to deceive them. This is usually done by confronting the enemy tanks with light forces which fake a retreat so as to draw the pursuing enemy tanks into an ambuscade of artillery and antitank units.

The tanks should usually attack the flanks of enemy armored units after the antitank units and artillery have had a chance to cripple the enemy machines with their fire, begun as soon as the enemy is within range and continued throughout the action.

No head-on tank attacks against enemy tanks should be permitted, although in the thick of battle tank vs. tank combat will inevitably occur in small spots of the battlefield.

An armored force pushing forward to attack should be followed as fast as possible by infantry divisions.

If, after an advance to the attack has been started, the security elements warn of an enemy trap, the tank advance should not be continued stubbornly, but instead an attempt should be made to outmaneuver the enemy. By sending forward small well deployed forces that then retire and fake retreat, it may be possible to induce the enemy to attack, and when he does, to strike

him from ambuscade. Or, again, it may be possible to change direction of the attack and surprise the enemy's flank. These situations are very liable to occur during the exploitation of a break-through or in the process of pursuit.

Since the enemy defensive positions will be prepared in great depth, an armored force which exploits a break-through may often find itself surrounded and attacked by a force of all arms. The armored divisions, therefore, must know how to assume a position for all around defense where they can hold until relieved by some action of other forces.

Strategems to trap the enemy tanks should be practiced so that they can be referred to in orders by brief terms, understood by all. Stratagems require celerity of action and movement. They cannot be planned and laid hours beforehand, and it must be remembered that the enemy will attempt to use the same stratagems.

Although much of the activity of an armored force will be in combat with the enemy armored forces, the prime objective of such a force is the hostile infantry. If the hostile infantry can be defeated the enemy's whole army will be defeated. Often, however, in an effort to reach the enemy infantry the attacking tanks will be confronted by intervening enemy tanks. Tank battles, therefore, are inevitable. The broad principle on which operations should be based is not to seek battle with enemy tanks, but to be able to throw them out of the way in order to seek the enemy infantry. Modern tank-destroyers should be of great assistance in doing this.

Enough tank-destroyers, in organized antitank units, should be able to protect not only the armored forces but also the infantry and artillery forces left to fend for themselves. Thus, while the infantry divisions, or task forces are operating in force, the armored forces can be launched against enemy flanks, thrown into break-throughs, or used in pursuits, without constant apprehension that the supporting infantry may be badly mauled by enemy tanks during the temporary absence of the principal armored units.

In other words, instead of chasing around after enemy tanks, the tank force should go about its business of attacking the heart of the enemy and let the enemy tanks do the chasing around. This principle, of course, must be flexible and must be applied with the proper caution. The necessity for constant and all round security reconnaissance is apparent.

Reconnaissance

The chief use of an armored division's reconnaissance squadron will be to form covering forces in the front, moving by bounds, and strong combat patrols on the flanks and rear. This requires much training. Security thus becomes the important mission of the reconnaissance squadron. Other reconnaissance is best performed by task forces engaged in reconaissance in force.

The next most important duty of the reconnaissance squadron is to reconnoiter the ground over which the division is expected to advance. Forces should not be committed blindly into situations where the ground may offer surprises or unforeseen difficulties. The covering force principle should enable the commander to avoid this.

There are two kinds of reconnaissance that are indispensable. They are *security* reconnaissance and *information* reconnaissance. It is impossible to state which is the more important. Not only the armored forces, but all task forces, must have all around protection at all times from surprises by the enemy or by the terrain.

Information reconnaissance, so called for want of a better term, or sometimes called exploratory reconnaissance, is generally more distant than security reconnaissance and is done in three ways. They are (1) reconnaissance in force by task forces, said by the Russians to be the most reliable and efficient means; (2) infiltrating patrols; and (3) airplane reconnaissance using observers and photography.

Modern photography from airplanes has become perhaps the most important means of information reconnaissance. It depicts the nature of the ground, the cover for advancing riflemen and other troops, the defensive installations of the enemy, and often the presence of marching or stationary troops. This kind of information is extremely important for armored forces before they are committed to the accidents of the ground or the prepared surprises by the enemy. Airplane reconnaissance, however, must be supplemented constantly by ground reconnaissance of all kinds. Thus, the armored forces are going to be called upon for reconnaissance in large measure and for which armed vehicles are not always suitable. In the absence of cavalry the armored forces will have to accept this rôle and do the best they can.

The Commander's Position and Use of Reserves

It is not easy to prescribe the use of reserves. It does no good to say that reserves must not be used too early in the action or too late. It can be stated usefully that the commander must not forget his reserves or fail to make the most of them. Many commanders have forgotten their reserves or have been so timid about committing them that they never used them at all, or only when forced to do so by defeat or threatening disaster.

The position of the commander determines the proper use of his reserves. He cannot decide when or where to use them if he is back at a command post merely receiving and passing on information by telephone. The commander of an armored force should be well forward with his troops, certainly not behind his reserves. He must be where he can personally talk to his subordinate commanders from time to time. He can often influence the action of one or another of his groups by his personal inspiration and leadership. If he is a good commander, his subordinate leaders are glad to see him appear. They know that he has not come to find fault

or criticize but to help and inspire. By visiting subordinate leaders at various points the commander can see for himself what is happening and will be in position to change or improve the situation. He can use his reserves with much more certainty and skill.

Reserves are not generally to be used for the purpose of reinforcing a weakened unit, but rather for striking at the critical moment at the sensitive point in the enemy's disposition. A weakened unit is helped much more by this tactical employment of reserves than by sending reinforcements. However, the commander must take one or the other of these courses. If a subordinate command is large enough to have a reserve of its own and has used them and needs to replace them, the commander may send units from his general reserve for that purpose. That is, if he thinks he can spare them from the general reserve that he intends to use at the critical moment. If the situation is such that he does not intend to use his reserve as a whole, he would better apportion it to his subordinate commands.

When a reserve is sent to attack, it must be preceeded and protected by a covering force and combat patrols just as if it were a front line unit going forward to attack.

Communication with a commander who is forward, where he ought to be, can be easily arranged by means of radio. He does not have to remain near a telephone station. Higher commanders can reach him by going forward to where he has been located by radio inquiry, or by simply talking to him through radio.

The old spectacle of World War I, when a regimental commander remained back at the command post to hear all about the battle by telephone but saw nothing of either the battle or the ground in front of his troops, is now over—as it should have been then.

Sending infantry to advance under fire over flat coverless ground, which neither the commander nor his staff, nor other agents have seen beforehand, is little less than criminal stupidity. Yet in World War I this was done generally while the commander sat in a dug-out several miles in rear of his fighting lines and pretended to exercise command by pushing electrical buttons or shouting into a telephone. This amusing and absurd custom was developed from long periods of trench warfare, but it should never have been tolerated. Yet, a commander, who left his so-called command post and went forward to see his troops in action, was severely criticized by higher commanders who, in their turn, sat in command posts and expected to talk at any time by telephone with subordinate commanders who knew no more of the actual combat situation than did the higher ones. Corps and army commanders will have to remain somewhat in rear of their commands but, from divisions down, all commanders should be personally as far forward as their reserves. Their telephone stations can be kept in rear.

The present armored division has 3 battalions of modern tanks, 1 company of light tanks, 3 battalions of armored infantry, 3 battalions of artillery, a mechanized cavalry reconnaissance squadron, engineers, signal and medical troops, headquarters and service companies, and trains.

It must have attached thereto some units of tank destroyers, and probably a battalion or two of tanks and infantry for the division reserve.

How to handle all of these units is a problem for the division commander. I have ideas on this subject, but our armored force commanders have had experience in handling these elements in training, and some of them in battle. I would not presume therefore to offer any suggestions except those mentioned above.

MODERN RECONNAISSANCE—the most popular Cavalry book since *Cavalry Combat*.

The insistent demands by men in training and on the battlefront for a single volume which would comprise the important information thus far secured on the subject has given birth to the new and comprehensive book, *Modern Reconnaissance*, published by The Cavalry Journal June 1st.

The Table of Contents of this book includes articles on training for reconnaissance units, information on the problems met in various war theaters, and stories of the practical value of reconnaissance in actual warfare by men who participated in the action described.

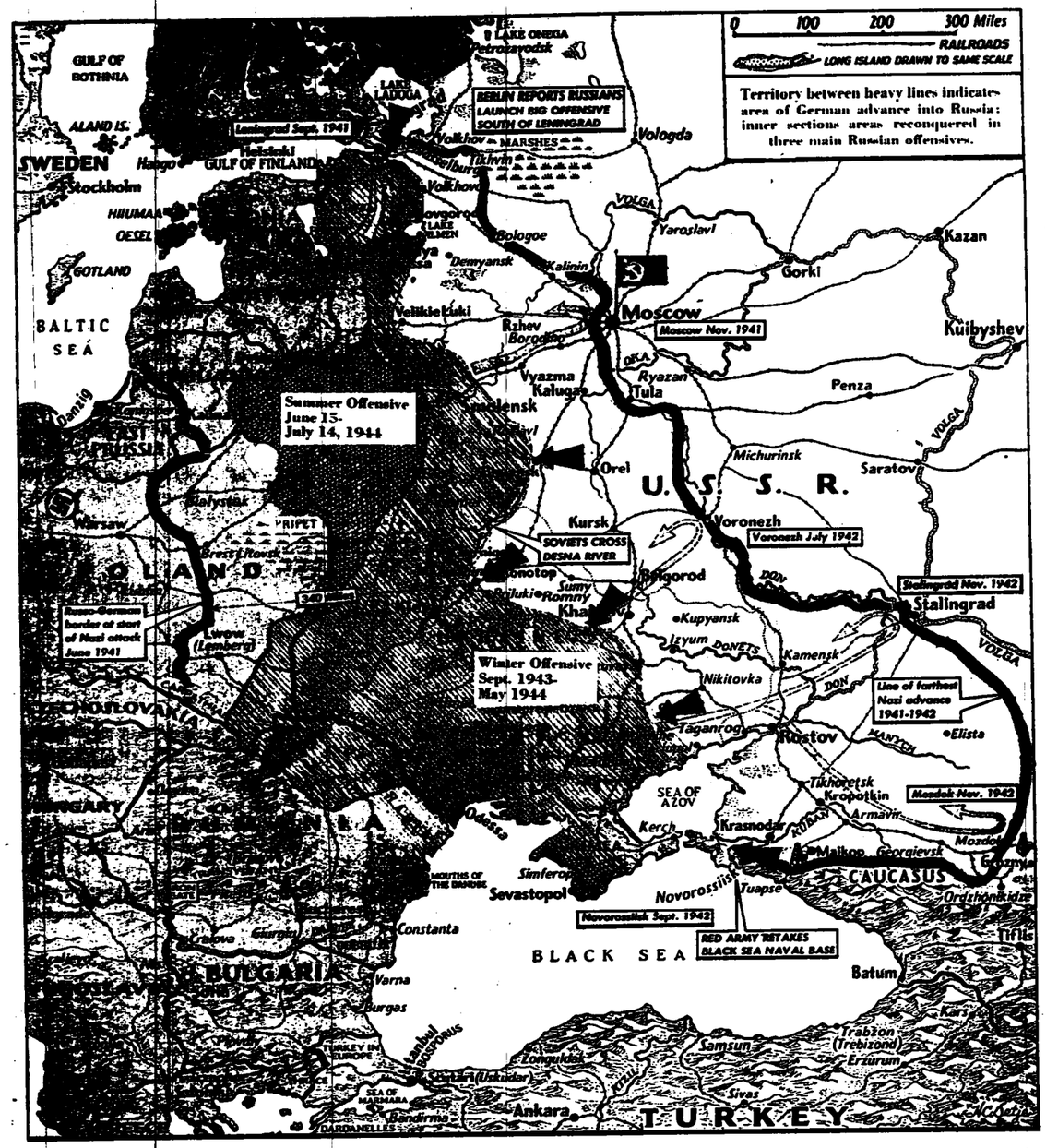
The format has been planned with an eye to the needs of men "travelling light." Excellent maps for study in connection with the articles are included as well as an abundance of illustrations, yet the book has been kept to a convenient size to pack easily, or fit into a uniform pocket.

(See inside front cover for Table of Contents.)

Order blank—Page 79.

Worthy of Emulation

Once again the Cossacks are on the "prod." Such a statement is not intended to infer that the use of Soviet cavalry has been intermittent. An article, "Vital Rôle of Soviet Cavalry" which appears in this issue (page 14), gives a timely résumé of the continued exploits



and brilliant achievements of the Russian Cossacks throughout the many campaigns on the Eastern Front.

Daily communiqués as well as reports from American correspondents, tell of the deep thrusts into Nazi rear installations and of wide flanking movements which, by encircling strong Nazi positions and rail centers, have enabled the Russians to destroy or capture large forces of the German army.

"Die Kossacken Kommen!" is no mere dramatic or colorful phrase coined by war correspondents. German prisoners confirm the fury of the sudden assaults and the fear and desperation generated in the ranks of German infantry.

The Soviet war strategists have long been employing cavalry and tank units in coördinated action and Nazi writers—civilian and military—admit the seriousness of facing this combination in combat. (See article, "Cavalry in This War," by Lt. Colonel Benary, German Army, Page 52.)

One of the leading exponents of this successful tactical combination is Marshal Rokossovsky, present commander of the Byelorussian Front. A specialist in cavalry attacks during the defense of Moscow and, by the combined use of these arms, was later responsible for the annihilation of the Nazi Sixth Army at Stalingrad.

During the present unprecedented successes in the northern drive toward Germany, the Soviets are using their cavalry in greater numbers than ever. Divisions and corps, acting both alone and in coöperation with tanks, are spearheading the advance along the entire front. Rokossovsky's employment of large forces of cavalry and tanks in the surge of the Soviet armies toward Poland and East Prussia is strong and sufficient proof of the efficacy of the tremendous striking power of the tank-cavalry-air combination, under the leadership of commanders who know how properly to employ and coördinate these highly mobile arms.

✓ ✓ ✓

Unit Citation, 2d Squadron, 5th Cavalry

Battle honors have been awarded in the name of the President to the 2d Squadron, 5th Cavalry Regiment, of the 1st Cavalry Division, for extraordinary heroism on Los Negros Island, Admiralty Group.

The unit's citation follows:

"The 2d Squadron, 5th Cavalry, is cited for extraordinary heroism in overcoming unusually difficult and hazardous conditions in battle. On February 29, 1944, this unit, landing on Los Negros Island, Admiralty Group, New Guinea, which was held by a determined, entrenched enemy in greatly superior numerical strength, quickly destroyed the immediate enemy defense, established its beachhead, and occupied the enemy airstrip within a few hours.

"The forcefulness and aggressiveness of its assault overwhelmed the enemy initially, and the brave spirit of the personnel of the squadron permitted the early seizure of a secure hold on the enemy territory. In subsequent operations for three days and three nights, the 2d Squadron valiantly extended the controlled area by day and initiated the work prescribed for its mission under enemy fire, and by night stood by its defenses and repulsed determined and continuous infiltrating and harassing groups of the enemy, and on the second and third nights repulsed concerted counterattacks by the enemy in such force that annihilation of the squadron might easily have resulted except for the grim determination with which the squadron maintained its defenses."

✓ ✓ ✓

Not Bad!

The Army War College Library has recently started publishing a list of selected articles of military interest culled from the recognized army and navy publications as well as civilian periodicals such as *Saturday Evening Post, Time, Life, Collier's,* and *New Republic.* The material is classified under subject headings. It has been noted with considerable interest that in the first edition of this list, *Selected Periodical Articles* (May, 1944), THE CAVALRY JOURNAL has been given nearly twice as many listings as any other military or civilian magazines. It had a total of 62 entries. The next most quoted publication was a military weekly with 34 listings. Following that was another semiofficial journal with 26; next, a popular commercial weekly with 25.

✓ ✓ ✓

Overseas Edition!

Beginning with the July-August issue, The CAVALRY JOURNAL is printing a special overseas edition for all subscribers in the armed forces serving outside the continental limits of the United States. This edition will contain all of the material (reduced to a 5" x 8" size) that appears in the regular domestic edition. It is half the weight, has a higher priority for shipping space, is delivered to overseas theaters several weeks earlier than the regular edition, and has more assurance of reaching extreme forward areas.

Send in your correct overseas address as soon as you know it! Your special overseas edition of The CAVALRY JOURNAL will follow you promptly!

✓ ✓ ✓

Errata

It is regretted that the following errors in identification of matériel were made in captions of pictures in the May-June issue of the JOURNAL:

In "Tanks in Sicily," the vehicles pictured on Pages 7 and 8 are M-7 "Priests" organic weapons of armored artillery.

In "Employment of Tank Destroyers," the illustration on Page 62 appears to be an M-7 mount with 105mm howitzer.

Survival in the Philippines

December 22, 1941
March 1, 1942

by Major Arthur K. Whitehead, Cavalry

EDITOR'S NOTE: In the May-June issue of The Cavalry Journal, Major Whitehead described his experiences during the early days of the Jap attack on the Philippines. As a lieutenant with Troop "A", 26th Cavalry (P.S.), he witnessed the bombings of Fort Stotsenburg and Clark Field and marched north with the regiment to meet the Japs landing at Linguyan Gulf. On the afternoon of December 22d the regiment reached the outskirts of Damortis and immediately went into action from positions in the surrounding hills.

After a futile attempt to stem the Jap tide, pouring in from the ships and barges jamming the harbor, the outnumbered and outflanked Scouts were forced to withdraw toward a new position across the river.

At about 2200 Jap tanks and infantry broke through Troop "E" which formed the rear guard. Troop "A", momentarily dismounted, was thrown into confusion. While Major Whitehead was mounting, his horse bolted and he was dragged for some distance and knocked unconscious.

"Later," he concludes in his May-June account, "when I came to, the firing had stopped, forms could be seen moving down the road from the direction of the enemy, and there were no cavalrymen around. I jumped a fence and got into a bamboo thicket by the side of the road."

AFTER getting off the road about fifty yards into a bamboo thicket I dropped down on the ground, quite well exhausted and still dizzy. Firing had stopped altogether. From the sound of tanks and gutteral shoutings in an unfamiliar tongue, it was apparent that Japs were on the road at the place where Troop "A" had been surprised. What was the next move? The river where the regiment had watered horses late in the afternoon should not be more than a mile to the east. It was logical to believe that, after destroying the bridge, the 26th Cavalry would take up a position east of the river. I decided to get farther off the road, then work toward the river in the hope of finding a crossing and eventually getting around the right flank of the position that I assumed that the 26th might have taken.

The terrain was hilly, covered with underbrush and occasional clumps of trees. It seemed likely that Jap patrols would be in the area. Just before Troop "A" had pulled out of its last position, observation posts on the right flank had reported sounds of equipment and Jap voices nearby.

The pitch darkness made it necessary to feel for each step. The going was slow, and after each short distance it was well to stop and listen for a minute or two. During this time, the sound of a sudden burst of machine-gun fire came from the road; a pause, and then another burst. I wondered if the Japs were doing away with prisoners they had caught.

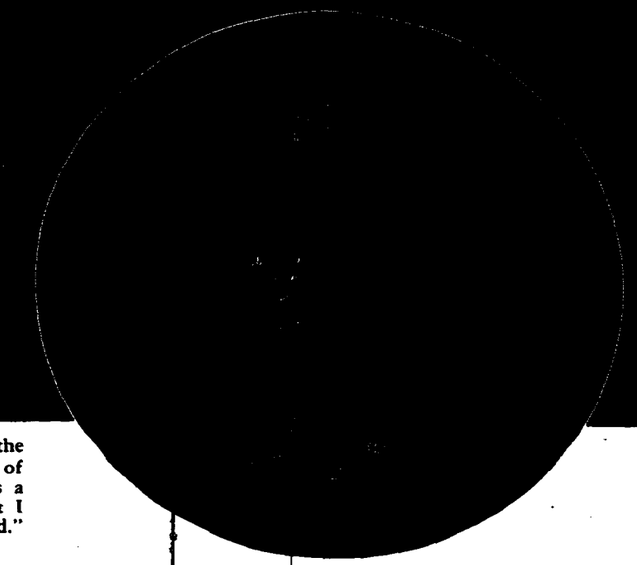
Before long a red glare filled the sky ahead; and it soon became evident that it was from a fire. As I came over the crest of a hill, I saw that about 300 yards away the bridge across the Apangat River (which the regiment had crossed earlier in the day) was burning in the center. From the glare of the fire, I could see several low-built tanks parked on the road and Japs on the bridge examining it. Shots were being fired from the river bank on both sides of the road from the Jap side, but no firing was coming from the opposite bank. Before long the Japs hurried back from the bridge. Then two of them climbed into the leading tank and, driving onto the bridge, started through the fire. As they reached the center of the bridge I heard the sound of cracking timbers and then saw the tank ease over on its side and crash into the water.

To give the Japs a safe clearance, I started north parallel to the river with the idea of crossi[illegible] up. After walking for half an hour, I tur[illegible] the river, and soon reached a barbed wire [illegible]ndering a road four or five feet down an embankment. About to climb the fence, I heard the sound of gutteral jabbering nearby, and crouching low, I watched a Jap patrol walk by. It stopped a few yards past me. A few words were said, then all was quiet. The scuffling of the Japs' feet could be heard as they changed weight from one foot to the other. One Jap, probably leaning against the embankment of the road, loosed a small landslide; it sounded like a mountain falling.

Carefully feeling each spot before putting my weight on it, I crawled a hundred or so yards away from the river. At one time during this crawling, something moved in the bushes not far away. As the noise came closer, there was little doubt in my mind that it was a Jap. After a minute or two of sweating, I saw a pig walk into a clearing a few feet away. I then walked a short distance farther away from the river, turned north once more, and again travelled parallel to the river. Toward morning I crawled underneath a bush to rest—thinking it would be impossible to live until daylight without a drink of water.

Waking at daylight, I crawled to a nearby hill for a look around. It still seemed possible that Jap patrols should be in the vicinity. To the west was Lingayan Gulf, and in the same place as the day before there was the concentration of Jap ships. To the southeast I could see the road leading to Rosario. No firing could be heard anywhere.

Not long after I reached that hill, three B-17 U.S. bombers came flying low out of the south, and passing over the Jap ships, dropped their bombs and continued north. They were fired on by Jap antiaircraft from the shore.



Photo, Courtesy National Geographic Society

Major Arthur K. Whitehead, pictured at right, is the first cavalryman to have brought home an account of experiences in the Philippines. He says, "It was a bamboo thicket such as the one shown here that I jumped into after getting off the road December 22d."

Leaving the hill, I walked two or three hundred yards down to a stream, where at last it was possible to have a drink and a wash. There I cached my gas mask and broken flashlight. My helmet had been lost the night before.

Now for something to eat; it had been quite a while. I walked down the stream, and before long came to a clearing with a nipa shack on it. From the shade of some trees on the edge of the clearing, I saw two Scouts walk out of the house, and after watching them for a minute to be sure that they were not Japs dressed in American uniforms, I whistled to them, and they came over to where I was sitting.

The Scouts were from Troop "E" of the 26th, and their story was much the same as mine. Troop "E" had been the rear guard of the regiment the night before, and they said that the Jap tanks had come right up to their position and stopped; that one of the men of the troop, believing the tanks to be American, had ridden up, knocked on a tank, and signalled the crew to open their turret. The Japs, recognizing an enemy, had immediately started firing. The pitch darkness on the road the night before had been deepened by the mountains and tall trees in the vicinity. Troop "A", before it had taken position on the right flank of Troop "E" had been warned that at a certain time a company of 17 American tanks would pass through its position en route to the rear. Later, as they passed, members of Troop "A" had counted the tanks by their noise. Troop "E" must have been warned likewise and should have counted the same tanks as they passed. However, with the darkness making it impossible to see, it is possible that Troop "E" had miscounted or else the number of American tanks as relayed to them had been in error. Also, I do not believe that at that time many of us realized that we were fighting a determined enemy—already present in considerable force.

The Scouts from Troop "E" joined me, and we began to look for food. The countryside around was completely deserted of civilians. We searched through nipa

houses in the area for nearly an hour before finding enough rice and eggs for a meal. Before long our stomachs were full— was surprising how well this food went down. What was left of the cooked rice was wrapped in banana leaves and carried along.

Through field glasses we could see Jap armored cars and tanks moving east on the road leading to Rosario. Armored cars were also bringing cyclist troops from the west to the flat country. After unloading, these cyclists would start peddling east in the direction taken by the tanks, and the armored cars would go back for more men.

By the middle of the morning of December 23d no firing had been heard, which meant that the American line had fallen back a good distance below Rosario. However, there still seemed to be a chance of getting back to the regiment. We started east, but at about 1500 found that it was necessary to hide until dark, because of the open country in sight of the road which had to be crossed.

Before dark we moved east again and during the afternoon were joined by two more Scouts whose story was about the same as ours. At about 0200 of the 24th, we came to a paved highway. Up and down the road the Japs had armored cars parked about every half-mile or so with men patrolling between them. Occasionally the Japs would fire into the darkness at some noise or movement. We learned that there had been fighting in that area the day before, but it was hard to account for the Japs' present actions. The natives in the area seemed stunned; they could not realize why the Americans had allowed the Japs to enter the Philippines. Every group of natives we passed asked the same question: "Are American soldiers coming from the States to help us?"

Hiking back from the road we got deep into a forest and tried to get some rest. Having come a good distance into the mountains during the night, we found that the change in elevation and temperature made it impossible to sleep without a blanket—which no one in the party had.

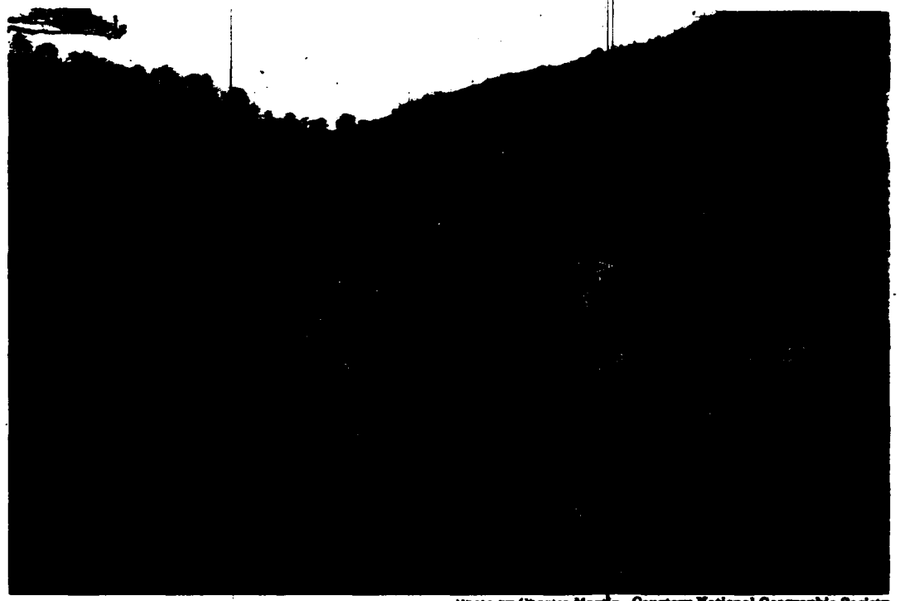
That morning (December 24th) more Scouts joined us. They had been able to pick up some rice and before long we had breakfast. The Japs were still on the road a mile and a half to the east. That made it necessary to go north far enough to get around this road. By noon we believed that we had gone far enough and turned east. At this time a Philippine Army officer and four men joined the party, which now totaled 21. Of the 21 men, three had been wounded on the 22d but not badly. No one had rifles; the scouts had pistols.

After eating, we started east again, and by nightfall we were high in the mountains with plans changed to join the Baguio garrison. That night we ate a good meal of rice, bananas and coconuts that had been given us by natives during the afternoon.

The next morning, Christmas, we started up the mountains in the direction of Baguio, and at about 1400 came to the first human habitation—an Igorot settlement. These natives live in small villages scattered here and there through the mountains on any land level enough to build terraces for growing their rice. The village was completely deserted, but after nearly an hour some of the Scouts who spoke the Igorot dialect located some of the inhabitants, who had fled in fear that we were Japs, and persuaded them to come back and cook us food. Before long a pig was killed and rice

Photo, Courtesy Commonwealth of the Philippines.

"This Igorot village is very much like the one where we ate our hearty Christmas dinner." Rice terraces can be seen on the hill in background.



Road to Baguio, Luzon. "Going up to and away from Baguio, December 25th-28th, we hiked through much country where this picture certainly could have been taken."

Photo by Charles Martin, Courtesy National Geographic Society.

cooking. By 1700 Christmas dinner was on the floor, and we were devouring it with our hands. Except for guards, everyone in the party was asleep before dark.

The following day, with a guide, the party hiked over Sto. Tomas Mountain and reached the rest station about 1600. At one time during the day the trail had brought us to a peak which overlooked Lingayan Gulf and from there we were able to count 54 Jap ships anchored around Damortis. From the rest station we telephoned Baguio for a truck and learned that the Baguio garrison had left two days before. There were still no Japs there, however, and a truck was sent to meet us at the end of the Sto. Tomas road.

It was nearly dark when we arrived in Baguio, which showed little effect from the war except for a general tenseness in the air. Baguio had been declared an open city and, according to reports, the city council already had contacted the Japs who were expected at any time. The only bombing in the vicinity had been on Camp John Hay. There we noticed a few bomb craters on the road and lawn below the mess hall, but saw no evidence that buildings had been hit.

The commissary still had a good amount of canned food, cigarettes and beer. As much of this as we could carry was piled on the truck. The plan now was to go to Itogan, a mining town ten or fifteen miles from Baguio, then through the mountains to the Agno River valley, thence down into the central Luzon plain and come out at a point about 75 miles southeast of Damortis, where it was hoped that there still might be a chance of rejoining the Americans—if they were not being driven back too fast.

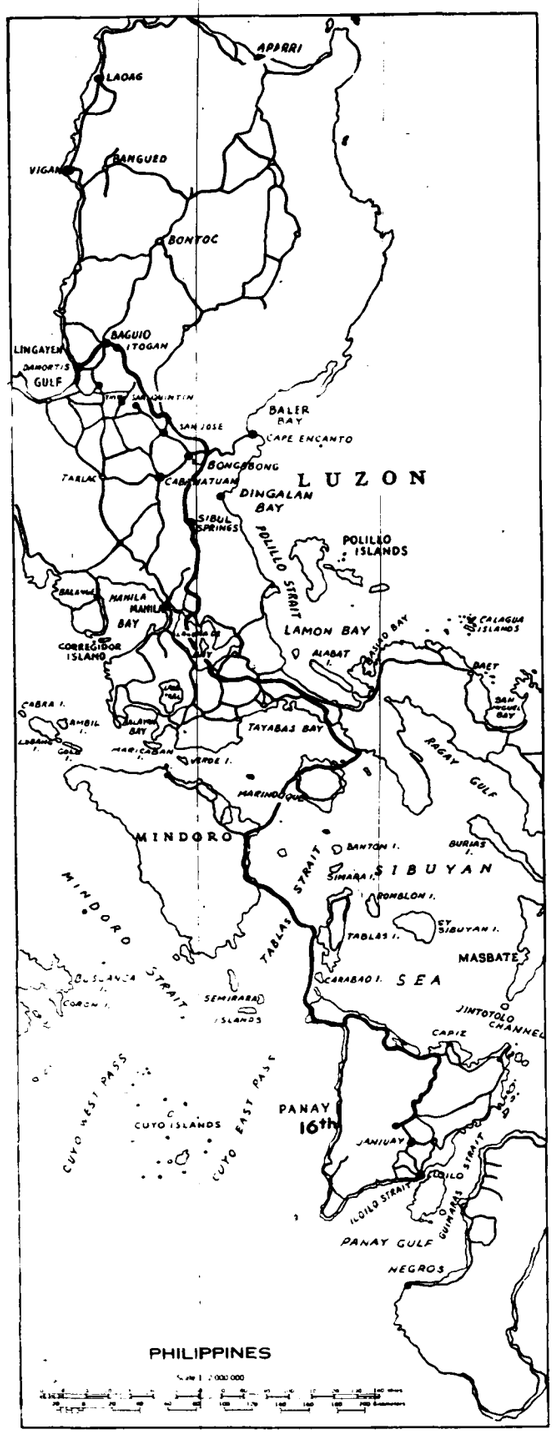
In Baguio some American civilians offered us aid and advice. The three wounded men were taken to the hospital; one had to stay for an operation to remove the bullets f[illegible] arm. At about 2100, as the party was ready [illegible] gan, a truck with 20 Filipinos drove [illegible] been part of a group of 500 trainees on their way to Camp Murphy near Manila for induction and training. At the foot of the Kennon Road going down from Baguio two days previous to this time, their party had been intercepted by the Japs. Some had been killed, the rest sent back to their homes. Most of these men were bare-footed, had no hats, and were dressed in rags; however, they had ammuniton and rifles to spare in the bottom of their truck, and so they joined our party.

An hour later we were in Itogan, which showed evidence of the hurried departure of the Baguio garrison. A considerable amount of equipment and supplies, which they had been unable to carry through the mountains to Imugan, had been discarded there. The mayor of the town cooked rice. The beer brought from the commissary was traded for two sacks of rice, which, along with the canned food brought down, was distributed among the men. Rifles and ammunition were also distributed.

From Itogan it was necessary to travel by foot, and by midnight we had left the road and were sleeping on the trail leading to the Agno River.

On the morning of the 27th, the party was organized into squads and platoons and the new men given instruction in the rifle. By afternoon we were on our way again.

By the morning of the 28th of December, those of us who had come up from the valley to Baguio were



Route taken by Major Whitehead from Luzon to Panay.

physically exhausted but to stop a day for rest might have meant taxing the slim chance that we hoped we had of overtaking friendly troops before they were driven too far to the south, so we continued travelling and that night camped about 6 miles north of Tayug, Pangasinan, which could be seen burning in the distance. Two scouts, sent to Tayug to get information, reported that the 26th Cavalry had been there a few days before and that the Japs had passed through only the previous day but were now already far to the south. The buildings burning were Chinese stores set afire by the Japs.

The next day we by-passed Tayug by going through the mountains to the east and camped that night east of San Quintin.

The morning of the 30th the party finished its last food. Groups were sent out in search of more, but one by one they returned through the day without any luck. When the last group looking for food came back with none, it was decided that the party should break up into small groups and try to work into Bataan. From the way the situation appeared in the north, if a stand were to be made anywhere, it would have to be in the Bataan Peninsula, as called for by the old plan of defense.

A Scout, two Igorots and myself started south. The first night we met an American officer out of the 26th who also had been separated from the regiment the night of December 22d and was still trying to find some unit to join. Two days later another American officer from the 91st P. A. Division joined us. His outfit had been scattered in the battle of Pozorrubio, Pangasinan.

Travelling mostly at night, the six of us started working our way south. Down the east side of the Luzon plain the highway ran close to the mountains through which we were making our way, and many times from a distance we saw column after column of Jap tanks and motorized infantry moving south. At whatever house we stopped, regardless of the hour, the owner would cook food for us. We found then and many times later that one of the finest traits of the Filipino is his hospitality. Sometimes when passing along, a native would run out from his house and give us a chicken or some eggs, or bananas or the like. The natives always asked when the "aid" was coming; when and where would the American forces land?

On the other hand, (as in all of the other countries occupied by the Axis powers) there was a certain element who had become fifth columnists for the Japs. Stories were heard of both Americans and Filipinos who were betrayed by these traitors.

In the vicinity of San Jose, Nueva Ecija two American engineers from Baguio joined us. There was no reliable news as to where the fighting was going on in Luzon or anything that was happening outside of the Philippines. In the back districts through which we had

Photo, Courtesy Commonwealth of the Philippines

"In central Luzon we passed through many towns similar to the one shown here. Towns were often avoided."

to travel, such a thing as a radio was unknown, and often the natives did not even speak English. On the 2d or 3d of January, 1942, a Filipino told us that Manila had fallen. We did not believe him. A week later we found that he had told the truth. While travelling southward day after day, we picked up rumors here and there until we slowly realized that all of the remaining American forces had been withdrawn into Bataan and Corregidor.

Often at night large fires could be seen in barrios along the way. In reply to our questions, the natives invariably gave the same answer—the Japs were burning their dead. Sometimes as many as 30 truckloads of dead in a day were reported to us as being brought north to be burned. A small amount of the ashes of these mass cremations were put in small boxes and sent home to the relatives in Japan.

One American of our party dropped out near Sibul Springs, Bulacan. The rest of us believed that there might be some chance of getting onto Corregidor if we could get down close to the Manila area.

On the 20th of January we arrived in Montalban, Rizal, about 40 kilometers east of Manila. Our trip from Baguio had taken nearly a month. In a car, and using the highway, it would not have taken a full day.

In the vicinity of Montalbon there were 10 to 15 Americans—soldiers, sailors, engineers, and businessmen. Some of them had already learned that their families had been interned by the Japs in Manila. None of us knew what the next move should be, or what was best to do. Several Filipinos, sent out on different routes to find a way to Corregidor, were never seen or heard of again.

The guns from the Bataan Peninsula could be heard night and day, yet there was not a chance of getting there. The Japs were everywhere—in the towns and on highways. Even that early in the war, it was not prudent to stay in one place very long.

From the radio we heard that there were American forces still intact on the Island of Cebu, south of Luzon. Three of us decided to try to get there.

The hike down from northern Luzon, along with the diet of rice and haphazard sleeping, had been exhausting, but after a 10 day rest we were ready to move again. The night of January 30th we left our camp in the hills north of Montalbon and started south toward the Tayabas coast. There was a full moon, which made night travelling easier. The natives continued to feed us and guide us wherever we stopped. Hearing that there was a bakery in the town of Antipolo, Rizal, we went there to get some biscuits. (More than anything else we craved bread, which was almost impossible to get.) While sitting in the bakery two truckloads of Jap soldiers came into the town. The natives hid us and got us out after dark.

On the north shore of the Laguna de Bay we had a treat. A prominent citizen there had us for dinner, and his hospitality included gifts of bread, American cigarettes, and a good drink. American cigarettes at that time were selling for $1.00 to $2.00 a package.

Photo, Courtesy Commonwealth of the Philippines

"Much country of this type is found in southern Luzon—from the Laguna de Bay to the south Tayabas coast." It was on the Tayabas coast that Major Whitehead and his companions were discovered by the Japs. Only he escaped.

From Laguna de Bay we took an outrigger south across the bay and landed in the town of Pila in Laguna Province. From there we hiked to Nagcarlan, Laguna, and across the mountains southeast to Tayabas, Tayabas.

On the 9th of February we were in a small barrio of Antimonan, Tayabas. We had just finished lunch when, at about 1400, the natives around yelled that Jap soldiers were approaching. We had been told when we entered the barrio that there were pro-Jap Filipinos and Jap soldiers around, but there had been so many such warnings without anything coming of them that we had given little weight to this one.

When the natives started running and yelling one of my companions, who was pretty sick from fever, and I were sitting inside a shack, the other American was out-

side watching. After yelling into the shack for us to get going he disappeared. The American with fever had his rifle lying beside him, and all that he had to do was pick it up and run. My rifle was in the far corner of the shack, and by the time that I had gotten it and was outside, my two companions were both out of sight.

Earlier, before eating, I had taken a walk and as a matter of habit had looked around for a place to duck into in case of a surprise. To the north I had noticed a thick forest. Outside the shack the Filipinos were running, yelling, and pointing back of them. I grabbed my pack and took off. Before I had gone many steps the firing started. I recognized the now familiar high-pitched crack of the Japs' .25 calibers, but as usual they were not shooting too well. I dropped my pack and before long was in the cover of the forest. It was an hour before I stopped to rest. Having travelled a good part of the way in stream beds, I felt fairly confident that the Japs could not follow me.

Shortly after the first shots were fired in my direction, I heard the firing of 10 or 12 rifles which continued for about five minutes. I wondered at the time if the Japs were shooting the natives.

My two American companions and I had a previous understanding that if ever we were scattered we would assemble at the next place on our route. Not knowing a loyal native from a disloyal one, I decided not to inquire for the whereabouts of the other two, but to continue on to the next barrio alone.

With the help of a compass, I started south at dark being careful to keep off the trails. Getting tired of breaking through the forest, toward morning I got on a trail, and before many minutes nearly ran into a patrol. The Japs were not very alert, which was the only reason that I was able to get off the trail and into some bushes. At daylight I came to a nipa shack and asked for breakfast, then spent the day hiding in a banana grove. About 1600 I started south again, and this time kept as much as possible in the undergrowth of the forest.

At dusk I came to a nipa shack and stopped in search of food. I had not seen anyone all day and had no idea what the Japs were doing. Recognizing me as an American, the owner of the house became quite nervous and motioned me to follow him to a nearby bamboo thicket. He could not speak English and my use of the Tagolog dialect was not good, but he got the idea across that there were Japs around, and for me to stay hidden, and he would bring something to eat. I did not know whether to trust him or not. This was one time that the chances of getting out did not look very good.

Soon the man returned with some rice and another Filipino who spoke English. This man told me that some 50 odd Japs had been sent into this area that morning and had been searching all day for an American. He said that the day before a patrol of Japs had surrounded two Americans in a barrio to the north, had killed one and wounded and captured the other, and that a third one had gotten away. During the scrap two Japs had been killed and one wounded. This news of my friends was startling, as all afternoon I had expected to run into them.

Then came a gift from heaven—undoubtedly in answer to the many prayers that I had been sending up in the last 24 hours. The Filipino told me that about a kilometer away down in a lagoon was a banca, and that he knew two men who would paddle me across to the island of Marinduque where there were no Japs. I did not believe it, but pretended that I did, and we started. Feeling our way down a pitch-black trail, the Filipinos talked in whispers and grunted every time I set a stone rolling. In half an hour we were beside the lagoon and they showed me the banca made out of a log about 15 feet long and two feet wide. Then they hid me beside the trail while they went after the boatmen.

Before long the boatmen arrived, and we started to haggle about the price of the ride. Under the circumstances I was not difficult to deal with and by 2200 we were in the banca gliding down the lagoon toward the sea. The boatmen were on their knees—one at each end of the banca. They neither talked nor smoked, and they were careful to see that their paddles made no noise against the sides. With their eyes watching the shores incessantly, they glided the banca through the darkness. The trees on the banks cut out what little starlight there was. The only light was the phosphorus in the water stirred up by the paddles; the only noise was the trickle of the water off the paddles.

We glided out of the lagoon into the sea. The tension was off and I fell asleep. At dawn, when we headed into shore, I was surprised to find that we were still along the coast of Luzon. It was necessary for us to follow the Bondoc Peninsula south until we got to a position which gave us a short hop across to the island. On the beach we roasted bananas and ate them with sugar cake. Then, still keeping close to shore, we started south again.

Shortly after dawn on February 12th we landed on Marinduque Island. It was hard to believe that there was any place where there were no Japs. The town of Santa Cruz was as quiet and peaceful as any such town had been before the war. A few casual questions were asked about Luzon and the Japs, but no one seemed seriously concerned about it. Everyone was sure that the American "aid" would be in the Philippines before the Japs got as far as this island. My walk from the beach caused quite a crowd to gather. In the first place, I had a two months' growth of beard which always aroused considerable curiosity among the natives who do not have beards. In addition, the sight presented was something worth seeing. There was an American officer, barefooted, and wearing a pair of boatman's trousers that came up to his knees, a pink silk chemise, and a straw hat three sizes too small perched on the top of his head.

One of the citizens of the town entertained me and served hot coffee and an egg sandwich prepared to my

specifications—which consisted of a half a dozen eggs between a loaf of bread. After that I was given a bottle of beer, some Filipino cigarettes and a pair of shoes.

In the afternoon a Philippine constabulary officer arrived in town. The feeling of the constabulary commander about the Japs was different from that of the people. He had about 40 soldiers to protect the whole island and how to do it when the time came was a matter of serious concern to him. And since he was unable to contact his commanding officer, who was on another island, he consequently had no money with which to feed or pay his men.

I spent five days on Marinduque during which time I obtained a new outfit of clothing. The garrison had a radio, but it was impossible to contact any other island where American commands were reported.

It had been reported that inter-island boats were stopping at different towns on the east coast of the island of Mindoro and picking up supplies to be taken to Corregidor. I decided to try to catch one of these boats, and about 0100 of February 17th sailed on a small *batil* (a type of native sailing boat) for Pinamilayan Mindoro. In the middle of the morning we beached, and I went to the Philippine constabulary headquarters to stay. They had no information on boats going to Corregidor but did say that there were Americans on the island of Panay.

The constabulary was in much the same state as those on the previous island. The commander did have a definite plan, however, for falling back into the hills when the Japs landed, and from there he intended to carry on guerrilla warfare until help arrived.

After three days at the constabulary I hopped on a truck going to the town of Bangabong about 30 miles to the south. From there I caught a sailboat going to Panay Island and arrived there the afternoon of February 22nd.

As the boat neared the beach Filipinos on shore signaled us to lower our sails. Before long they were aboard inspecting us. They were the civilian home guard, and I found later that they were organized throughout the island, primarily to watch the coast.

The chief of police of the town took me into his custody with the suspicion that I was a German spy. From time to time around the islands Germans had been reported posing as Americans. Also, incidentally, German officers had been reported seen by the natives landing with the Japs on different parts of Luzon.

After persuading the chief of police that I was not a spy, I caught a ride the next morning to the headquarters of the 61st Philippine Army Division. American officers who had been sent as instructors to Philippine Army units in August, 1941, were then in command of those units. This was the first organized unit with Americans in it that I had seen for two months. It was a great treat just to talk with them. Also, they still had a few luxuries such as cigarettes and canned food and were still eating bread and drinking coffee.

Photo, Courtesy National Geographic Society

"This is a typical outrigger, similar to the one in which I sailed from Bongabong, Mindora, to Panay, February 21st and 22d, 1942." At that time no Japs had landed on Panay.

The first week on Panay I spent in Iloilo City—getting a few necessities and gaining a little weight. It was hard to believe that I could really ride in an automobile and walk around the city without having to wonder if there were Japs around the next corner.

At the end of the week I went to the town of Janiuay in central Iloilo Province, and reported to the headquarters of the 63d Philippine Infantry Regiment, with which I was to serve as S-3.

During the first days of the war everyone had been hopeful that the Americans would get through to the Philippines, but by that time—the first of March—almost everyone felt that it was only a matter of time before the Japs took over completely.

The presence of these soldiers throughout the southern islands, however, denied to the Japs the use of the islands from the outbreak of the war until about the middle of April, 1942. Till the very last these islands supplied Corregidor and Bataan with food.

EDITOR: Major Whitehead's account of his experience as an officer with the Philippine Army on Panay—Mar. 1-May 25, 1942—will appear in the September-October issue of The Cavalry Journal.

Photo, courtesy, *Marine Corps Gazette*

"From the point of view of patrolling, all jungle swamps are undesirable. . . . Water depths vary from a few inches to well over a man's head and submerged roots make tripping a persistent probability."

The author, Assistant G-2, Corps Headquarters, "Somewhere in New Guinea," participated in jungle operations with the Australians as well as in the recent Hollandia landings.

Eyes, Ears and Nose
In Jungle Patrolling

IN order to appreciate the unique importance of eyes, ears and nose in jungle patrolling, as compared to other types of patrolling, it is necessary first to appreciate the relevant terrain problems presented by the jungle, and second to know the Jap's pertinent strengths and weaknesses.

Terrain Problems

Tropical jungle, in the broad sense, includes rain forests, swamps and patches of kunai grass. Rain forests are normally found anywhere in jungle areas from the flat coastal plains to mountainous areas up to about 5,000 feet. Over 5,000 feet, rain forest usually turns into moss forest—a moss enshrouded tomb of rocks, trees, and minor vegetation, barren of all wild life. Since most of our operations against the Japanese have been in limited coastal areas, moss forests have played an insignificant rôle. The sole exception was a portion of the Owen Stanley Campaign in 1942.

The vegetation of rain forests varies in thickness from densely tangled roots, vines and scrub to more or less open forest. In areas of thick vegetation, it is often impossible for a man or a small patrol to move off the native tracks (assuming there are some) without cutting their way with a machette. Troop movements in such areas are, of course, completely trackbound. In the more open areas, movement off tracks is, in varying degrees, easier.

All rain forests are characterized by thick overhead cover which makes for a dark, dank, dripping interior. Tracks are always muddy.

Kunai patches of varying sizes are found scattered throughout rain forests. Kunai grass often grows to over twelve feet; however, the average height is probably somewhere between three and five feet. Visibility is dependent on the height of the grass, while movement, generally speaking, is relatively easy.

Swamps are common on costal plains and are particularly bad near rivers. From the point of view of patrolling, all jungle swamps are undesirable. Their dense vegetation negates visibility and makes movement difficult. Further, water depths vary from a few inches to well over a man's head, and submerged roots, etc., make tripping a persistent probability. Lastly, ravenous swarms of insects and a formidable assortment of crocodiles and snakes add emphasis to the undesirability of swamps.

If any one characteristic of jungle terrain may be selected as dominant from the point of view of patrolling, thickness of vegetation would probably be named.

Thickness of vegetation frequently cuts down all visibility to a matter of feet which means that movement on tracks is subject to ambushes or mutually unplanned face-to-face contacts. Any movement off the tracks is tediously slow and in constant danger of loss of control and/or direction. Further, this element of vegetative density has been in the past both a direct and indirect factor in preventing the collection of accurate material for mapping purposes. Today, the result is that any and all available maps are "fairly accurate" at best, with current aerial photos limited in usefulness because of the thick overhead cover found in all but kunai grass.

Jap Strengths

And now for the Jap's pertinent strengths and weaknesses.

The Jap has long recognized the importance of patrolling in jungle warfare, and has made very much a point of stressing it in his training. In every operation to date, he has capitalized on this training. It follows, that his counterpatrolling is also excellent.

Another Japanese asset is his patience and excellent fire discipline. Stories of individual Japs standing chin-deep in swamp-slime, patiently watching for many hours in order to select an important individual (such as a unit commander) at which to snipe, are legendary. Also legendary is the Japs' skill and application of camouflage and fire discipline in concealing the actual strength in given areas.

Still another Jap strength is his utilization of natives. Natives, of course, know the jungle as our American Indians knew the forests of the "American wilderness." The average natives are dirty irresponsible savages, but on patrol they are invaluable. They can track a shadow, pass through impassable terrain and invariably see the invisible.

We also use natives in our training and operations. In Papua, because most of them spoke only their native dialect and pidgin English, the Americans and Aus-

by Major Robert M. White, II

tralians had an advantage over the Jap, who with the exception of a few English speaking individuals, had to converse with natives in sign language. In Dutch New Guinea the natives speak Malayan, so the Allies and Japs probably break about even.

Unfortunately, or fortunately, natives are not very well informed about such worldly matters as totalitarianism vs. democracy, the Four Freedoms, or the Greater East Asia. Their only interest in the strange yellow and/or white invaders of their jungles, is the rice and tobacco paid for services rendered. As a whole they have no loyalty as we know it. However, the point to be remembered is that while their loyalty is not ironclad, their value in patrol work is pure gold.

The next pertinent Jap strength is his knowledge of our weaknesses. He dotes on our national habit of cigarette smoking and also on our loud talking when we think "there is not a Nip in miles" (famous last words).

It is difficult to classify specifically this next point as a strength or weakness but, whichever it is, it is paramount in jungle operations. Above all else, the Nip can be expected to do the unexpected. Time after time, he has gone to great expense in lives and matériel, to attempt the obviously impossible or to gain some hopelessly meager end. Briefly, when patrolling against him, be ready for anything. It will probably happen.

Jap Weaknesses

One definite Jap weakness is his aversion to hand-to-hand fighting. Despite his much touted prowess with the bayonet and skill at jujitsu, the fact remains that he does not like to tackle white men who average more weight, height and reach. It is true that a bunch of Nips can get together and work themselves into a hysterical pitch of patriotic fervor and, amid the screaming of Banzais, charge into the maw of our machine guns or even overrun our forward positions. But patrol work does not usually lend itself to the necessary revival meetings for these spiritual shots in the arm. (Admittedly there are exceptions to the above weakness, and because they are exceptions they receive a maximum of publicity.)

Another Jap weakness is his inability to absorb surprise. For some reason, probably his innate lack of emotional balance, the Nip goes completely berserk when caught with his guard down. Squealing like pigs and scattering like quail is usually their SOP for the unexpected attack. Just to keep the books straight, however, it should be pointed out that if he gets a respite, he will quickly reorganize and start thinking and doing something about saving face.

Last of this general list of Japanese weaknesses is the fact that he does not like jungle operations any better than we do. All too often accounts have painted a picture of the typical Jap GI relishing the eternal rain, the stench, the mud, the bugs and the heat that are the jungle.

With the above points about the Jap and the jungle in mind, we are now ready to illustrate the influence these points have on the importance of eyes, ears and nose in jungle patrolling.

Example of a Typical Jungle Patrol

Let us assume a typical tactical situation and one of its typical patrol missions:

A beachhead has been established, and after the usual counterattacks, the enemy has withdrawn, at least temporarily.

As always, the task force commander wants more information regarding enemy activity and tracks leading to the beachhead perimeter.

The only available map is the usual aerial photomap with annotations made by a prospector who travelled through the area some five years ago.

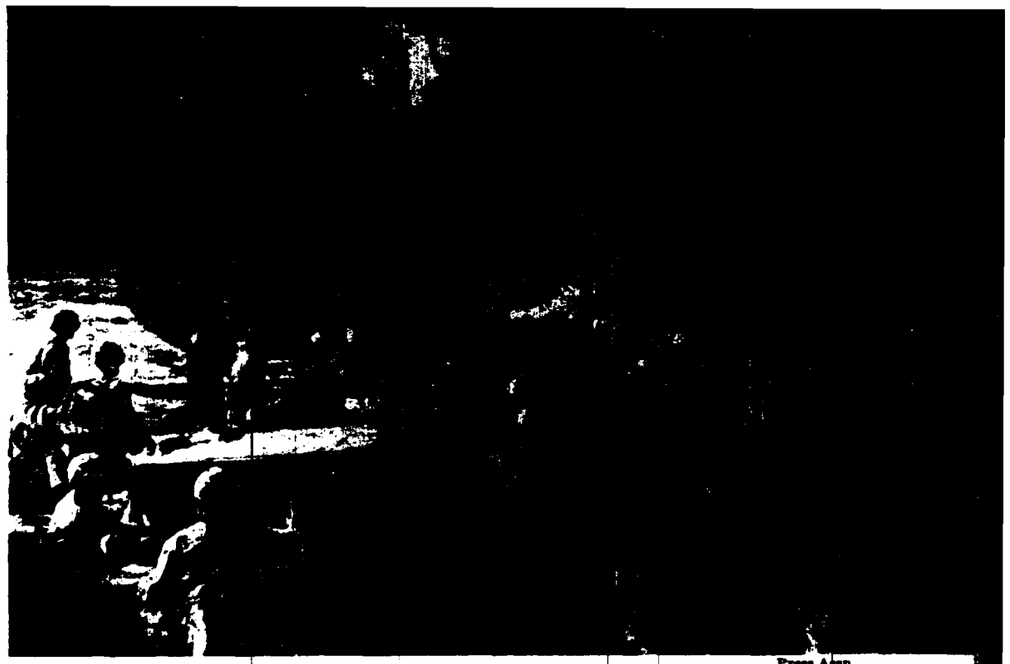
Our particular patrol is given the mission of reconnoitering track No. 4 to track junction No. 4-6 and reporting within 48 hours: (1) enemy strength, composition and disposition on the track, and (2) general track information (such as time travelled over various sections, condition of bridges and/or stream crossings, steepness of grades, etc.).

The patrol will consist of one noncommissioned officer and seven men. It will be assumed that native scouts are otherwise occupied and will not accompany our patrol. Incidentally, the Jap favors using four or five men on patrol missions such as the above; however, our experience is that all conditions being equal, the fire power of eight men is practical insurance in case of unavoidable contact.

In briefing our patrol leader, it has been pointed out that track No. 4 is the only known track covering the general route and will have to be used on the return trip. The track is reported to be tortuous, and since our photomap and annotations agree that it starts out through a swamp, crosses a patched kunai area and enters a thick rain forest, it seems logical to expect all the handicaps of a tortuous track at least through the swamp and rain forest.

After being briefed, a process during which the patrol leader received such routine details as time of departure, etc., our patrol leader calls together his men, inspects them for physical condition, gives them the mission, the uniform and equipment to be worn, the amount of ammunition and rations to be carried, and tells them to reassemble at an exact time (usually about five minutes before the time of departure).

On reassembling, the patrol leader again inspects his men, repeats the mission and makes sure that the chain of command is thoroughly understood. Different patrol leaders have various pet ideas or improvisations of which they usually remind their men at this time. A very practical example is the use of a less conspicuous signal for "enemy in sight" than the FM signal of upraised rifle.



"A beachhead has been established and . . . as always, the task force commander wants more information regarding enemy activity and tracks leading to the beachhead perimeter." Photo shows landing at Cape Gloucester, New Britain, for second big invasion operation on the island.

Press Assn.

Leaving the outpost, the patrol enters the swamp in single-file formation, because the vegetation is too thick for the safer "wedge" or "diamond" formation. The track proves tortuous, so the interval between elements of the patrol is seldom more than a few yards. Obviously, any unexpected contact with the enemy on such a track will be more or less a face-to-face "six gun draw." Therefore, the No. 1 Point Man is the most efficient scout in the patrol and is armed with a tommy gun.

Even though the patrol is in single file formation, each man is assigned the same duties that he would have were a more open formation possible. For example, the No. 1 point man observes ground to the front, the No. 2 point man observes sniper to the front; the next two men (skipping the patrol leader who probably is concentrating on control and the terrain) observes ground and sniper, respectively, to the right; the next two men observe to the left, and so-on throughout the squad with the tailing men observing ground and sniper to the rear. A "get-away" man, as such, is seldom designated until trouble develops. All too often the trouble will come from the rear in which case one of your point men may be the logical selection for a get-away mission.

The reason that it is possible for the Nip to let us get past him so that he can open fire on our backs, is, again, the denseness of the vegetation. "Observation" (EYES), such as ground or sniper to the right, means the close, thorough search for minute details such as newly barked root, newly bent grass or a broken twig, an unusual bend to a limb, a scuffed tree-trunk, etc. Actually to see a Jap hiding in thick vegetation would be a very rare experience, indeed.

As our patrol progresses, the going becomes harder. The men are now wading in depths between their knees and waists; however, the track is well marked so there is little danger of getting lost. From time to time the point man halts the patrol for a "listening stop" (EARS). Wading through swamp, with its submerged roots and other obstacles, is noisy business, both for you and the enemy. Further, bird and insect noises or lack thereof may well indicate what lies ahead.

After about forty minutes, the patrol leader signals a break. The men are winded. There is no place to sit or lie down (one of many reasons that swamps are not used for troop movements of any size). The men lean against tree trunks and roots, always facing their assigned direction. One of the men is new on patrols. He lights a cigarette and starts griping about the insects. The patrol leader loses no time in making the man put out his cigarette, carefully dispose of the butt and the carelessly tossed match. In the stagnant or slow drifting air of swamps and rain forests, cigarette smoke may linger for hours. Any passing enemy patrol would be sure to note it (NOSE). Also, they might note the butt or match (EYES). As for talking, it interferes with listening (EARS).

Resuming its march, our patrol progresses slowly with careful observation and frequent listening stops. After about thirty minutes, the No. 1 point man halts the patrol and signals for the patrol leader to come forward. Ahead is the edge of the swamp and the first kunai patch.

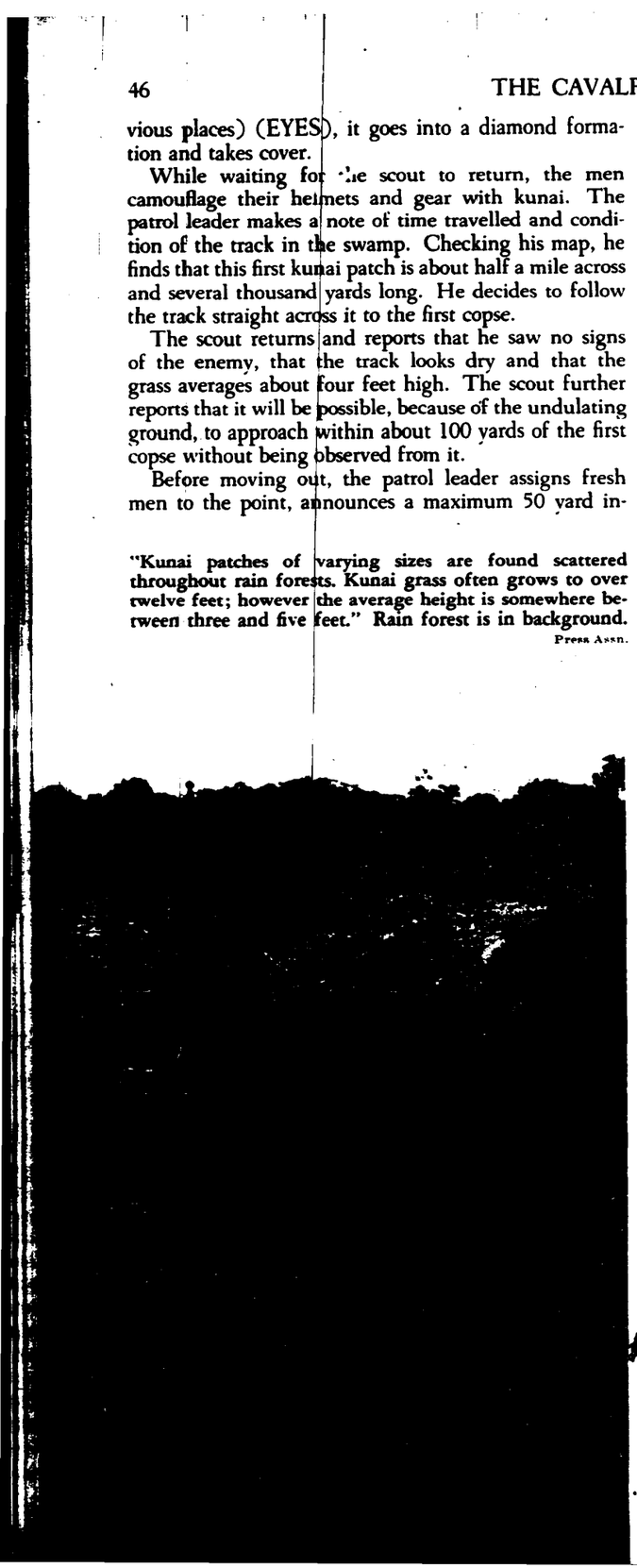
The patrol leader looks over the situation and dispatches one scout to a nearby kunai knoll from which he can observe the terrain and track ahead. The patrol is then moved off the track and upon reaching dry ground some fifty yards from where the track enters the kunai (nothing would be gained by leaving footprints in ob-

vious places) (EYES), it goes into a diamond formation and takes cover.

While waiting for the scout to return, the men camouflage their helmets and gear with kunai. The patrol leader makes a note of time travelled and condition of the track in the swamp. Checking his map, he finds that this first kunai patch is about half a mile across and several thousand yards long. He decides to follow the track straight across it to the first copse.

The scout returns and reports that he saw no signs of the enemy, that the track looks dry and that the grass averages about four feet high. The scout further reports that it will be possible, because of the undulating ground, to approach within about 100 yards of the first copse without being observed from it.

Before moving out, the patrol leader assigns fresh men to the point, announces a maximum 50 yard interval between elements and indicates their present position as a rendezvous area.



"Kunai patches of varying sizes are found scattered throughout rain forests. Kunai grass often grows to over twelve feet; however the average height is somewhere between three and five feet." Rain forest is in background.

Press Assn.

As the patrol approaches the first copse, it is halted and observation positions are selected and occupied. The copse looks innocent, so the scouts approach it under constant cover from a part of the patrol, while the remainder of the patrol continues observation to the rear and flanks. Observation (EYES) in kunai areas usually concentrates on such items as sudden flushing of birds, the bending of grass against the wind, and close scrutiny of areas in which the terrain has tactical possibilities.

The scouts enter the copse and on finding it clear, signal the patrol forward. Following the same routine of observation and reconnaissance of all suspicious areas, the patrol approaches the main rain forest shortly before sundown.

After the scouts have investigated the edge of the forest, the patrol takes up a position about fifty yards down-wind from where the track enters the forest. While the men are changing their camouflage from grass to tree or plant leaves and taking advantage of their down-wind position to enjoy a smoke, the patrol leader makes the necessary notes on time-traveled, condition of the track, etc.

Ten minutes later and with the best scout back in the No. 1 point position, the patrol resumes its march. The diamond formation is continued until vegetation necessitates closing in to a single-file formation. As the track becomes more tortuous the interval between elements is necessarily cut down.

Suddenly, the No. 1 point man halts the patrol and signals for the patrol leader to come forward. Ahead are footprints on the track. The patrol is advanced and goes into an all-around defensive position while the patrol leader and his best "tracker" inspect the footprints.

The prints are found to have been made within the past hour. Whoever made them came down the track and then turned back, deliberately smudging some of the footprints. Probably seven or eight men were in the group. Some of the prints look like American GI shoes. A careful search (EYES) is made in the weeds beside the track and a half smudged print of a shoe with a split toe is found. This print, of course, tells the whole story. The Jap likes our shoes. He probably had acquired some from our dead, came down the track and then as he back-tracked, deliberately smudged the Jap shoe prints.

There is no indication of hurry, so it is doubtful if the Nip turned back because he sighted our patrol. More probably, he was ready to bivouac for the night and is somewhere up ahead in the rain forest off the track. It is pretty much SOP for patrols in a thick rain forest at dusk, to confuse their tracks, then go into the bush for several hundred yards and get a good night's sleep knowing that they cannot be tracked down in the bush after dark.

"Thickness of vegetation frequently cuts down all visibility to a matter of feet which means that movement on tracks is subject to ambushes or mutually unplanned face-to-face contact." Here a patrol pushes through a New Britain jungle in pursuit of Japs. The patrol leader carries a hand grenade as well as a submachine gun.

Press Assn.

Our patrol leader glances at his watch and notes that he has about an hour and fifteen minutes of daylight left. The adjacent terrain is favorable, so he back-tracks his patrol and, after making a false entrance on the up-wind side of the track, sets up a bivouac some three hundred yards down-wind from the track.

The leader then dispatches four men to spend the next forty minutes seeing if they can learn anything about the enemy patrol. They return just as darkness is falling, and report that they located the enemy patrol. It is bivouacked about two hundred yards up-wind from the track, our sub-patrol had smelled their cooking fire (NOSE). Our men could not get close enough to see how many they numbered, but from their talking, estimated about ten (EARS). The track up ahead bears to the right, skirts a hill and then enters a stream bed. . . .

This is a good place to discontinue our illustration of the practical application of eyes, ears and nose in jungle patrolling. Any further details would be mere variations in application except in case of special developments which are beyond the scope of this article.

Night Patrolling

A couple of points should be mentioned about night patrolling. While ears are important, in night jungle work, they require careful training and must be used in conjunction with eyes.

To begin with, the jungle at night is never quiet. A "deathly stillness" would be unusual, suspiciously so. Normally, the jungle at night is a symphony of bird calls, humming insects, the croaking of frogs, cricket "scratchings," the startling crash of palm fronds, etc. On patrol or outpost, a man must know this "symphony" and must be able to detect the faintest variation in it. But knowing the "symphony" is not enough for jungle night work. You must also know how to move through the jungle without causing more than a minimum of variation in night noises. Herein, night vision becomes important.

Probably the most important thing to remember about night vision is that it takes your eyes about a half-hour in darkness to reach a maximum efficiency. It must be borne in mind, however, that the slightest light (even the pale reflections of a radium watch dial) temporarily impairs night vision. Lastly, it is easier to see an object at night if you do not look directly at it but rather to one side of it.

All of these points are "minor details." Yet, in jungle patrolling, magnitude of minutiae asserts itself via eyes, ears and nose, in tipping the scale between success or failure.

"Patrols assume a greater importance in the jungle than elsewhere, and men sent out on such missions are examined beforehand to make certain that they are in top physical condition before assuming a hazardous mission.

"To add to the difficulties of jungle fighting, much of the terrain in which the patrols move is virtually uncharted, and maps are frequently of little use. The ground has to be fine-combed a little at a time so that no Jap machine-gun nest is passed undetected."—Report of an observer with the Americal Infantry Division, Bougainville Island, May 1944.

ON THE ROAD TO ODESSA

Sovfoto

Soviet cavalry moves cross-country, over rivers and swamps, through woods and appears suddenly in the enemy's rear or flank. Men are armed with tommy guns, automatic rifles and pistols. Cavalry led the rapid advance on Odessa.

Kuban Cossacks*

by Major V. Kirsanov

THE successful advance of the Red Army's main forces – especially infantry and artillery – upon Odessa and the Dnestr was greatly facilitated by the skilful maneuvering of the Kuban Cossacks. In spite of the spring thaws and rain-sodden roads and fields, they advanced hundreds of miles, carried broad and swollen rivers in their stride, and fought always in masterly style. Often after swimming a river they would appear suddenly in the enemy's rear, cut his lines of retreat and, charging the retreating columns, hew or trample down all who refused to surrender.

As a rule, when dislodged from their intermediate lines, the Germans and Romanians tried to form a column and resume their hasty retreat westward. But the Cossacks, following hard on their heels, gave them no chance to consolidate, but penetrated again into the rear, split up the enemy forces, and disrupted coördination between them.

The dashing attacks by cavalrymen, in their black shaggy capes with their crimson hoods streaming behind them, struck terror into the heart of the enemy. And always the enemy's attempts to break contact with the pursuing Cossacks failed. They appeared everywhere, and nothing was able to stop their impetuous onslaught.

Pursuit

When the enemy's defenses were first breached and he began to retreat, the Cossacks broke through into the open and sped forward. In spite of the impassable roads, there were days when they advanced as much as 30 miles.

On one occasion, Captain Eugene Kornilov's Cossacks, after executing an outflanking movement, dislodged the enemy from two large villages lying respectively to the left and right of an important highroad. The Germans took advantage of the gathering dusk to form a column and speed westward. Kornilov guessed the enemy's intention and proceeded along a parallel country road to cut him off.

At dawn the Cossacks swerved onto the highroad near the village in which a German garrison was stationed. They divided into two detachments which planned to attack simultaneously both the garrison, peacefully asleep in the village, and the column trying so hard to escape pursuit. One detachment of Kubans, charging into town at the gallop, appeared so unexpectedly that the officer on duty had no time in which to give the garrison an alarm, and most of the German soldiers and officers surrendered. Meanwhile, the other detachment just as boldly attacked the column still on the highway and worn out by the night's march. After a brief and vigorous fight two enemy battalions were demolished.

Continuing their advance, Kornilov's Cossacks by midday reached a town and railway station where a large enemy force was concentrated. Knowing the value of surprise, Kornilov decided to attack straight from the march. While the two-hour battle for the railway station was proceeding, another cavalry detachment burst into the town from the west. The Germans made a desperate stand and hurled panzers and self-propelled guns against the Cossacks. But it was too late. The Cossacks had the initiative. They split up the enemy's forces and destroyed them piecemeal.

Having rested their horses after this battle, Kornilov's Cossacks again sped forward, and emerged in different places on roads along which the enemy was still retreating. Again attacking enemy columns and transports, the Cossacks compelled the Germans to abandon arms, ammunition, and motor vehicles.

A Tank-Cavalry Raid

In their bold raids into the enemy's rear, the Kuban Cossacks often coöperated with tanks. One day scouts reported that at a certain railway station the enemy was loading tanks, ammunition, and equipment onto trains. Soviet tanks and cavalry set out together on a joint raid. A few hours later, the tanks reached the station, opened fire on the trains and threw the Germans into complete confusion. At this juncture Lieutenant Anatoly Kozlov's cavalry squadron suddenly invaded the station and began hewing down Germans. Many of the German soldiers opened fire with tommy guns and machine guns from behind the trains. Thereupon the cavalrymen dismounted and, following behind the tanks, soon cleared the station and captured much rich booty.

From the Dnepr to the Dnestr

The march of the Kuban Cossacks from the Dnepr to the Dnestr abounded in instances of supreme courage and daring. They advanced day and night and often engaged the enemy straight from the march. Wielding their sabers, they often assaulted enemy strong points on foot; and they also attacked enemy under cover of their own tanks.

The Germans learned at a heavy price that Soviet cavalry is a formidable force and that the sudden appearance of Kuban Cossacks on the roads of war throws the enemy into complete consternation.

*By cable to *The Cavalry Journal* from War Department, U.S.S.R., Moscow, May 24, 1944.

General Pliyev's Cossack Guards*

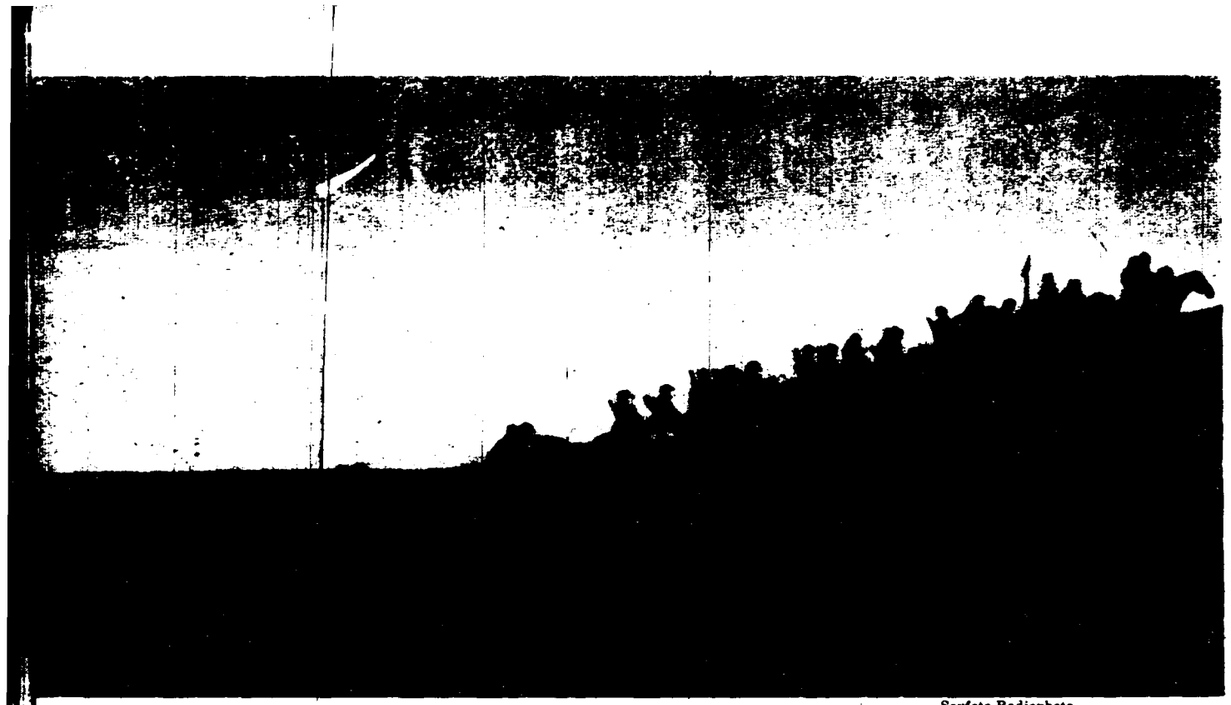
by Bayev

DURING the whole course of the war, cavalry probably never had to display such activity as during the Soviet advance through the Ukraine. As enemy

*By cable to *The Cavalry Journal* from War Department, U.S.S.R., Moscow, May 6, 1944.

Lt. General A. Pliyev, commander of a unit of Cossacks from the Don steppes, earned an outstanding reputation in the Red Army for victories gained against the Germans on the road to Odessa. His rapid pursuit frustrated the enemy.

Sovfoto Radiophoto



Sovfoto Radiophoto

A Cossack unit on the march. Its tireless members can ride for many hours without rest and often go into battle straight from the march. Sudden appearance of cavalrymen in enemy's rear or flank creates panic among enemy troops.

defenses crumbled everywhere, mobile forces were afforded broad scope for action. Cavalry forces under General Pliyev, Hero of the Soviet Union, particularly distinguished themselves in a number of widescale offensive operations.

When the enemy's defenses were broken and his troops began to withdraw, General Pliyev's Cossacks proved their worth and excellent training in their hot pursuit of the routed German Sixth Army. On the muddy spring roads, in coördination with other units, they dislodged Germans from intermediate positions, and inflicted heavy losses in men and arms.

Encirclement

During these battles, cavalry displayed model coöperation with infantry. When Soviet infantry units enveloped Germans in a half circle the Cossacks, dealing a stunning blow from north to south, split the enemy force in two. Despite the strength and numbers of the German force and despite the support of the Luftwaffe, isolated German divisions sustained heavy casualties and soon ceded their favorable positions.

Mounted troops fought with particular foresight and daring during the encirclement of Germans in the area of Bereznegovatoye. Retreating in columns, the enemy attempted to shake off the Soviet troops, but the Soviet units caught up with the Germans and forced them to take up positions for defense. Meanwhile, the horsemen under General Pliyev emerged in the rear of the Germans and, cutting off their retreat, completed the encirclement.

After that, the German command decided to break through the Cossack lines and, under cover of tanks and self-propelled guns on the east and northeast, moved its main force westward and southwestward. But in both directions, the Germans encountered deadly fire from guns and mortars, particularly from self-propelled guns. The enemy was stopped and undertook a number of desperate counterattacks but without avail. The German grouping could not get out from the ring however much it tried. Only some staff officers and small groups of soldiers managed to escape through steep ravines during the night, and they abandoned all of their armaments in doing so. The main force was annihilated.

German divisions established northeast of the village of Bashtanka met a similar fate. There the paths of retreat were also cut. The Germans, forming in columns, attempted to force a gap with mobile detachments. A fierce battle raged all night. Enemy mobile detachments and motorized forces made one final effort to force a passage to a railway in the general direction of Nikolayev. Enemy units were particularly active in an effort to break through to the village of Shevchenkovsky. This attempt, too, failed in the face of fire from Cossack guns, machine guns, and tommy guns.

While the Germans launched their counterattacks, several cavalry units moved up to the village of Shevchenkovsky unobserved and there established themselves. In the morning the German advance units were allowed to pass unharassed, and the main force columns following in their wake fell unaware into the trap.

Then began the extermination of the enemy with all means at hand. The Germans counterattacked in various directions but to no avail. Cossacks, supported by tanks and infantry, dealt flanking blows, then split the enemy and annihilated isolated groups. The commanders of two German regiments that had succeeded in forcing a passage westward, hurried to inform their command that they had escaped the ring, but in the approaches to Ingul they were attacked from the rear by Cossacks and annihilated.

Pursuit

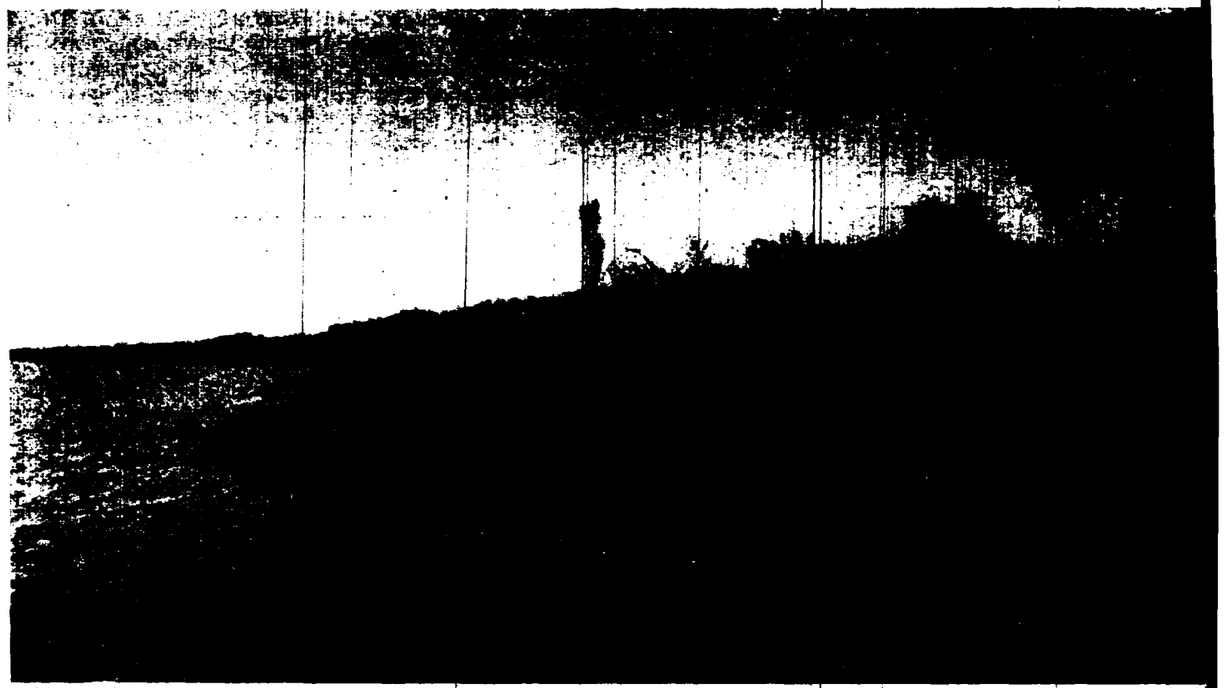
Soon after this incident the Cossacks again displayed their particular fighting qualities. In their main rôle of pursuit, they frustrated the enemy's attempt to establish himself in intermediate positions, particularly in water barriers, and forced the Germans to retreat to Odessa.

Interesting in this respect were the battles fought on March 31st. Carrying both artillery and mortars, General Pliyev's units galloped to Berezovka. The Germans called in their infantry, tank, and artillery reserves, which established themselves in strong points along the highway. Stubborn fighting developed, and the Germans, supported by air force undertook a number of counterattacks, but the Cossacks' increasing pressure dislodged the enemy before the end of the day. The Germans, falling back to Coppice, surrounded the railway embankment in a half circle and opened up a barrage of fire. Following this, one Soviet unit by-passed Coppice and dealt a blow in the German flank. Stunned by this unexpected assault, the Germans left all of their guns and fled. During this fighting around Berezovka, the Germans sustained heavy losses in killed and prisoners.

Developing this success, the units of General Pliyev advanced approximately 20 miles in 24 hours and emerged on new German positions. Although the rugged terrain was favorable for the German defense, these positions had to be taken. The Cossacks devoted all of their efforts to bringing up artillery, ammunition, and fuel over poor, muddy roads. The German defenses were soon broken, and the Cossacks, fighting incessantly in rain and sleet, continued their advance to the southwestward. The plan was to emerge on the Dnestr, envelope the enemy on a wide front, and cut off the German troops in Odessa.

On one sector during this advance the Cossacks fought their way to the rear of the Germans and appeared on the river opposite a big village. The squadron under Captain Romanuka forced the river and massed in a ravine without being observed by the enemy. There the Cossacks dismounted and wriggled up to the village, which they discovered was occupied by the enemy. Romanuk's men opened fire, and fighting developed. Meanwhile, the whole unit of Cossacks forced the river and after making a circuit of the retreating enemy column, dealt a decisive blow from the rear. The raid was so sudden that not even the German staff had time to get away, and all officers were taken prisoner.

Cossack on the march halt to water horses. These mounted units often force a river to deal decisive blow to enemy's rear.



Sovfoto Radiophoto

Cavalry in This War

by Lieutenant Colonel Benary,
German Army, Retired

IN recent weeks, the official German communiqués have repeatedly mentioned encounters with powerful formations of Soviet cavalry as well as successful operations by cavalry units of our own (German).

Cavalry in World Armies After World War I

After the First World War, in view of increasing motorization, debate was rife regarding the justification of the further employment of cavalry. England, except for a few squadrons of cavalry in her home army for parade purposes, had given up cavalry completely in favor of motorized troops. France was engaged in transforming her cavalry regiments into motorized units (dragons portés). Soviet Russia, who, in her revolutionary wars and her Polish campaign, had had good results with her mounted forces, clung to powerful cavalry formations. Poland and Romania followed her example.[1] Italy chose a middle course. Germany, by the treaty of peace which had left her relatively powerful cavalry forces (because they were allegedly harmless) but which had imposed close restrictions on its motorization, found herself with her hands tied.

After again obtaining her military freedom, Germany organized the mounted units from the hundred-thousand-man army into cavalry regiments, as a foundation for the reconnaissance battalions that were to be created in case of mobilization, and these, combined together into a division, constituted a sort of army cavalry for employment on the eastern front. Nowhere did there exist any doubt that the days of mass attacks were past, that from now on it was the mission of the cavalry to get its weapons in a hurry over every sort of terrain and into action at the decisive spot.

German Cavalry in World War II

And so, in the present war, cavalry has in truth come up to the expectations that were entertained with regard to it in those places where—as in the nearly trackless expanses of the eastern theater of operations[2]—marshy and brush-covered terrain, sandy steppes, and snow-covered areas render the advance difficult for its sister arms, where rivers and streams constitute serious obstacles to these other arms yet can be crossed without bridges or ferries by the cavalry, by swimming or fording. *It was especially to the German cavalry division that we were indebted for the quick crossing of the Narev, the occupation of Holland, and the blockading of the fortified area of Paris on the west at the beginning of the war.*

The reconnaissance battalions and the cavalry platoons of the infantry regiments, by close-range and combat reconnaissance, were able to a great degree to complete the picture that had been obtained of the enemy by means of air and motorized reconnaissance. Also a few minor attacks were successfully carried out by them all alone.

Romanian and Italian cavalry units also have done outstanding work in the eastern theater of operations. Italian cavalry even carried out a major attack on Soviet infantry.

Soviet Cavalry

The Soviets have made very heavy use of their cavalry, and made a great deal over it. The Swedish review, *Svensk-Ryttartidning*, published recently, in an interview with a Soviet cavalry officer, noteworthy details regarding its organization and methods of fighting. We read that "the cavalry of the Soviet Union has at its disposal, in addition to the usual light and heavy weapons, also its own tanks, planes, armored trains, artillery, and engineers. Its reserves are trained, even in premilitary courses for youths, in the peculiarities of the branch of service in which they are to be employed in the future. They come mostly from the rural districts; hence have been used to horses from their childhood up.

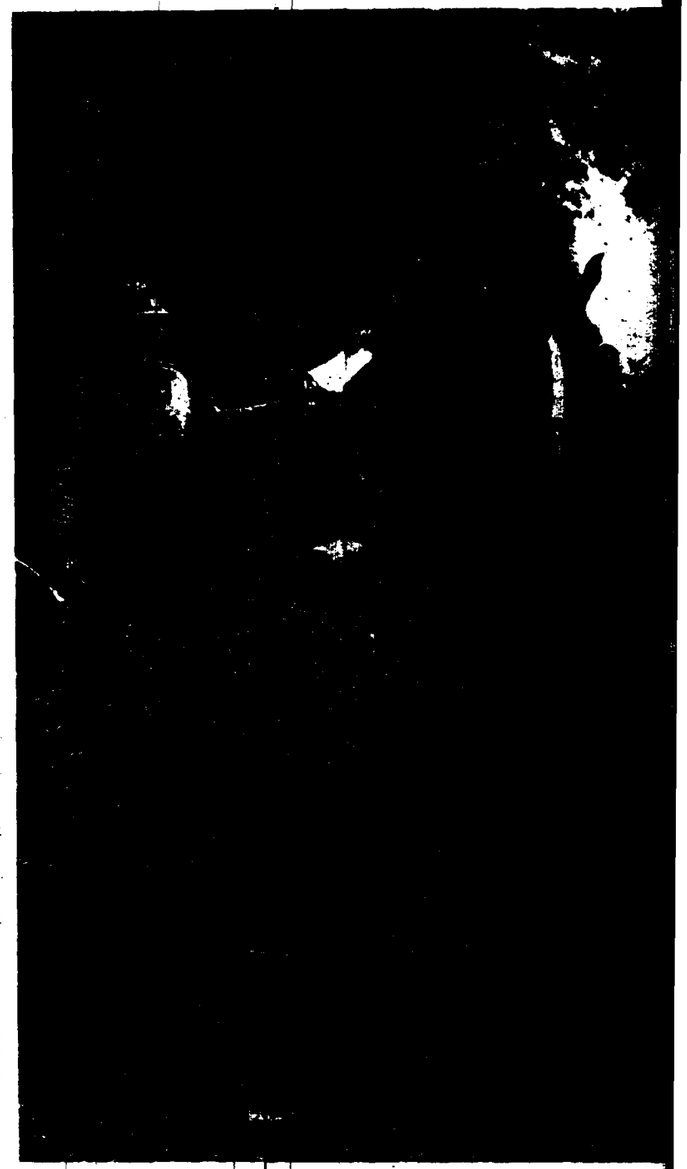
"The horses of the Soviet cavalry may at times not possess a pleasing appearance, but they are inured to the inclemencies of the weather, possess great endurance, and are capable in every respect of fulfilling the task assigned to them. They are trained to remain standing where the riders place them. As soon as the rider has gone into position on the gallop and has separated himself from the horse by a leap over its head, his horse lies down in the protected position *behind* him (no longer, as formerly in the case of the Cossacks, in front of him as a sand bag and carbine rest). If the horses are to seek the shelter of cover farther to the rear, they are assembled loose back of the front and driven to the rear by a soldier who acts as a herdsman in the manner they have been accustomed to all their lives.

"The Soviet Field Regulations state with regard to the missions of the cavalry: 'The strategic cavalry is able to carry on the fight independently. It is thoroughly schooled to coöperate with infantry, tank, and air formations. Attack in any situation is the guiding principle of their action. On the flanks and in the rear of the enemy is where they should preferably be employed.'"

The Swedish review forgets that the Soviets have been able to employ their cavalry successfully only where terrain and weather were particularly favorable—where the cavalry plunged into areas in which the German points of resistance were widely separated. In those cases where they charged powerful formations, especially armored formations, they came out the losers.[3]

Present Increase in German Cavalry

The combat strength of the cavalry at the disposal of the armies of Greater Germany, with which Cossack units have associated themselves, has been increased during the course of the present war. Their equipment with machine guns is about like that of the infantry regiment. In the National-Socialist Cavalry Corps, youths who are familiar with horses are being trained, and with the winning of the diploma the way is opened for them to enlist as volunteers in the cavalry. Future officers are trained at the Cavalry School. In the breeding of horses, efforts are being increased, on the basis of the lessons learned on the eastern front, to toughen the young animals.



A German cavalry horse captured in Normandy is immediately utilized by American Rangers. Undisclosed numbers of German cavalrymen and mounts were surprised by the sudden descent of paratroops. Germany has been increasing her cavalry as a result of her experiences on the Eastern Front. Russians report, however, the Germans lack tactical conception for proper handling of large cavalry units.

U. S. Signal Corps Photo

Editor's Notes:

[1]Although Poland and Romania retained large cavalry forces, these troops were ill-equipped and trained only in cavalry tactics that were entirely inadequate for modern war. See The Cavalry Journal, page 8, January-February, 1940—Polish cavalry armed with lances and minus supporting weapons; also, "The Tank-Cavalry Team," January-February, 1944, which describes the development of modern Soviet cavalry tactics based on the principles of the Cossack *lava* and American Civil War *raids*.

*Reprinted by courtesy of *The Military Review*. Translated at the Command and General Staff School from a German article in *Münchner Neueste Nachrichten* 14 March 1944.

[2]See "German Cavalry in Russia, 1941"—a short account of German cavalry protecting the flank of an armored corps from the Bug River to the Pripet Marshes, The Cavalry Journal, May-June, 1943.

[3]Facts belie the statements in this paragraph. Soviet cavalry has been successfully employed in large numbers from the mountains of the Caucasus to the plains of the Ukraine and more recently the approaches to the Baltic. The first outstanding defeat of a German force in this war was the rout of General von Kleyst's First Armored Tank Army by Soviet cavalry under Colonel General Cherevichenko at the first battle of Rostov, November 28, 1941. Other similar operations of Soviet cavalry since that time are too numerous to list here. See "Soviet Cavalry 1918-1943," The Cavalry Journal, March-April, 1943. See editorial, same issue. See "Encirclement at Stalingrad," July-August, 1943; also "On the Road to Odessa" and "Vital Rôle of Soviet Cavalry," this issue.

Cavalry on Soviet Southern Front

MOSCOW*, July 19—By M. S. Handler, United Press Staff Correspondent—*Marshal Ivan Konev's First Ukrainian Army, pouring through a 124-mile hole in Germany's southeastern defenses, outflanked the fortress of Lwow from the north and prepared to smash across the Bug River into the puppet Government General of Poland today in a new offensive aimed squarely at the Reich.

Marshal Konev, taking over the First Ukrainian Army, hurled his massed tanks, cavalry, artillery, and infantry against the outer defenses of Lwow four days ago on a 124-mile front.

German prisoners expressed amazement at the comparative ease with which the Soviets reached the "Prince Eugen Line" along the Bug.

Breaking Through German Rear Defenses

by Major A. Bukirev, Red Army

WHEN retreating under the pressure of the Red Army, the Germans fight rearguard actions, accompanied by frequent counterattacks. At the same time they make every effort to strengthen their rear defense lines, at which they hope to stem the advance of the Soviet troops. To these lines they withdraw their main forces in order to prepare them to give decisive battle.

The Germans as a rule construct their rear defense lines beyond a river, or on a ridge of hills in front of a river. Such a line, if the enemy is allowed time to perfect it, may easily become a main defense line, behind which new rear lines are built. To break through a rear defense line demands considerable effort on the part of the attacking forces.

Information and Reconnaissance

Long before the enemy's rear defense lines are reached, the attacking side must possess information regarding the character of the defense. Considerable knowledge may be gained from aerial photographs and from the examination of prisoners and deserters. This, however, is not enough. Recently, on one sector of the west bank of the Dnepr, a raid was organized into the enemy's rear. The tank troops which took part in the raid, besides inflicting heavy losses on the enemy, brought back valuable information regarding his defenses.

When the Soviet troops reached the River Boromlya they encountered stiff resistance at a prepared enemy defense line. This did not come as a surprise, but in order not to allow the enemy time to consolidate his position, and also with the purpose of reconnoitering his defenses, day and night reconnaissance was instituted. The reconnaissance parties included artillerymen. In addition, tank groups were detailed to conduct reconnaissance in force with the purpose of ascertaining the disposition of the enemy's antitank guns. The Germans got the impression that the Soviet troops intended to attack their positions straight from the march, with the result that they disclosed their fire system and the location of their tank and antitank reserves.

From continual but brief attacks, reconnaissances and sorties, combined with constant air action, full information was obtained regarding the enemy's position and strength, and at the same time he was prevented from perfecting his defenses. Only after gathering all necessary data did the Soviet troops attempt to break through the enemy's rear defense line.

Fire Power

Main reliance in effecting the breach was placed in the fire weapons. How carefully and thoroughly fire was planned and prepared determined how swiftly and to what depth the infantry and tanks would be able to penetrate into the enemy's defense positions.

When numerous targets have been reconnoitered, the attackers are liable to the temptation of attempting to neutralize all of them. In this, however, economy and restraint are advisable. It is impossible to neutralize absolutely every target. Fire must be so organized as to destroy the main link in the defenses, and the rest will collapse in due course. Fire should be concentrated on the main direction of attack. It must be borne in mind that scattered fire is like striking with the open hand, instead of the closed fist.

In the case of the break-through of the German's rear defense line on the River Boromlya, the artillery fire was organized as follows. In the direction of the main line of the contemplated attack artillery support groups were formed—each, one to two regiments strong. They were assigned to the infantry and tank regiments which were to effect the break-through. Other groups were formed for counterbattery fire. In addition, every divisional commander taking part in the main attack had an artillery reserve of his own, which was disposed where counterattacks by enemy tanks were most likely.

While in the period when the enemy's fire system was being ascertained, main reliance was placed on the vigorous action of small bodies of infantry and tanks, but when it came to the actual break-through, artillery became the chief factor. The weight of artillery fire made it possible to smash the adversary's defense lines with the least loss of lives and the least expenditure of time.

Close and Continued Support

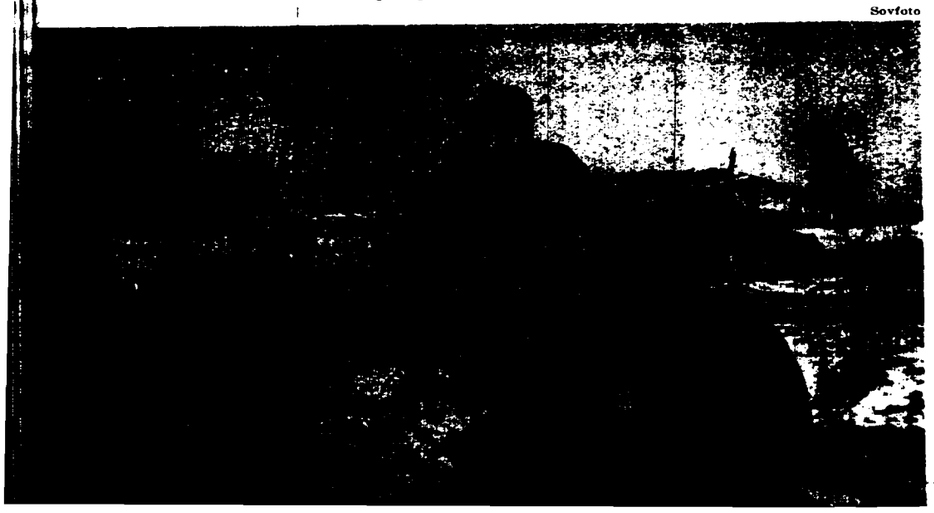
After the first line of defense was breached, half of all the battalion, regimental and antitank guns were rushed forward to the line reached by the tanks and infantry. The other half, together with the 120mm mortars, supported the infantry with fire from position.

The guards mortars, which had taken part in the artillery preparation, were then assigned to the divisions operating in the line of the main drive. When the next defense line was seized, all the artillery was rushed forward, and part of it placed on the flanks.

It should be remembered that the artillery had to force a river, mostly without regular ferrying matériel. Accordingly, even when the battalion guns were being transferred across the river, half of them at first remained in their former positions and maintained fire from there.

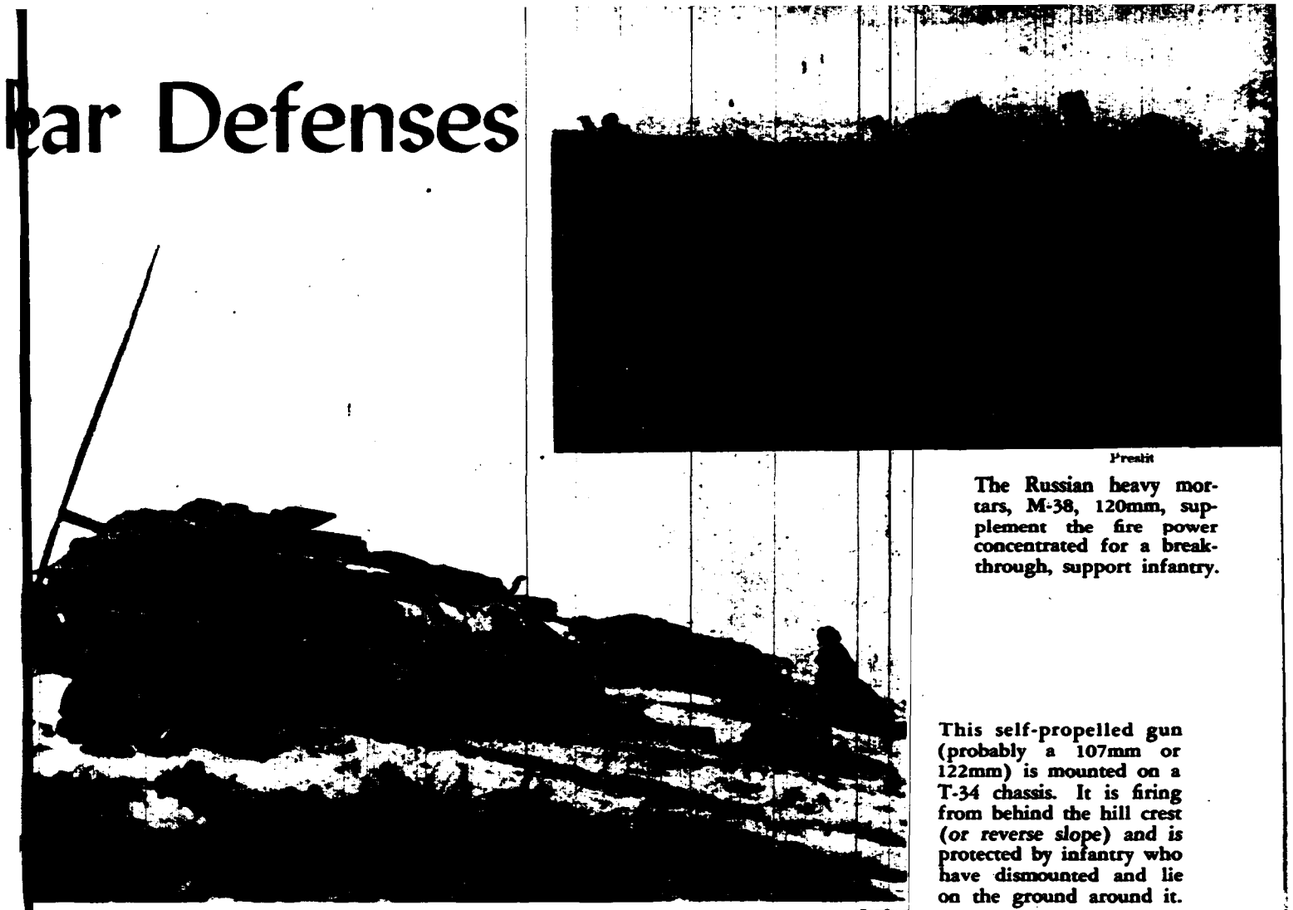
When breaking through a rear defense line, it would be futile to hope that all of the enemy's artillery can be silenced. This would require too much time and means. The important thing is to neutralize those batteries which the attacking forces are most likely to encounter when penetrating into the enemy's positions. The commander, therefore, must dispose his artillery accordingly.

In the case in point, the enemy's guns maintained heavy fire at the tanks and infantry, which had broken into his positions, but it was unable to prevent the widening of the breach. A Soviet regiment of destroyer guns moved forward to the edge of a wood and opened direct fire at the enemy's batteries. Subsequently, it moved forward close on the heels of the tanks and continued to take part in the advance. In particular, it facilitated the seizure of a large inhabited point.



Sovfoto

This new armored reconnaissance car is a cross between the German *Horch* 7-wheeled car and the Russian *Bronieford.* A local inhabitant points out to the Red Army reconnaissance sergeant the route taken by Germans as they fled.



Prestit

The Russian heavy mortars, M-38, 120mm, supplement the fire power concentrated for a break-through, support infantry.

Sovfoto

This self-propelled gun (probably a 107mm or 122mm) is mounted on a T-34 chassis. It is firing from behind the hill crest (*or reverse slope*) and is protected by infantry who have dismounted and lie on the ground around it.

Sovfoto

This new 45mm M-42 antitank gun is a longer version of older M-32 and M-37 with very powerful propellant charge. As a battalion weapon for direct infantry-cavalry support this gun replaced the 57mm M-41, which was too heavy to manhandle. The higher velocity of the new 45 makes it as effective as the 57, while it is light enough to manhandle. Such mobility is effective in a break-through.

Conclusion

What, then, are the main conditions for the successful and swift break-through of enemy rear lines? (1) *The first essential is timely (beginning at the distant approaches) reconnaissance to ascertain the nature and peculiarities of the enemy's defenses.* (2) It is of the highest importance to maintain vigorous action by both ground and air forces to prevent the enemy strengthening his rear defenses. (3) No less important is massed artillery fire at the moment of the break-through. (4) Lastly, the artillery must be decentralized in proper time to enable it to accompany the attacking forces on wheels.

The break-through can be consolidated effectively only if the artillery does not lag behind the infantry. Much depends on the initiative of the artillery officers. A mortar regiment commanded by Major Kuznetsov ran out of motor fuel. To await until supplies arrived would entail a loss of valuable time. Kuznetsov swiftly switched his regiment from mechanical to horse draught. Then, when fuel came up, the lorries caught up with the mortars and again took them in tow.

As in all operations, the chief factor of success in breaking through rear defense lines is the time element. To prevent a rear (or intermediate) line from being turned into a main defense line, the attacking forces must be supplied properly with transport, fuel and ammunition, so that during the action itself not a minute is wasted.

Correcting Artillery Fire from Tank*

by Senior Lieutenant G. Sidorov

A SOVIET heavy gun battery was ordered to cover the advance of a mobile detachment consisting of motorized infantry, cavalry, and tanks. The enemy's main forces lay on the farther slope of the hill, only the crest of which could be seen from the Soviet position. Consequently, it was not possible to correct the fire in the usual way from an ordinary observation post, as the enemy's forces beyond the crest were invisible, so it was decided that the observation post in this battle be arranged in one of the tanks.

The commander of the tank detachment placed a tank and its crew at the disposal of the gun battery. Before going into action, the battery commander acquainted himself with the tanks optical sights and learned to use them while on the move. He then made another careful map of the terrain. Fire would have to be corrected by wireless, so he arranged a meeting between the artillery wireless operator and the tank's operator. They carefully checked their sets and came to an agreement concerning wave lengths and call signals.

Before the battle began the gun battery took up its firing position, and the commander climbed into the tank and drove forward along with the advancing troops.

When the tanks reached the crest of the hill, the Germans opened heavy artillery fire. The whole battlefield was open to view as if it were in the palm of one's hand. A hostile millimeter battery was firing, so upon orders of the battery commander the tank commander stationed his machine at a spot suitable for observation. From there coördinates were taken of the German battery and the artillerymen were ordered to open fire. The battery wireless operator had no difficulty in understanding the command, and the guns opened fire instantaneously. Shells struck to one side of their target, so the gun crew was ordered to make a .75 turn, and this time shells hit their mark. The battery fired 36 rounds in quick succession. Nine enemy guns were destroyed, and the remainder ceased fire. Soviet infantry then dashed forward, and within a few minutes captued the enemy's positions.

In this battle, it was possible to maneuver the artillery fire far more quickly and effectively than when fire is corrected in the usual way from a stationary observation post.

*By cable to THE CAVALRY JOURNAL from War Department U.S.S.R., Moscow

Tank Assault in Swampy Terrain*

by Major P. Slesarev, Red Army

Soviet forces ordered to defend lines in the vicinity of an inhabited point found that the most advantageous area for tank maneuvers lay to the northwest, near a height. Because of swamplands discovered on both sides of the hill the main blow of the tank and infantry units was aimed straight at the height.

After three days of battle, the German lines were still not pierced. The Germans, expecting the frontal attack, had concentrated their main forces, including six "Ferdinands," in front of the hill and cut lanes on slopes toward the woods in order to facilitate their defensive operations. From the fire of the Ferdinands, it was clear that enemy resistance could not be broken by the frontal attacks.

Lt. Colonel Losik personally reconnoitered the German flank positions and discovered another passage through dried out swamps at the right of the village. The decision was made to launch the attack in this direction. After the minefields were rendered harmless, the tank regiment got underway at dawn on the fourth day of the battle. Then the tanks, accompanied by an infantry regiment, suddenly broke through the German lines, wiped out several companies of infantry and, after a rapid advance, approached the village from the northwest. Russian tankmen opened fire on the only road over which the enemy could retreat.

Realizing their perilous situation, the Germans hauled their reserves, consisting of seven Tiger tanks and an infantry battalion, into a counterattack. The Soviet tank crews destroyed two of the Tigers, and, by accurate fire, wiped out 150 Germans and forced the rest to flee for their lives. This bold move proved to be the turning point in the engagement. The enemy defense lines rapidly collapsed.

Under cover of night, the Germans fell back and moved across the bridge west of the village. Toward morning, the withdrawal became a panic-stricken retreat, with many Germans trying to swim across the stream in their flight. In close pursuit, the Soviet tanks raised havoc among the demoralized enemy troops.

It is interesting to note that Lt. Colonel Losik did not lose a single tank throughout the battle—largely because the tanks delivered such a crushing blow where the enemy least expected it.

Another example of woods and swamps being utilized for a surprise tank offensive occurred when the Germans transformed the area around the village of Lyanpo into a formidable center of resistance. Situated beyond a wide swampy stream, the village could be entered only by a country road about one kilometer south, but the road was heavily guarded on both sides by concentrated artillery, trench mortars and tanks. Realizing that a tank charge on the road was bound to fall through, the Soviet commander ordered that the weakest link in the enemy defense be found.

A detachment of Soviet sappers began to build a bridge near the road to attract the attention of the Germans, while other sappers laid a log road across the peat bogs and stream east of the village. When this passage was ready, a group of Soviet tanks shammed an attack along the country road, while the main body of the tank columns moved across the swamp route.

Sighting the Soviet machines on the highway, the Germans brought their artillery from other sections and left their flanks unprotected. The Soviet command expected this move on the part of the enemy, so when the Soviet artillery engaged the German batteries in a dual, the Russian tank regiment crossed the stream and smashed through the enemy's flank and rear positions. Inside half an hour, the Germans were routed; and the Soviet tanks, pursuing remnants of enemy units, advanced more than twenty kilometers that day.

Russian trestle bridge, similar to one built for tanks in swampy terrain, is much used and preferred to ponton equipment because of the heavy weights carried. This gun is a heavy 152-mm M-39 gun-howitzer.

Sovfoto

*By cable to The CAVALRY JOURNAL from War Department Press, U.S.S.R., Moscow.

Interaction of Aircraft and Tanks

by Colonel M. Kotelnikov, Red Army

ONE of the most complex aspects of the use of aircraft in battle is the organization of interaction with mobile groups of land forces. It is not surprising that commanders of all arms should sometimes criticize the operations of supporting aircraft on the grounds that they are "insufficiently clear." These same commanders have an incorrect attitude toward aviation and its potentialities. Their criticism springs from their own ideas and from failure to prepare thoroughly for coördinated action by all arms.

The organization of interaction is a complex business because, while the land forces are being sent into a break-through, the situation changes very rapidly, and extreme flexibility is needed in the leadership of air units. Tactics have to be arranged not in dispersal, but immediately over the field of battle.

The Test

If at the first stage of an air attack the aircraft act as a whole mass against previously studied targets, then at the second stage—in support of the infantry and tanks in the depth of the defense ring—the necessity arises for artillery interaction on new targets which are obstructing a further advance. How quickly can these targets be destroyed? The value of the work of the air force depends on the answer.

At the second stage of an air attack the planes must appear over the field of battle at the call of the commanders of all arms or of the tank commanders, and also on the initiative of the commander of the air unit. In order that the call of the land forces' commander can be answered, a certain time is necessary both to prepare and to fly to the area of operations. It is inevitable that after the land forces' commander has put through his request he must wait for air support.

In the battles at Orel an air unit ensured the break-through of the "N" tank unit and its subsequent operations deep in the enemy defenses. The battles lasted a fortnight. In this operation the Stormoviks did their job well, and were highly praised by the commander of the land forces. An analysis of their operations shows that they understood how to organize interaction with the land forces. It is worth while describing in some detail how this was achieved.

Combined Exercises Before Battle

Long before the operations began, the tanks and Stormoviks carried out combined exercises. The commands of both units collaborated in studying problems of administration, identification and methods of summoning the planes to the required spot. Special attention was given to target-spotting. By means of radio, rocket and tracer, the tank crews signaled to the planes the objects hindering advance. The Stormoviks, on their part, undertook to lead the tanks to their targets.

The joint work of "land" and "air" was firmly founded on radio communication between the staffs and between tanks and planes on the field of battle. This contact, well established during the exercises, made it possible to guide the planes during flight—a fact which later proved of great, even decisive, importance.

A reliable system of tank recognition was evolved. At one time, recognition depended on the inscriptions and other markings on the body of the tank. During exercises it became quite clear that this method was inadequate. In battle, the markings become soiled, and the explosion of shells and dust often makes it impossible for pilots to see the marking at all from a height. For this reason reliance had to be placed mainly on radio and light signals.

At first the tank crews could not get used to the speed with which the planes operated. The peculiarities of the plane and the conditions under which the pilots worked had to be made clear to them. Some tank commanders at first had a tendency to call up the Stormoviks themselves—a proceeding which would inevitably have disorganized matters. It was arranged that all calls should go only through the command point. After this, the Stormoviks struck where they were most needed.

Inter-Communication

Before the battle, an air operational group was attached to the tank unit. Its special function was to see that both arms worked together without a hitch. It was headed by an experienced commander, Colonel Semyonov. He had at his disposal an operational worker, an assistant to the chief of communications, and a highly experienced radio operator. This composition proved entirely satisfactory.

The commander of the tank unit and his chief of staff set aside two radio stations for the use of the air representative. One of these stations connected the operational group with the air staff headquarters, which was a long distance away. It was also used for calling up the Stormoviks and fighters.

Through the other radio station, contact was maintained with the planes. Through it the pilots were given their bearings and cross-bearings as well as full information on the air situation around the targets. Air representatives were constantly present at the command point of the tank unit and at observation posts.

Tasks of the Stormoviks

In the first phase of the battle, the enemy's first line of defense in the direction of the main blow was subjected to attack by the whole mass of planes. When the tanks had entered the breach, the Stormoviks switched over to ensuring their work.

The planes were called to the battlefield for preliminary softening of centers of resistance, and for extinguishing enemy firing points impeding the advance of the tanks.

Although the aerodromes were a considerable distance from the battlefield, the tankmen's requests were quickly met. Two or three groups of Stormoviks were always held ready for flight. It was impossible to rebase the Stormoviks nearer the front line, as there were no suitable landing fields in the battle area.

The effectiveness of the organization was amply proved in battle. On many occasions, planes had to be redirected while in the air. Often after the pilots were given a task and sent off in flight, the situation would change. If the tanks reached the target ahead of the Stormoviks, the planes had at once to be redirected and given a new task. This happened dozens of times, and in every case the redirection was successful. Not a single bomb or shell from the Stormoviks fell among the Soviet forces.

Coördination

At one stage, a great tank battle developed. The maximum number of planes had to be sent to the area. After the targets had been softened from the air, the Soviet tanks inflicted great losses on the enemy and occupied a heavily fortified resistance point, which the Germans had intended to hold. On nearly every occasion the actions of the air units produced a change in the situation, and at certain critical moments the Stormoviks opened a road for the tanks and led them to the attack. The scrupulous training in target indication gave excellent returns. As soon as the Stormoviks appeared over the battlefield, they were given signals from the ground by rockets, and by shots fired at the target from several directions by the tanks. This helped the pilots to find their targets quickly. The radio, as always, was an indispensable means of communication. Commands were given by radio not only from the observation post, but also by tank commanders actually on the battlefield.

Besides working directly on the battlefield, the Stormoviks hurled forestalling blows at the enemy reserves. For this purpose a constant reconnaissance was maintained in the interests of the tank unit. The Stormoviks were in a better position than the army and front intelligence to examine the enemy rear for the tanks in the direction of the drive.

On one occasion an enemy group of 100 machines was discovered pulling itself together. The Stormoviks struck from the air, and the tank commander strengthened his "fist" in good time. The enemy was unable to regain the initiative.

On another occasion, Stormoviks on reconnaissance noticed German troops withdrawing. The tank commander lost no time in making use of the favorable situation. He increased his pressure and prevented the Germans from consolidating on the next line of defense.

Throughout the operations, the flying personnel listened constantly to the voice of "the ground," and carried out its command to the letter.

Certainly, it would have been ideal to have had interaction in conditions of uninterrupted air attack on ground targets. But for this, a huge number of planes would have been needed, and even then it would not always have been worth while. The experience of the latest battles shows that even comparatively small forces can get results when they are used with skill.

Soviet attack planes are shown here annihilating a German tank column. Note smoke from tanks given direct hits.

Tactical Air Operations

by Colonel H. A. Sears

AIR POWER has added a third dimension to the classic pattern of warfare as it has previously been known for centuries. Man's mastery of the air has added, therefore, also a third medium in which soldiers operate. Just as there are armored units on land, and battleships on the sea, so now there are fortresses in the air. And as with all other means operated on the two media of land and water, so these aerial ships in their medium have different characteristics and hence different capabilities and varying abilities.

The Navy has its giant battleships, smaller cruisers, more lightly gunned destroyers, and its lesser auxiliaries, so also does the Army Air Forces have its bombers, fighter-bombers, fighters and other lesser planes. Just as the various types of naval craft differ in appearance and employment, so also do the planes of the air force differ in silhouette and suitability of mission.

Organization of Army Air Force

As a result of the many types of planes that have been developed, it has become necessary for the Air Force to organize along functional lines; consequently, theater air forces are now divided into strategic and tactical air forces.

Let us look momentarily at the difference between these two air forces, both of which may be found operating in any theater of the war.

The strategic air force is specifically organized, equipped and trained to operate against vital targets beyond the ground combat zone. It is characterized by relatively fixed bases, limited mobility, and the ability to carry heavy loads of destructive agents for great distances.

The tactical air force is specifically organized, equipped and trained for joint operations with ground and/or naval forces, against the enemy armed forces within or moving into a ground combat zone. It is characterized by mobility, a high degree of ground control of aircraft, and the ability to coördinate its operations closely with those of ground and/or naval forces. It is further characterized by capabilities for air defense and the responsibility for such defense, in the battle area.

The Tactical Air Force

Tactical air operations may be defined broadly as the employment of air power in the surface battle. These operations are divided into three phases which may occur consecutively or concurrently. In order of normal priority, they are:

Phase I—Destruction of the enemy air force in the air and on the ground, in order to gain and maintain air superiority.

Phase II—Operations against enemy rear area objectives, including the disruption of communication lines, and the destruction of reserves and supplies, in order to isolate the battlefield.

Phase III—Attack on and destruction of enemy ground forces and other objectives, the destruction of which will immediately affect the progress of battle, in order to accomplish as a part of the air-ground team, the destruction of the enemy armed forces.

Originally, tactical aviation was confined within the narrow bounds of what was called "air support." Now the converse is true and *air support* is regarded only as one phase of tactical aviation. Tactical aviation, therefore, has been given a new and broader meaning. It can be described as that form of military aviation which is designed to win the battle of the air, prevent the movement of the enemy troops and supplies, and participate with the surface forces on the battlefield.

During the air support era, much ado about command was often heard. Many ground commanders to whom air support units were attached, assigned missions and attempted to control air operations to the detriment of both. This question has been definitely settled—"The command of air and ground forces in a theater of operations will be vested in the superior commander charged with the actual conduct of operations in the theater, who will exercise command of air forces *through* the air force commander, and of the ground forces *through* the ground force commander."

Too many of us have been brought up to believe that all that we have to do to receive air support is to whistle for it and let the old biblical quotation govern—"Ask and ye shall receive." Such is not the case— "Them days is gone forever."

A tactical air force is usually built around a tactical air division. The former is a tactical, non-administrative unit, its headquarters being co-equal to that of a group of armies. The latter, the tactical air division, is both a tactical and administrative unit, divided into a forward and rear echelon with duties comparable to those of larger ground units. The flying units of these tactical air divisions are composed of fighter aviation, tactical bombardment aviation, and photo reconnaissance aviation. In addition to normal service units, there are found control, communications and aircraft warning units, photo tech squadrons, antiaircraft artillery, light and heavy wire construction units, and radio intelligence units.

Official Photo U. S. Air Forces

B-25 medium bombers fly in formation over mountainous country on way to bomb enemy gun positions near Cassino. Tactical Air operations in southern Italy entailed use of practically every type combat aircraft.

Mission and Operations of Tactical Aviation

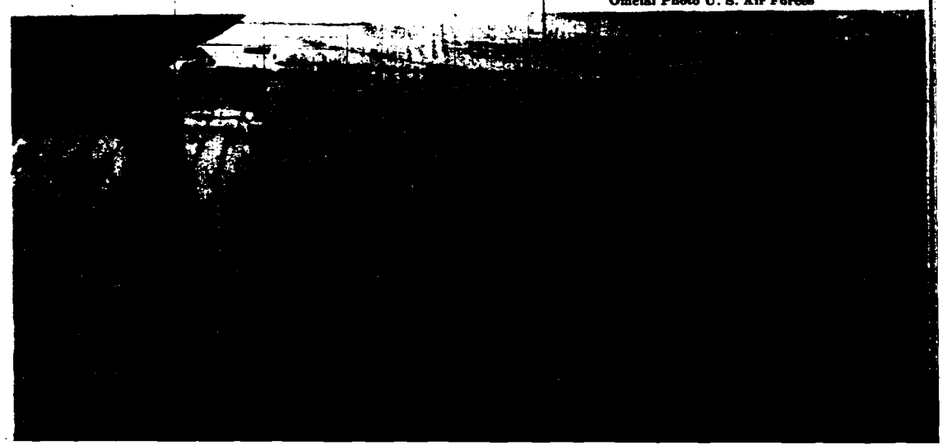
The *Mission* of the tactical air force is to defeat or destroy by air action enemy air, land, and naval power within or moving into a theater of operations. This mission is carried out in three consecutive or concurrent phases, based on priorities:

I. Counter air force operations for the purpose of achieving air superiority.

II. Attack on the enemy rear area objectives for the purpose of isolating the battlefield.

III. Participation in joint air-ground operations to destroy the enemy military forces on the battlefield.

Official Photo U. S. Air Forces



A photographic reconnaissance pilot made this picture of a trainload of German tanks east of the town of Macerata, Italy, near the Adriatic coast. The tanks are Mark III's mounted with assault guns and were being hauled to reinforce the units facing the Eighth Army. The later bombing of these tanks assisted directly in isolating the battle area. A main target in Italy was the enemy-held transport system, vital for supplies.

Although the ground force's requests fall in priority III, this should not cause the ground elements to be downhearted, for the accomplishment of the first two objectives are bound to contribute materially to the success of the entire effort, as well as to that of the specific ground effort; whereas the successful accomplishment of a priority III mission alone would lead only to local success.

That does not mean that the ground force will never get air support. It does mean that *except when the honoring of the ground commander's air request will contribute to the success of the entire battle as differentiated from a local success, planes will not be diverted for it UNLESS:*

(a) Air superiority has been achieved and can continue to be maintained by our own air forces and that

(b) The battlefield has been isolated from re-supply and the introduction of reinforcements by the enemy.

If the ground commander's air request is honored, he should get ready to "saddle up old paint" and get going. He has made the first team, and when the smoke of battle clears, he will be news at home—"home town boy makes good."

The Phase III Mission

If the above two conditions exist, then due consideration can be given to the Phase III Mission, which is designed literally to drop bombs right in front of the ground troops, in accordance with previously laid plans, and on the request of the ground commander.

It is a difficult phase to accomplish since: (1) targets are small, well dispersed and hard to locate; (2) bomb lines must be established to avoid bombing our own troops; and, (3) to be effective, *immediate* response must be given to the approved requests of ground commanders. Maximum effectiveness is generally achieved when not more than one hour elapses between the time a bombing mission is requested and the time that the planes arrive over the designated target.

This phase depends for success upon team work and coöperation, and no plan has yet been devised for its complete and satisfactory application. It is almost impossible to employ this phase in a fluid situation where bomb lines cannot be maintained. It is best employed on a stable front where pre-planned bombing attacks can soften up the enemy for a break-through by the ground forces.

To achieve the necessary teamwork and coöperation, air parties are sent down to corps and divisions, to keep ground commanders informed of the nature of the air effort, to exchange intelligence, to advise the ground commanders on the capabilities of aircraft, and to relay requests for bombing and reconnaissance missions. When it is desired to make a request for air support, communication with the air parties is obtained over normal command channels.

The Ground Commander

If, as a unit commander, you make a request for an air mission, the first question that will be asked at your division headquarters will be *"If granted,* will this mission further the joint air-ground plan of the theater or task force commander?" (Hence you should ask that question of yourself prior to making the request.) If the answer to this question is, "yes," send in the request. If the answer is that it *might,* you should also send in the request. Bear in mind that you do not know at what priority point the I and II missions may be in the process of performance, or of successful completion at that time. Neither will you know what the prognosis is for those I and II missions that may be on the books, and will have to continue, even though your mission is granted.

When your request reaches the superior headquarters, the question of "furthering the air-ground mission" will again be asked, and if the answer is again "yes," the air commander must approve the selection of target, while, at the same time, the ground force commander establishes the bomb line, and makes adequate arrangements to provide appropriate air headquarters with accurate information as to changes therein.

The Air Commander

What sources of information are there that will assist the air commander in determining the adequacy of the target? There are five apparent at a glance:

1. Information from ground force reconnaissance agencies, transmitted through ground force channels.
2. Information from air parties stationed at ground force headquarters—(check and double check).
3. Photography and visual observation by reconnaissance aviation.
4. Information available from returning fighter and bombardment missions.
5. Maps, charts, and mosaics previously accomplished by reconnaissance aviation.

Suitable Targets

What specifically constitutes suitable targets? Suitable targets will vary in every case depending on terrain, enemy strength, lines of communication and other similar factors. One general rule holds: the more concentrated the target, the easier it is to attack effectively. The converse holds true also, for a concentrated target can be more easily defended by lesser anti-aircraft means (if available) than the same target, dispersed.

Targets that can be brought under effective artillery fire are not considered profitable targets for air attack. Since enemy dispersion will be greatest at the front, it follows that the majority of concentrated targets will be found in the rear of the enemy battle area. The following four types of hostile installations might then be taken as representative:

1. Concentrations of troops and vehicles, which can be surprised, and would have difficulty in dispersing.
2. Accurately located command posts and signal centers.
3. Gasoline, ammunition, and ration depots.
4. Exposed or vulnerable artillery positions.

In general, targets which can be damaged or destroyed by a near miss are desirable. It is interesting to note the proportion of near misses to the actual hits made in air demonstrations—and these without any counter measures of flak or fighters for the aircraft crews to contend with.

What factors now govern in selecting a target, if a multiplicity of requests for Phase III missions is received, and they all fulfil the conditions of suitability? These appear to be four.

1. Will the destruction or neutralization of the target selected further the accomplishment of the air-ground mission?
2. Can adequate ground fire be directed on the target to achieve destruction or neutralization?
3. Can the target be located *without search* by attacking aircraft combat crews?
4. Is the target vulnerable to the type of aircraft that can be made available on the mission?

Briefly is the target *findable, hitable, valuable* and *vulnerable?*

The Bomb Line

In the meantime, while the matter of suitability and the factors of selection are being weighed by the air commander, the ground commander is probably having his troubles selecting a bomb line. He must not only designate this line, but he must assume its maintenance and make adequate provision for its unmistakable identification.

Official Photo U. S. Air Forces

Death comes tumbling from the clouds on German gunners struggling to prevent Allied troops from crossing the Volturno River in Italy. Bombs from a B-25 Mitchell of the Northwest African Air Force head for enemy gun positions. The winding Volturno River can be seen below.

Official Photo U. S. Air Forces

Above photo, taken by Colonel Peter C. Haines May 10, 1943, shows German planes destroyed on ground at Tunis by Tactical Air Force during the phase of neutralizing enemy air power prior to final drive on Tunis.

This giant Nazi Mark VI tank, complete with 88mm gun, was knocked out on the road to Tunis by the Tactical Air Force. On one single day—May 6, 1944—of the 2,146 sorties made, the great majority were bomber, fighter-bomber or strafing missions on a 6,000-yard front before the main effort of the ground forces.

For a successful understanding of the bomb line by both ground and air forces, identical gridded photographs would be the ideal and preferred means. These, however, will frequently not be available. It therefore becomes the duty of the ground commander who has designated the bomb line to provide accurate and timely information as to any changes made therein, and to transmit these changes through the available air party —always including such room to preserve his freedom of maneuver as he may desire ("Kentucky windage," probably, to the less trusting souls).

The obligations of the ground commander having been fulfilled in the matter, the tactical air commander then interprets the bomb line for his aircrews by describing it in terms of terrain features recognizable from the air. In doing this, however, he makes an allowance for a margin of error in the bombing (*true* Kentucky windage, no doubt).

Various aids for the identification of the bomb line may be employed such as:

1. Colored smoke.
2. Smoke barrage from mortars or artillery.
3. Panels.
4. Radio ground to air communication, where a skilled and experienced observer may "talk" the pilot or formation leader into the target.

While discussing the bomb line, an apt question naturally arises: "What does the reconnaissance out in front do?" And the answer is that forward reconnaissance *which groups itself* has been, and can expect to be bombed. The key to this situation lies in dispersion. It has already been stated that, in general, the more concentrated the target, the better type it is. If the air is told not to bomb three or less vehicles, and the forward reconnaissance elements keep the dispersion they have been taught, then there will be no unnecessary casualties as a result of either erroneous friendly bombings, or the erratic ministrations of an enemy.

Call Missions

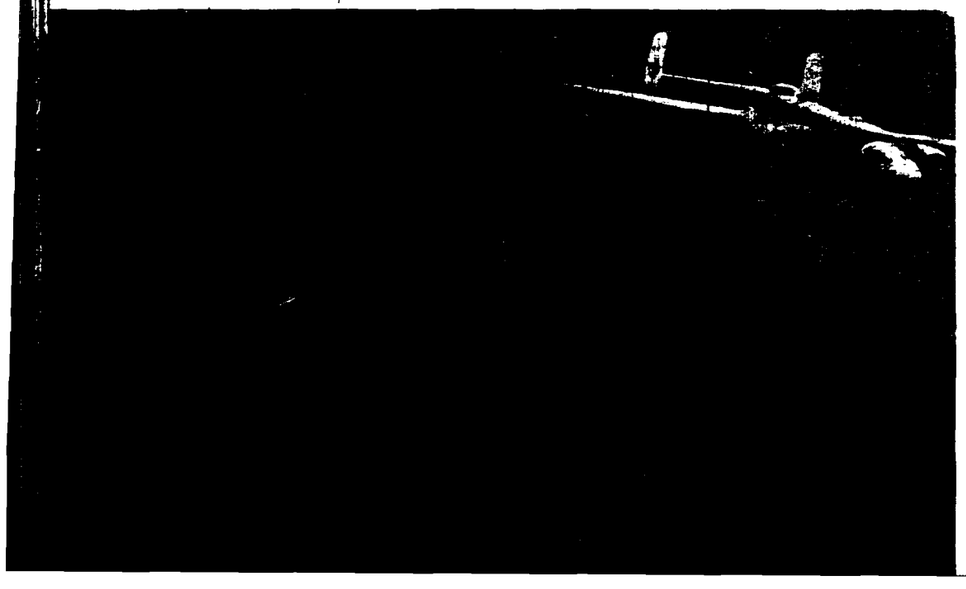
In any operation, circumstances may arise which provide little or no opportunity for pre-planning, and missions against unforeseen but suitable objectives may be assigned to bombardment units. Such targets must be attacked quickly, and their destruction, if achieved, must have an *immediate* affect upon the progress of the battle. These targets may be located:

1. As a result of air reconnaissance information secured through tactical air reconnaissance, or from the interviewing of returning combat aircraft crews.
2. By call from Ground Headquarters, when the necessity for the application of air power is immediate.

In order that such missions may be honored, some fighter-bombers or bombardment aircraft, with their crews briefed and bombs loaded, must be kept continuously on ground alert. The disadvantages of this type of operations are obvious:

1. Limited briefing and navigational planning on *specific* targets.
2. Continual *rotation* of combat crews on alert status.
3. Limited *suitability* of bomb loads for *all* types of targets.
4. Inability to effect reasonably large concentrations of aircraft, which necessitates *piece-meal* attacks instead of massed action.

These disadvantages do not preclude call missions against unforeseen objectives in special type operations, such as amphibious landings where call missions will facilitate dealing with unexpected enemy opposition during a critical period; or in a situation where the battle front has become so fluid that friendly and hostile forces are intermingled to such an extent that it is impossible to carry out tactical bombardment missions in the immediate area of the front; and when action beyond the battlefield will hinder or preclude the forward displacement of hostile artillery to assist the enemy in bringing reserves into the immediate battle area.



At a South Pacific base behind the enemy lines, cringing Japs huddle in dugouts alongside dual-purpose 75mm antiaircraft guns as a strafing North American B-25 flies a few feet overhead on a tactical mission.

Official Photo U. S. Air Forces

Rail transportation, essential for moving troops and supplies, is the target of AAF B-26 Marauders as they harass enemy-held railroads in Italy. Picture is the bombing of a railroad bridge one mile north of Civita Castellana, over which Nazi forces defending Rome were moving matériel and men into the Rome area. Marauders, scoring direct hits on the bridge, created an additional bottleneck in the enemy supply lines—a part of "Operation Strangle."

Conclusion

An effort has been made here to give a brief picture of the air force of today, its two combat subdivisions—strategical and tactical—and the broad principles of operation of the tactical air force, with which ground forces will be most intimately concerned.

As to command, it must be remembered that it has always been considered a lifelong study to learn *how to command ground or ocean forces successfully on their two-dimensional media.* Why, therefore, should it not be conceded that on entering a three-dimensional zone of combat operations, command of forces operating in that third medium should be exercised by personnel schooled therein and familiar with the problems thereof?

As can be seen, the business of "air support" has branched out considerably from the ground commander's erstwhile concept, and there are very good reasons why the ground force, as a small group, cannot merely whistle and have the goods delivered C.O.D. It can be seen further that instead of being based on the rather infantile "gimme" principle, the honoring of air requests has been placed on the broader concept of mutual benefit, more aptly expressed in the coöperative proven principle of the Three Musketeers, "One for all, and all for one."

It must be remembered that "air support," as it was formerly known, is now non-existent in its previous form—where it was expected to achieve the miraculous by myriad, wasteful, piecemeal attacks. Instead, air support is today available, neatly packaged, under the registered trademark of "tactical aviation," ready to be delivered f.o.b. to those points where it will do the most people the most good and contribute to the success of the entire battle rather than to a local success.

Experience has definitely and clearly established a close and permanent understanding between the soldier and the airman. The old distrust and indifference has disappeared, and in its place has come the closest possible integration of effort. No doubt, there is room for improvement in detail — there is bound to be — but broadly speaking, coöperation, both strategical and tactical, has been brought to near perfection. Soldiers and airmen work side by side laying their plans. In the field the commanders live together. Before battle, the soldier indicates the strong points that he expects to give him trouble, and the airman directs his squadrons against them.

If you are an infantryman, artilleryman, or a tanker, discuss with the airman his problems. If you are an airman, find out how little you actually know of ground problems. The doughboy and the airman, the artilleryman and the tanker, are all Americans, their uniforms differing only in the insignia that they wear.

"Operation Strangle" in Italy

THE Tactical Air Force bore the brunt of the "Operation Strangle" in Italy designed to draw a noose around the Italian rail system. . . . Target of the operation was the entire enemy-held transport system through middle Italy—coastal shipping, rail and road.

By March 24 no through rail line led to Rome. The closest approach without transshipping was to within 125 miles of the city.

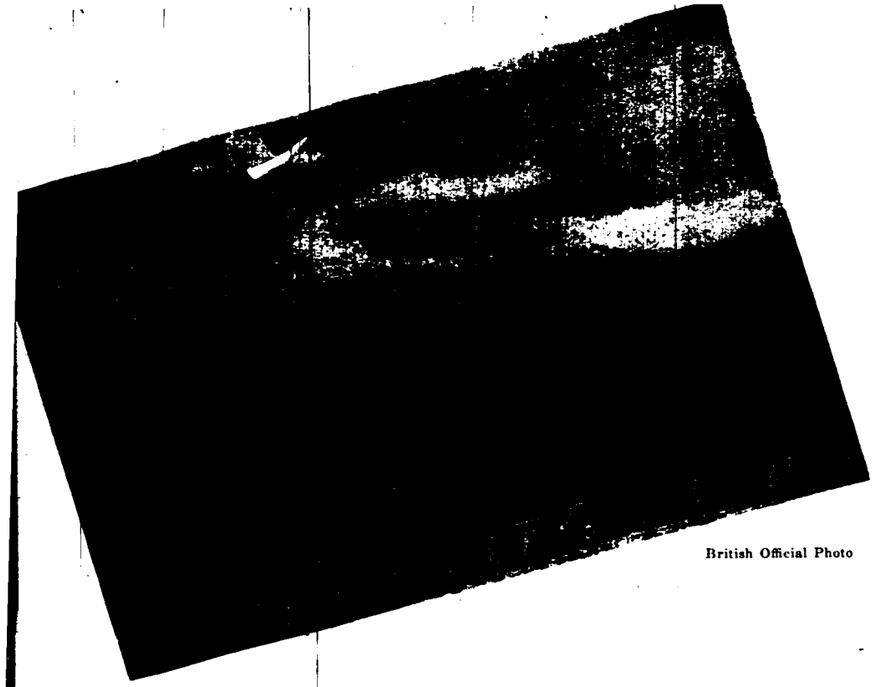
With the disruption of his rail lines, the enemy was forced to rely heavily upon transportation of men and supplies by motor vehicles and by vessel. Only a fraction of the tonnage needed to keep the German armies going—estimated at 3,000 tons daily—could be moved by water. Highway transportation thus became the enemy's mainstay. But night and day attacks on road traffic also bore fruit, with an average of about 40 enemy vehicles destroyed during each 24-hour period.

The increased dependence upon motor transport soon began to have the expected effect on Germany's fuel supplies, never too abundant. Most trucks in use were of Italian origin, and spare parts were hard to get because the factories at Turin and Milan had been destroyed by aerial attacks of the Strategic Air Force.

"Operation Strangle" picks its targets at points that place two extra burdens on the German—the breaks are made as far as possible from large cities at which he has repair depots, and are made at points that stretch his trucks to the utmost in transshipping.

On May 1 the German could still get through more than his daily needs of supplies on the Cassino and Anzio fronts. But his requirements were geared down for the lull in battle. As the time grew nearer for the battle that would burn up his reserves, air operation was intensified to keep those reserves from building up.

British Pack Mules Aid Army On Three Fronts



A mountain battery of Indian troops march through the Shan hills of Burma.

British Official Photo

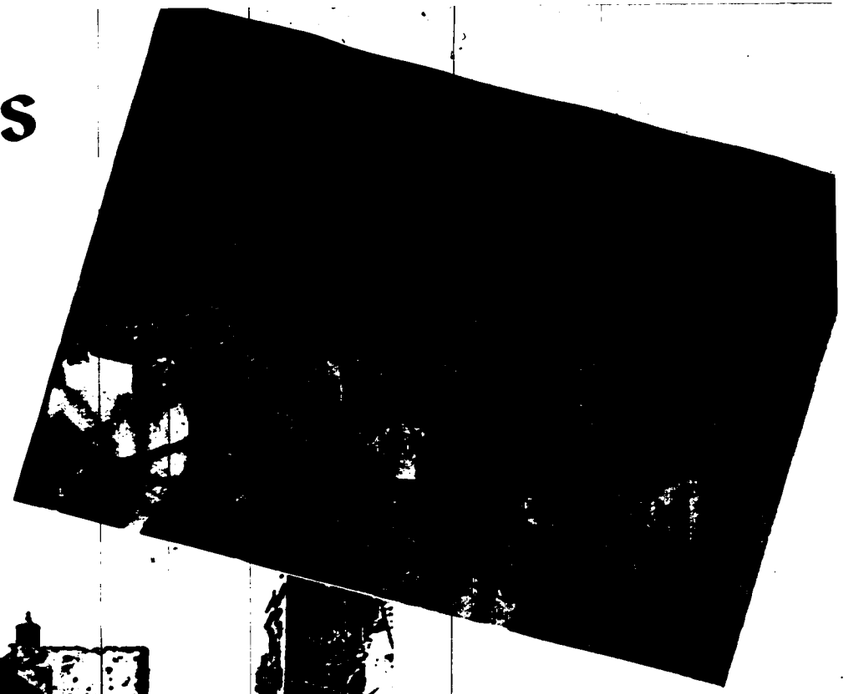
IN the wooded heights on the Allied side of Cassino mule transport has been found necessary in this mechanized war. From a distribution point christened Clapham Junction, Italy, a train of pack mules and jeeps with trailers departs every night for forward areas. The perilous route passes through "Inferno Valley" and "Mad Mile," and ends at "The Bowl," from which supplies are carried to their final destination on human backs. The Mad Mile is under unceasing enemy observation and constant shelling. Considering the risks, losses among mules have been surprisingly slight.

The present plan of operation enables all Cassino troops to receive daily rations, ammunition, mail, newspapers and comforts. The nightly group of officers accompanying the transport train may include the director of medical supplies, the Provost Marshal, whose police guide traffic, the director of transport from the Royal Army Service Corps, which unravels traffic blocks, or a chaplain thumbing a lift to be with his men.

Likewise through the jungles and mountains of Burma, the indefatigable army mule packs machine guns, radio units and supplies to British troops.

Pack mules played a big part in the Canadian advance through Sicily, particularly in some of the mountain regions which defied even the best motorized equipment. Here, a mule pack convoy of the Royal 22d Regiment is shown passing through Leonforte high up in the mountains, August, 1943.

Canadian Official Photo



Troops of the famed Burma Rifles, operating among the rugged mountains of the Shan Country of Burma, use mules to carry their machine guns, radio units, other equipment.

A mule pack train, one of many which were used for transporting supplies in mountainous country of Sicily, is seen threading its way through the bomb-damaged streets of Adrano.

An Indian mule team is shown nearing the River Trigno in Italy, where extensive use was made of available mules for pack transport.

British Official Photos

Mechanized Cavalry On Reconnaissance*

RECONNAISSANCE is the process of gathering information of the enemy and the terrain.

The movements of cavalry on reconnaissance will be directed toward obtaining the required information and will not be regulated by the movements of the force from which it is sent out. On protective duties the reverse is the case. Hence, the two duties of special reconnaissance and of protection should never be allotted to the same cavalry unit.

Report in Time

A force is sent on reconnaissance because the commander requires information and he requires it as quickly as he can get it; it cannot come too fast. However good the plans and their execution for getting the information may be, *unless it is sent back in time it is worthless.*

It takes time to collect information because it is obtained by small patrols, each contributing its little quota to the whole picture. This information has to be sent back through the various echelons, and if there is delay in transmission, or no transmission, there is a consequent blank space in this picture. Hence, it is the duty of cavalry personnel of *all grades*, from the lowest to the highest, *to send back at once information obtained*. Too much time cannot be spent in hammering this fundamental principle home. Every cavalry exercise must be made the occasion for practice by all ranks in this matter.

It would, of course, be wrong for the commander of, say, a cavalry motor squadron to withhold information from his brigade commander until he had fully completed the information picture he was sent out to acquire. He must act to the brigade commander in this respect as he expects his troop commanders to act to him. The small scrap of information obtained by the scout of a patrol may prove to be the most important item that the brigade commander has been seeking. It must be remembered, too, that the value of information diminishes with its age.

Dispersion a Necessary Evil

Reconnaissance by its very nature requires dispersion in the force making it. It is a necessary evil and should be reduced to the absolute necessary minimum required. Dispersion causes loss of control or at best makes control difficult. Loss or reduction of control reduces maneuverability and adds to the time required to get information back and orders forward. Consequently, in planning his reconnaissance, the squadron commander should first look at his task as a whole, then consider how he can break it up into phases. Each phase should gradually work and lead coherently and logically to the final accomplishment of his mission. Having done so, he will break up the first phase into troop tasks, consisting of as many troops as he considers necessary.

Division of Task Among Troops

Where our cavalry commanders sometimes err is in giving too large tasks to the troop. This makes the troop commander's task very difficult and leads to a repetition of the error in the troop and a consequent increase of time required to complete the allotted task. In fixing the troop tasks, the squadron commander should ask himself:

(1) Is the terrain such that it can be searched very easily; *e.g.*, can a good view be obtained from dominating features over open ground? If so, he can allot a larger area to a troop than he would give to another troop whose area lacked dominating features, was more populous and close.

(2) How many patrols will the troop commander have to use to search the area, and how long will it take to complete?

(3) Bearing in mind his mission and his knowledge of the situation as a whole, as disclosed to him by his brigade commander, how much time can he afford to spend on this phase? The length of time he will spend, will be that of the troop with the most difficult task.

(4) Is his knowledge of the situation such that he can with safety make only a cursory examination of the terrain in this phase and thus save time? This may happen in the very early stages of the reconnaissance when the commander *knows* that the enemy is yet at a distance but for his own security and satisfaction nevertheless decides to reconnoiter.

Squadron Orders

He will then issue his orders giving any information of the enemy and his own forces that he has not already communicated to his troop commanders; give the squadron's task; fix the areas clearly to be reconnoitered by the troop or troops used; fix the successive bounds; determine the squadron rallying point on completion of the phase; describe by questions the tasks of each reconnoitering troop, the time he expects each troop to complete each bound, where casualties will be sent (wounded should be sent to V.A.D. posts in the locality), where reports will be sent and/or the squadron axis of signal communication, the time at which the present C.P. will close, and the next one open.

Troop Orders

The troop commander has to approach the execution of his task in much the same way as the squadron commander has done. He considers his mission, the terrain, and the force at his disposal. His study of the terrain and road will show him how to divide up the task between the patrols that he has decided are required. He will issue his orders; give information of the enemy and his own troops; give the troop task; fix the successive troop bounds to the first squadron bound; and fix where the troop will rally; set the tasks for each patrol by means of clear questions to which they must supply clear answers; provide the patrols with any necessary D.R.'s; indicate how casualties will be treated; where reports will be sent; the location and movement of the squadron C.P. to provide against the troop commander becoming a casualty.

The Job of the Patrol Leader

The patrol leader will consider how he will tackle his task. He will, for example, have been asked by the troop commander to answer the questions: "Are there any enemy on Hill X?" "Is the road clear as far as 'Y'?" It will not do for him to rush his patrol at full speed towards those points, as so many of our cavalry units do. He will have to consider the terrain towards the first objective, use his map and, if lucky enough to be located at or near commanding ground that gives a view towards the objective, use his glasses to study the terrain.

The purpose of this study is to assist him to determine what terrain features he can use to assist his approach towards his objective. For example, he sees that about 800 yards along the road that he will travel, and just to the right of it, there is a hill from which he will probably be able to get a good view of the terrain towards Hill X. He decides that he will move his patrol to this feature first. He has another reason for going to this hill. Because it commands the road, it is possible that there may be some enemy on it who would be quite willing to lie doggo and let his patrol pass through in the hope of trapping bigger game; or, having let him through, prevent any of his D.R.'s or messengers from getting back with information. A further reason is that if he succeeds in getting to the hill he can use it to cover the next move of his patrol. Hence this study—to plan his moves or bounds toward Hill X. He should not fall into the all too common error of splitting up the patrol into a number of smaller ones. By doing so, he would lose control, put an unbearable strain on his means of communication, risk having each one snapped up by small enemy parties or having any one or more of them stopped by one or two men. Meanwhile, he would have robbed himself of the means of backing up any of them.

His next problem is the formation in which he will move his patrol. He must provide scouts in front, men to watch the terrain on each side of the road, and on his rear. He must decide, if he has L.A.'s or M.G.'s, where he will place them in the formation, detail connecting files, decide who will go back with information if his force is ambushed and, finally, where he himself will travel.

Then and only then is he ready to issue his orders. He assembles his men, gives them all the information he has, tells them the patrol task and how it will be executed, lets them know where the troop commander can be found and the squadron C.P. and, if wounded, where to go for treatment, where he will be himself, and who will command the patrol if he becomes a casualty.

First Contact

Should the patrol encounter the enemy, the scouts will be backed up, supported by the fire of the L.A.'s and/or M.G.'s, and every effort will be directed to acquiring as much information of the enemy as possible. Should the enemy force be established as a small one and good meat for the patrol, it should promptly be attacked and dispatched or captured. Prisoners thus captured will frequently prove a most valuable source of information. Should the force prove too strong to be attacked successfully, the patrol leader should leave part of his patrol in position to observe the enemy, while with the remainder, he endeavors to get into positions from which as much information as possible can be obtained. In this he uses his L.A.'s and/or M.G.'s to cover the movements of his men.

As soon as contact is established with the enemy, the patrol leader should send back this information to his troop commander, and state precisely where contact is made and when, what is then known of the enemy, what the enemy is doing, and what action the patrol leader is taking.

Location of Commanders

It is obvious that cavalry commanders of all grades must keep well forward with their units. They are, first of all, leaders and not merely post offices. They must be forward to take the quick decisions which are an essential of cavalry tactics, to keep themselves posted on the situation and to save on communications.

This nevertheless presents a problem to the squadron and troop commanders. If the squadron commander sets up his C.P. well forward with one troop, it may be a poor location for serving another troop. How can he solve this problem? The ideal to aim at is to have it as far forward as possible and keep moving it to maintain this, while at the same time, he retains control over his squadron as a whole. He must be careful not to move voluntarily off the axis of signal communication given to him by his brigade commander without making sure *before* doing so that the latter is aware of this and the new axis. Should he be forced off it by enemy action, he must at once inform the brigade commander. The reason for this is obvious; if radio communication breaks down the brigade commander has no means of finding the squadron commander unless he is on a mutually known axis.

*Courtesy *An Cosantóir* (Eire).

To go back to this squadron commander's problem: in most cases it will be found that the solution lies in placing and moving the C.P. to keep as much control over the squadron as a whole and to keep in touch with the troops by personal visits to them. The squadron staff can be used to assist in this, but except in the most unusual circumstances, the squadron commander and his second in command should not be absent from the C.P. simultaneously. Long absences of the commander or staff officers are not to be encouraged. These principles apply to the troop commander also.

Use of Reserves and Armored Troops

How is the squadron commander to use his reserve in reconnaissance if he has one? In the case of a motor squadron commander he should keep the armored troop in reserve. Whether or not he is also able to have a motor troop in reserve depends on his judgment of the situation. The armored troop is very vulnerable to mines and direct artillery fire, if it is not preceded by a motor troop. It should, therefore, be held in reserve to be used to back up and support by its fire the motor troop or troops requiring support. It should seldom be broken up into single car detachments. It should not engage in action as a number of static pill boxes. It has mobility, and it should use it. Its best mobility is on roads, and as much use as possible should be made of this. Frequently, it can get into practicable terrain off the road and where this is possible, use of cover and its mobility will increase its effect. One of the most common sights is to see the whole troop lined up and stopped behind the leading car on a road with only the first two able to take part in the action.

Sometimes the armored troop will have to act without motor troop cover, as when, for example, the motor troop in dismounted action, assisted by armored troops, has broken through the enemy, and the latter is rushed through to get in rear of the enemy. This should be a temporary phase; the motor troop or reserve troop should again be put in front as soon as possible. On other occasions there may be no alternative to using the armored troop alone as, for example, when all motor troops are otherwise employed and an enemy attack is developing on a flank, or when a suitable target for armored cars presents itself, such as troops on trucks. Then, by all means, use it, but let it be used vigorously and intelligently—making full use of its mobility and fire power.

There is no point in using armored cars statically in the open against artillery firing direct: the gun will always win in these circumstances. On the other hand, there are few roads in Ireland which have not a bend every two or three hundred yards and a fast moving car on such a road is not a sitting bird for artillery, nor is a car which moves up to a bend to engage its target and then quickly moves back around the bend. Artillery, firing indirect on to a road, has little chance of hitting a moving vehicle.

If the commander has a troop (cycle or motor) in reserve and has learned that the other troops are in contact with the enemy, he then must make a quick decision as to how he will employ it, if it is necessary to do so. It may be that he has to clear up the situation on one or other flank of the located enemy, and he should use the troop to do so. It may be that one troop has found a hole through the enemy screen. The troops in contact should be left in contact to observe and report on the enemy. The reserve should be pushed through the hole supported by the nearest troops in contact and, leap-frogging through that part of the troop which has succeeded in getting through, proceed to get the required information. Should only part of the reconnoitering troops be deployed in contact with the enemy, as much of the unengaged parts as possible should be ordered to follow through the gap and leave behind those deployed in contact with the enemy.

If the squadron commander knows that he will have to return through the gap, he will have to leave behind a sufficient force to hold it open for him. If at all possible, he should return by a different route after getting the information he needs. He may also need to hold the gap open in order to get his information back to the brigade commander. If so, he should arrange to have a relay to and from the troops at the gap so as to conserve his D.R.'s Again it may be possible to get around a flank and behind the enemy's screen. The reserve is the force which can do this quickest.

Conclusion

It is well to remind oneself here of five things:

(1) The object of reconnaissance is to gain information and to convey that information to the proper quarter in time to be of value.

(2) The success of a reconnoitering force of whatever size depends principally on the leader and on the clarity of the orders he is given.

(3) When touch with the enemy is once gained, it should never be lost unless so ordered by higher authority.

(4) However accurate the information obtained by any unit may be, it will be of little value unless it arrives in time to be acted upon.

(5) It is a principle of cavalry leadership that the commander must not wait for chances to come to him. He must always be on the lookout to make them for himself.

The squadron or troop commander may feel overwhelmed by the amount of detail that he must know about reconnaissance and, in fact, about the other missions which he may be given. He will be overwhelmed if he does not make them second nature to him by constant practice. There is no teacher like experience. The more you know about the technique of your job, the more time you will be able to devote to thinking how to outwit the enemy.

Reconnaissance Aids for Range Determination

*by 1st Lieutenant Paul E. Koefod, Cavalry**

MEN in the army know how difficult it is to estimate range by eye. Except at short distances, the method is uncertain. A soldier who can estimate range with reasonable accuracy is an exception. However, there is no need for total reliance upon the unaided eye. Each platoon has at least two instruments in common use which can take the guesswork out of range determination.

The binocular is a highly useful but seldom fully exploited piece of reconnaissance equipment. Old-timers know many uses for it, but we of the new army too often seem prone to be satisfied merely to look through the instrument. As well as being an invaluable aid to the discovery of the enemy, the binocular is helpful in determining exactly how far the enemy is from an OP. The compass, also, has a variety of uses, although it is often considered as being no more than a direction finder. These instruments, used with the mil formula, singly or combined, enable the observer to locate distant points or objects quickly and accurately.

When using the binocular with the mil formula, the length, width or height of familiar objects is the known factor. The angle, in mils, subtended by such known length, width or height is read in the binocular. With these two easily determined factors one can solve for range. If the compass is used, the known factor is a short base line arbitrarily established at the OP. The angle at the apex of the triangle, which is subtended by the short base, is easily computed by subtracting the sum of the base angles from 3,200 mils. The size of the angle subtended by the base line and the length of the base line being known, range can be determined readily.

Exact ranges along definite azimuths from established OP's to observed enemy concentrations or installations are invaluable to higher headquarters. Definite, accurate and quickly passed information eliminates guesswork and simplifies operations. The answer to "Where?" is vital.

Suppose that from an OP an enemy trooper is observed. With the binocular, both his head and feet can be seen. He is approximately two yards tall. His height subtends an angle of 2 mils, which angle is determined from the vertical mil scale in the lens of the binocular. Dividing his height by the number of mils, his height subtends (2 yd. + 2 M), the answer, 1, is secured. This figure reveals the enemy trooper to be 1,000 yards from the OP. (See Fig. 1.)

The mil formula is expressed thus: M R = 1,000 W. The angle in mils times the range in yards equals 1,000 times the width. Width is the length of the arc which subtends (is opposite to) the angle. W, length of the arc, is expressed in yards.

M R = 1,000 W. By substituting, we have M = 2, R = 1,000, W = 2.

2 × 1,000 = 1,000 × 2.

2,000 = 2,000 Divide both sides of the equation by 2,000 and

1 = 1

When range is sought, the formula is expressed:

$$R = \frac{1{,}000\ W}{M}$$

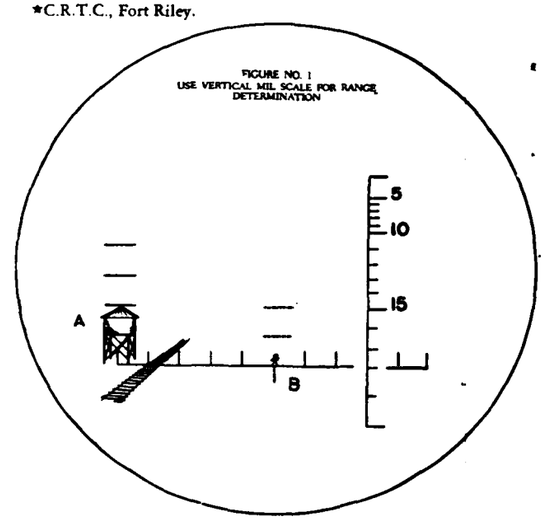
$$R = \frac{2{,}000}{2}$$

R = 1,000 (yards)

Since the range is sought, and since the range is expressed in thousands of yards, work is simplified by cancelling thousands on both sides of the equation.

*C.R.T.C., Fort Riley.

FIGURE NO. 1
USE VERTICAL MIL SCALE FOR RANGE DETERMINATION

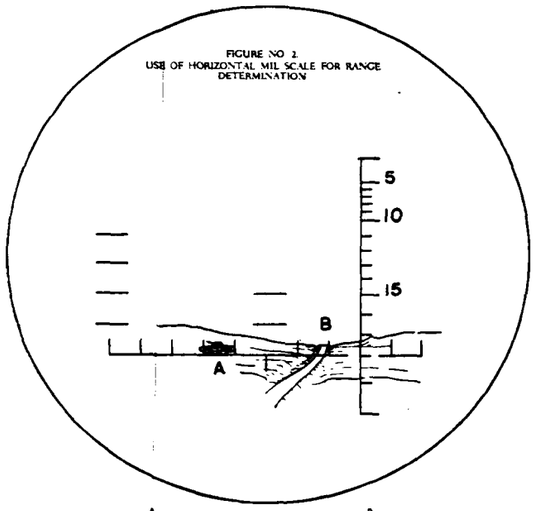


A
W = 15 yds. (Height of water tank)
M = 10 (Mils read in binoculars)
R = 15/10
R = 1.5 (Thousands of yards)
R = 1,500 yds. (Range)

B
W = 2 yds. (Height of man)
M = 2 (Mils read in binoculars)
R = 2/2
R = 1 (Thousands of yards)
R = 1,000 yds. (Range)

Any object the height of which is known may be used for "W", e.g., the height of a telephone pole.

FIGURE NO. 2.
USE OF HORIZONTAL MIL SCALE FOR RANGE DETERMINATION



A
W = 5 yds. (Length of light tank)
M = 6 (Mils read in binoculars)
R = $\frac{5}{6}$
R = .833 (Thousands of yards)
R = 833 yds. (Range)

B
W = 7 yds. (width of concrete)
M = 2 (Mils read in binoculars)
R = $\frac{7}{2}$
R = 3.5 (Thousands of yards)
R = 3,500 yds. (Range)

Any known length, width, space or distance may be used for "W", e.g., the distance between telephone poles.

The result is:

$R = \frac{W}{M} R$ (range expressed in the *number* of thousands of yards) equals W (width expressed in yards) divided by the number of mils that width subtends.

$R = 2 \div 2$

$R = 1$ The number of thousands of yards of range.

The formula, $R = \frac{W}{M}$, is simply the original mil formula in short form. Thousands have been removed from both sides of the equation to make arithmetic quicker and easier. Since units are now dealt with, the answer, R (range), will be expressed in units—the number of thousands of yards. To secure the range, multiply the number of thousands of yards (in the above case, 1) by 1,000. R in the above example equals $1 \times 1{,}000$: one thousand yards.

Take another problem. A railroad water tank is fifteen yards tall. Its height subtends an angle of ten mils as read in the vertical scale in the binocular. Range from the OP to the tank equals the height of the tank in yards divided by the number of mils that height subtends times 1,000.

$R = 15 \div 10 = 1.5 \times 1{,}000 = 1{,}500$ yards.

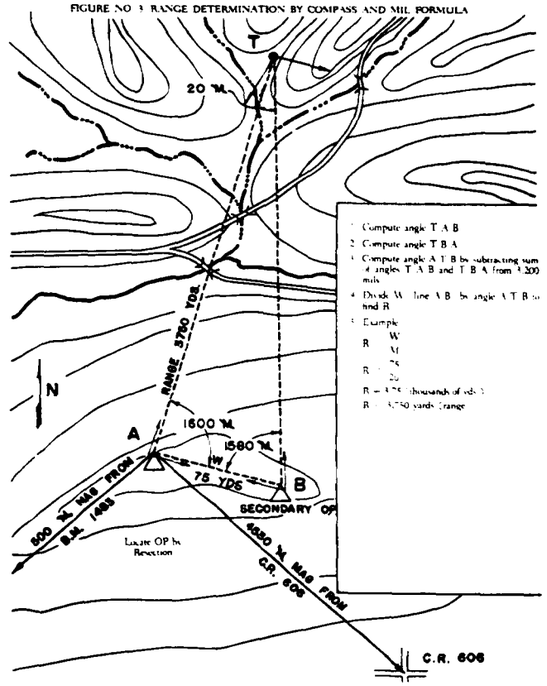
Range to points or objects can be as easily measured by using the horizontal mil scale in the binocular. Let us say a light tank is five yards long. Its length subtends a little more than five mils in the horizontal scale. By interpolating, the mils are determined to be six. Dividing 5 by 6, the figure .833 is obtained. Multiplied by 1,000 the figure .833 expresses a range of 833 yards. (See Fig. 2.)

A two-lane concrete highway is approximately seven yards wide. The range from an OP to the crest of a far hill can be determined by reading the angle in mils subtended by the width of the highway where it seems to disappear beyond the crest. Observing, the width of the highway is estimated to subtend 2 mils in the horizontal scale. Dividing 7 yards by 2, the range to the crest is determined to be 3.5 thousands of yards, or 3,500 yards. Range estimation by eye can be accomplished no more quickly. Neither is it so accurate. The mil scale and the mil formula take the guesswork out of range determination.

If one knows or can estimate the length, width or height of anything, his binoculars and the mil formula will give him a very close approximation of the range to that thing. A truck or tank or gun carriage is about two yards wide. What is the width of a column of infantry or horse in closed formation? in open formation? The lengths of light, medium and heavy tanks and of cars and trucks can be learned easily. A jeep is about three yards long. Dimensions of enemy vehicles are easy to obtain and to learn. Buildings of certain types vary little in height. Most box cars are twelve yards long and their height is easily determined. Memorization of a few easy widths, lengths and heights will provide the key to the range of almost any object or point.

The range to an object can be determined with the compass and mil formula, too. Instead of having the width at the target and the angle at the OP, the situation is reversed. An arbitrary width is established at the OP as the base of a triangle, and the angle at the target or objective (apex of the triangle) is determined. (See Fig. 3.)

FIGURE NO. 3 RANGE DETERMINATION BY COMPASS AND MIL FORMULA



Suppose one observes from an OP for higher head quarters. He first locates the OP by resection and sends the information of its location back so that headquarters knows exactly where the OP is. Observing with binoculars, an antitank gun is spotted. The azimuth to the gun is determined by compass. The azimuth to any suitable object to the right or left of and nearly at right angles to the line OP-AT gun is then read. The angle between the lines OP-gun and OP-object is computed by comparison of the two azimuths and written down. (To compute size of base angles, subtract smaller azimuth from larger azimuth. If their difference is greater than 3,200 mils, subtract that difference from 6,400 mils to determine the size of the angle.) A bayonet placed upright at the point where the compass was held for the first two readings will be an aiming point for the next reading. Any desired distance is paced off toward the object of which the azimuth was taken. At least 50 yards, but not more than 100 yards, are required. For easy arithmetic, the length of the base should be kept in even tens of yards. From the point arrived at, the observer determines the azimuth to the OP and the azimuth to the AT gun and, by comparing them, computes the size of the angle between the line of the base and the line of the gun. By adding the two angles and subtracting their sum from 3,200 mils, the observer arrives at the size of the angle at the gun. Since the distance paced off (in yards) subtends the angle at the gun, divide the distance in yards by the size of the angle in mils, and the number of thousands of yards from the OP to the gun is secured. A message can now be sent back to the effect that at a certain range on a designated azimuth from the OP an enemy antitank gun is located. (Location of an OP may be determined by compass and mil formula, using a single known point as a reference.)

If two compasses are available at the OP and if two observers are present, one observer can be sent with a compass to the secondary point. To determine the two base azimuths, each observer sights on the other's compass. While A sights to the gun, B sights to A's compass. When B sights to the gun, A sights to B's compass.

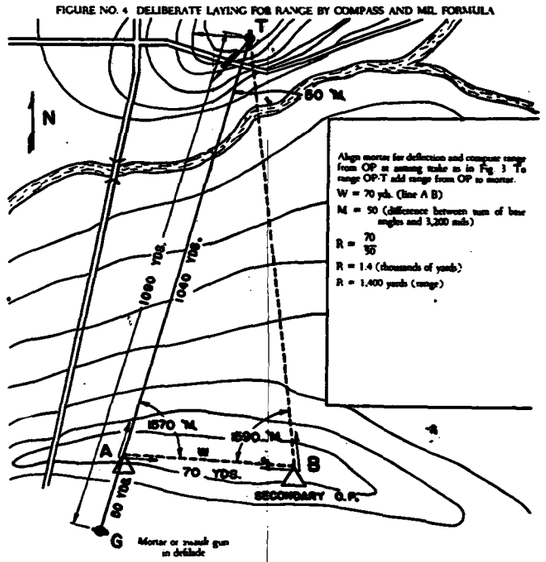
Range may be computed by compass and mil formula another way. Determine the azimuth of the OP to the observed object and establish a base at right angles to it. Pace or measure off any desired distance along the base line and establish a secondary OP. Determine the azimuth from the secondary OP to the observed object. The angle at the object can be computed by comparison of these two azimuths. This method is based upon the principle that, where parallel lines are bisected by a straight line, alternate interior angles are equal. The smaller azimuth differs from the larger azimuth by the to the larger azimuth at either of the OP's. Smaller azimuth may be considered the bisector. Subtract the smaller azimuth from the larger azimuth. The difference (in mils) is the size of the angle subtended by the base line. If the difference between the azimuths is greater than 3,200 mils, subtract that difference from same number of mils that it differs from a line parallel 6,400 mils to determine the size of the angle. Solve for range by the mil formula by dividing the length of the base in yards by the size of the angle in mils.

Because of the need for interpolating between the 20 mil graduations on the compass, the range will not always be exact. However, the range so determined—if the observer is careful—is very much more nearly exact than if estimated. The author has determined range by compass and mil formula within four yards of the measured range. Inclusion of a sketch or description of the ground where the observed object is located will enable higher headquarters to plot the location of the piece within a few yards. Artillery fire could be laid on it with the first round or salvo. Friendly units could detour it or attack it successfully.

Range determination by the above means has further uses. A mortar or an assault gun can be laid for range by either of the above methods. With the range so determined, surprise fire can be laid on the target. Careful range computation will enable a crew to lay the first round within its effective bursting radius of the target and eliminates much sensing. If not in, the first round should be so close as to make but one adjustment necessary. (See Fig. 4.)

An enemy who realizes his position is being "sensed" by fire can pull out and escape that fire. Accurate sur-

FIGURE NO. 4 DELIBERATE LAYING FOR RANGE BY COMPASS AND MIL FORMULA



prise fire gives him no such opportunity. Range determination by binocular and mil formula is a matter of seconds. Three minutes are sufficient to determine a range by compass and mil formula. A few additional minutes consumed in deliberate laying will save both time and ammunition wasted in sensing, and will speed destruction of the enemy.

Correct initial adjustment of fire must be stressed as of greatest importance in a war of maneuver. Targets of opportunity not destroyed at once will vanish. Together with accuracy in the initial laying of weapons, range determination by these methods provides constant field checks which will increase proficiency in range estimation by eye. More than this, the methods suggested provide practical exercises which will increase proficiency in the use of the compass and binocular.

Determining Initial Direction For Mortar Fire

*by 1st Lieutenant Paul E. Koefod, Cavalry**

A MORTAR can be laid for initial direction quickly and accurately without the use of an alidade or similar device. Alignment by eye is a basic method of placing the aiming stake. This method relieves mortar crews of dependence upon gadgets which must be carried, and loss of which places them at a disadvantage. Precious time and ammunition are wasted by crews which cannot determine initial direction quickly and accurately without aids.

Knowledge of the employment of aids for determination of initial direction in unusual situations is important. Useful as they undoubtedly are, extra methods provided by aids are supplemental methods. Normally, the simplest method is the most efficient method. In keeping with simplicity, two basic methods are suggested. Neither requires aids for accurate placement of the aiming stake on the line, mortar-target. Both are easily taught, and both can be learned quickly by doing. The first method is called "foresighting" and the second is called "backsighting."

To place the aiming stakes by foresighting, the mortar corporal takes a position behind the mortar—on a slope, stump, truck, etc.—from which he can see both mortar and target. He directs laying of the tube on the line mortar-target, and sends a man forward to place the aiming stake. By sighting over the collimator sight to the target, the corporal can direct placement of the aiming stake exactly on the line sight-target. Foresighting is a simplification of the "sight case" method outlined in the mortar manual.

When the aiming stake is set by backsighting, the mortar corporal takes the aiming stake to a position in front of the mortar from which both mortar and target can be seen. He places himself as nearly as possible on the line mortar-target, aiming stake in hand. Facing the target, he squares himself with the line from himself to the target. The corporal may either stand or kneel. After sighting the line from himself to the target carefully for a moment, he bends forward and closes his eyes. When in position to look back between his legs, he opens his eyes. The first object seen is on an extension of the line from the target to himself. He has, in effect, turned himself through an angle of 180°.

If inspection reveals the collimator sight to be one side or the other of the line backsighted, the corporal moves sideways in the direction the sight is from that line. Squaring himself with the line from his new position to the target, he sights that line and backsights again. If still not on the line sight-target, he moves sideways again and repeats the process of backsighting. With a few tries, and within a few seconds, the corporal can place the aiming stake between his knees or feet exactly on the line from the collimator sight to the target.

Careful, practical backsighting is as accurate as the alidade method. Second, the aiming stake can be placed accurately in less time by backsighting than it can by the alidade method. Third, backsighting requires no aids which, with other methods, must be carried. Backsighting can be done kneeling or standing, and a minimum of practice is required for proficiency. Backsighting provides a basic method adaptable to a wide variety of situations, and it eliminates dependence upon aids.

Backsighting has a further useful application. For range estimation over flat surfaces, such as fields or bodies of water, backsighting provides a truer, more realistic estimate of the range than can be gained by looking straight to the front. By looking back between the legs one gains perspective. Concentration on the range to the target is much simpler when the legs obscure all extraneous terrain from the picture. Much of the inaccuracy coupled with range estimation is due to lack of perspective. Backsighting provides a convenient —if somewhat grotesque—answer to the problem of perspective.

*C.R.T.C., Ft. Riley, Kansas.

As a result of inquiries received in our Book Department, THE CAVALRY JOURNAL *is starting a new service. Readers of the* JOURNAL *are invited to write to the Book Department and give subjects on which they would like lists of authoritative books. Lists containing recognized and new publications, with brief summaries of the text, will be sent at once. Lists of fiction will also be compiled. Books may be selected from these lists for immediate shipment, or at stated intervals.*

Any order amounting to $10.00 or more, regardless of when or where shipped, will be given the 10% discount deduction.

Books make ideal Christmas gifts. Orders placed through THE CAVALRY JOURNAL *will be filled promptly and an appropriate Christmas card forwarded if desired. Orders for overseas shipment should be placed by September 15th if possible.*

HITLER'S GENERALS. By W. E. Hart. Doubleday, Doran. $2.75.

The present moment is most propitious for the publication of an outstanding book on Hitler's generals. It is most unfortunate that, in spite of Mr. Hart's obvious knowledge of Nazi politics, his book fails to present a complete and unprejudiced view of his subject. He tends to overemphasize the social distinctions between the "new" generals, and those of Junkers class. There is a too obvious effort to excuse the Junkers for defects common to both groups, while the wholesale condemnation of Rommel's ability appears at times to be unnecessarily biased.

Only four of the leaders discussed were still in key positions at the time the book appeared, and at least one of those has fallen from grace since the Allied landings in France.

REVOLUTIONS IN RUSSIA. By G. R. Treviranus. Harper & Brothers. $3.00.

For many years books on Russia tended to fall largely into two classes—eulogies which overlook obvious faults in too great an enthusiasm for an ideal; and indictments which ignore the advances of the Soviet in abhorrence of a revolutionary idea. The last few years have brought more unbiased presentations than would have seemed possible 10 years ago. *Revolutions in Russia* is an outstanding example of an historical résumé and objective explanation of revolutionary politics and economics from the reforms of the 19th Century to 1917, the civil war, the NEP, the Five Year Plans, the purge and the prospects of the future.

The conclusions in the last few chapters will be questioned by many serious readers who will not agree that collectivized agriculture is "organized slavery." Opinions of this sort do not affect in any way the excellence of the main body of the book, which is undoubtedly an outstanding contribution to the literature about Russia.

HE'S IN THE CAVALRY NOW. By Brig. General Rufus S. Ramey. McBride. $2.75.

General Ramey, formerly Commandant of The Cavalry School, Fort Riley, Kansas, has written a most informative, profusely illustrated, book describing the training of cavalry officers at Fort Riley, the various phases of warfare with which the cavalryman has to be familiar, and the use of cavalry units in the field.

The book closes with chapters on the use of a mechanized cavalry troop in Africa, a mechanized cavalry squadron in Tunisia, and a reconnaissance troop in Attu.

AUSTRALIA AND THE PACIFIC. By Members of the Australian Institute of International Affairs. Princeton University Press. $2.50.

In his preface to this book, W. L. Holland, Research Secretary of the Institute of Pacific Relations, states, "Hitherto . . . there has been no up-to-date and representative Australian study published in North America to which serious readers could be referred for a picture of characteristic Australian points of view on the immense problems of wartime changes and postwar readjustments in the Pacific."

This compilation of authoritative opinion gives an over-all explanation of Australia's position on those phases of her economic and social life that vitally concern the other nations of the world.

Princeton University Press is doing an outstanding job of bringing before the reading public books of a broad and comprehensive nature dealing with the problems of the world of today and tomorrow.

THE OFFICER'S GUIDE—1944 EDITION. $2.50.

THE SOLDIER AND THE LAW. By Lt. Col. John A. McComsey and Major Morris O. Edwards. $2.00.

ARMY FOOD AND MESSING—1944 EDITION. $2.50 Military Service.

These three standard guides have been received in the new 1944 editions within the last month.

The Officer's Guide has had a complete overhauling. "Uniforms and Equipment" has been rewritten from stem to stern. "Pay and Allowances" has been reworked to advantage. "Personal Affairs of Officers" contains considerable new information; and another chapter, "Going Home," has been added.

The Soldier and the Law in its 1944 edition, with supplement on the outline of procedure for trials and courts-martial and explanation of the articles of war, will be a welcome addition to the military library.

Army Food and Messing appears in its new fourth edition with valuable improvements in the text and many new photographs.

Modern Military Dictionary

By GARBER and BOND

Ten Thousand Technical and Slang Terms of Military Usage

C-7 on The Cavalry Journal book list.

HORSE MAGAZINES

	Per Year	Sample Copy
Cavalry Journal: Bimonthly	$3.00	$.75
National (Saddle) Horseman: Monthly	5.00	
The Horse: Bimonthly. (Breeding, schooling, training, sports.)	5.00	.50
The Chronicle: Weekly. (Breeding, fox hunting, racing, shows.)	5.00	.20
Saddle & Bridle: Monthly	4.00	
Thoroughbred (Horse) Record: Weekly	4.00	.10
Rider & Driver: Monthly. (Horses, sports, pleasure.)	3.50	.35
Mid-Western Horseman: Monthly	2.50	.25
Western Horseman: Bimonthly	1.50	.35
Bit & Spur: Monthly. (Horsey.)	1.50	.15
Hoofs & Horn: Monthly. (Rodeos.)	1.50	
NRA Round-Up: Monthly. (Rodeos.)	.50	.10
Horseman's News: Monthly. (Ben. & Prot. Assn.)	1.00	.10
Spokesman & Harness World: Monthly	1.00	.10

Rush your order today! Remit in any manner convenient to you. All orders are acknowledged by return mail and rushed to the publishers.

MAGAZINE MART

Dept. C-J

P.O. BOX 1288 PLANT CITY, FLA.

Send for free catalog

HANDBOOK TO ARMY REGULATIONS AND OTHER DIRECTIVES ON ADMINISTRATION. By Lt. Col. Walter Sczudlo. Military Service. $2.50.

The introduction states: "This book is a guide to performing military duties, to Army Regulations and similar directives, and a reference book for information on any administrative matter. It contains a selection of Army Regulations and other directives of a general administrative nature, grouped alphabetically by principal subjects, condensed, digested, and supported by detailed citations of source material."

No index or table of contents is included since the topics are arranged alphabetically and necessary cross-references supplied in the text.

Coördinating and clarifying a large quantity of information in an easily understood manner, this handbook will be invaluable, not only to officers, but to noncommissioned officers and men as well.

PACIFIC OCEAN HANDBOOK. By Eliot G. Mears. James Ladd Delkin, Pub. $1.00, paper; $2.00, cloth.

As a compact, well indexed, streamlined guide to the Pacific Ocean, this volume will be of considerable value. Its charts and maps are of an excellent caliber. The author seems to have amply fulfilled his aims to produce "an up-to-date Pacific almanac and geography for the navigator and traveller . . . and for our armed forces in this arena."

RUSSIA AND THE PEACE. By Sir Bernard Parés. Macmillan. $2.50.

Familiarity with the Russian people and their habits of mind, bred of many years association with them, is a striking feature of this book. Sir Bernard Parés has endeavored to create in the reader an understanding of the inevitable influence that so powerful an ally must have on the peace. He has studied Russia since his first visit in 1898, watched it throw off Tsarism, and followed its advance under the present government. The book is a sincere effort to dissuade others from the "fear of the unknown" that may still exist toward the Soviet.

SIX WEEKS' WAR. May 10-June 25, 1940. By Theodore Draper. The Viking Press. $3.00.

Most of the books thus far written on the subject of the fall of France are the products of men endeavoring to explain the conditions incident to the tragedy—attempts either to justify or condemn.

Sgt. Draper, who for the past 10 years has been a newspaper writer on European affairs, has made a thorough investigation of his subject. As a result of this research he has produced a book which adds little new material to that already published, but coördinates the facts in a well rounded, analytical and comprehensive fashion, not found in previous volumes.

Ample notes, index and appendix put this book in the reference class, and it should retain its value for many years to come.

ARGENTINE DIARY. By Ray Josephs. Random House. $2.75.

The New York *Times* Book Review Supplement says of *Argentine Diary*:

"This book gives a crystal-clear picture of the political situation that has developed in Buenos Aires. It will ring a sharp alarm in the minds of people who have thought that our Good-Neighbor policy had won South America to our way of thinking and that Franco had no influence beyond Gibraltar. Its lessons for the future are two: first, that the Fascist parade in South America marches 'to a tune played in Madrid, and the tune is called in Berlin'; second, that Nazism may not be expected to end with Germany's defeat, but can appear again and again in the plots of lesser imitators who will use its technique for their own ends."

REQUISITION IN FRANCE AND ITALY. By Maurice K. Wise. Columbia University Press. $2.75.

An important corollary of the power of requisition by the state is the right of the individual to legal safeguards of his property and services. When the two essential parts of the institution of requisition threaten to become critically out of balance, the choice between requisition regulated along liberal lines, or vaster, less specialized powers, faces the nation.

Dr. Wise, in his history of requisition in France and Italy, shows the significance of the various phases through which requisition passed in these two countries prior to the present war. He points out the occasion for requisition, its objective and the exercise of its power. He has made a thorough research in order to show the laws enacted in an effort to substantiate the proper balance between the collective and private interests necessary if dictatorship is not to result from the use of requisitional powers.

The volume is well annotated and indexed. The information contained in it will undoubtedly be of interest and value to students of national economics and other groups dealing with requisition as a necessity of military government or as a result of other economic catastrophies.

MEET YOUR ALLIES IN WAR AND PEACE. Edited by Nicholas G. Balint. International University Press. Paper, $1.00; Bound. $1.50.

Meet Your Allies is an interesting collection of pictures and thumbnail sketches designed to give Americans a glimpse of their Allies in this war. It is a nicely presented little volume, but the information is almost too limited to be of value.

DICTIONARY OF SERVICE SLANG. By Park Kendall. M. S. Mills Co. $1.00.

Listed in this little book are slang terms used by U. S. soldiers, sailors, Marines, Spars, WACs, Waves, Army and Navy Nurses; the Australians, New Zealanders, the Wrens and Waafs. While it might be considered amusing, this dictionary is not sufficiently complete to have any real value, and there are some really amusing books on the market that will last the reader a few hours longer.

Summaries of World War Operations

To date 15 summaries of the action of divisions in World War I have been published by the American Battle Monuments Commission. When complete the set will consist of 28 volumes.

Copies may be obtained from The Cavalry Journal at the following prices:

7th, 36th, 79th, 81st	$ .75
27th, 30th, 93d	1.00
26th, 32d	1.25
3d, 4th, 28th, 77th	1.50

PACIFIC OCEAN HANDBOOK

By ELIOT G. MEARS

Geographer and Pacific Relations Professor in Military Training Courses at Stanford

Here's a Book . . .

that gets under the surface of the Pacific Ocean to give us a deeper understanding of this so important "new sea-world." Informing, interesting. Full 200 pages book text. Over 60 special illustrations, maps, charts. Also large global maps attached.

Paper . . . $1.00

Cloth $2.00

P-15 on The Cavalry Journal book list.

How Japan Plans to Win

Kilsoo K. Haan's translation of

THE THREE-POWER ALLIANCE AND A UNITED STATES-JAPANESE WAR

By KINOAKI MATSUO

Here is the Japanese blueprint for victory in a book by an officer of the Japanese Naval Intelligence, published in Tokyo in October, 1940. It is complete with a timetable of operations, to which events since December 7th have so far strictly adhered.

$2.50

P-10 on The Cavalry Journal book list.

Blitz French

A companion to the popular *How To Say It In Spanish.* A pocket sized phrase and word book for overseas troops.

$.75

Z-5 on The Cavalry Journal book list.

On Your Own

How to Take Care of Yourself In Wild Country

A Manual For Field and Service Men

By SAMUEL A. GRAHAM and EARL C. O'ROKE

$2.00

WEST POINT. By E. D. J. Waugh. Macmillan. $2.50.

This story of the United States Military Academy begins with the history of the fortress in colonial days and follows through to the present training now given cadets. The book carries many interesting notes on the parts that West Point men have played in the U. S. Army during the nation's wars, and comments on the men now prominent in World War II.

It is most unfortunate that the general treatment of the book is too sentimental in nature to mark it as an outstanding history.

LONG-RANGE FLIGHT. By Colin Hugh McIntosh. McGraw-Hill. $2.50.

The chief navigator of American Airlines has written a text for training pilots and navigators in the essential techniques of aircraft operations for long distance flight. He explains the principles of efficient engine operation, the use of airplane cruising charts, methods of cruising control, preflight planning, and controlled flight through use of the "howgozit" chart. Sample charts and graft are included.

THE REST OF YOUR LIFE. By Leo Cherne. Doubleday, Doran. $2.75.

Mr. Cherne is a man of fact, and he deals with figures, not dreams. In this down-to-earth book on the postwar world he points out the difficulties to be faced, and reminds the reader that the quiescence of certain peacetime problems is merely temporary.

There is little mention of plastic kitchens and family gyroplanes. There are pages upon pages of intelligent discussion of economic and sociologic facts that will run our lives unless we learn to use them to steer the course of our own existence.

This book will not cure insomnia, but it does give ample warning that to substitute inertia for interest in national affairs is far more dangerous in peace than in war.

HOW JAPAN PLANS TO WIN. By Kinoaki Matsuo. Translated by Kilsoo K. Haan. Little, Brown & Co. $2.50.

The Three-Power Alliance and a United States-Japanese War was first published in Tokyo in 1940—a kind of Japanese *Mein Kampf*. It was brought to this country by two Japanese army officers to be used for propaganda purposes amongst West Coast Japanese. Mr. Haan successfully secured an original copy from the officers without their knowledge, translated the text, and published it under the title *How Japan Plans To Win.*

Familiarity with this blueprint for Japanese victory is as essential to officers fighting Japan as is a knowledge of *Mein Kampf to* those in the European theater. The importance of both of these books has been sadly underestimated. Hitler made the statement that if plans were mad enough others would readily discount them as impractical, and they might be pursued to their completion without interference.

It is most unfortunate that this book, outlining so clearly the Japanese aims against the United States, should not have received more widespread publicity.

Here Are This Month's New Books of Current Interest

P- 1 **AAF.** The Official Guide to the Army Air Forces. Illustrated by photographs, maps, and charts. $2.50

P- 2 **Argentine Diary.** *By Ray Josephs.* An account of what is happening in South America. $2.75

P- 3 **Army of Shadows.** *By Joseph Kessel.* Story of the French underground. $2.00

P- 4 **Bombers.** *By Keith Ayling.* A history of the bombing airplane from 1912 to 1944. ..... $2.50

P- 5 **Democracy Reborn.** *By Henry A. Wallace.* ... $3.00

P- 6 **Down to Earth.** *By David Greenhood.* How to read, understand, collect or make maps. $4.00

P- 7 **German Dictionary for the Soldier.** *By Frank Henius.* $.50

P- 8 **The Gobi Desert.** *By Mildred Cable, with Francesca French.* Experiences travelling in the Gobi Desert. $3.50

P- 9 **He's In the Cavalry Now.** *By Brig. Gen. Rufus S. Ramey.* An account of the United States cavalry today. $2.75

P-10 **How Japan Plans to Win.** *By Kinoaki Matsuo.* Translation of the Japanese blueprint for victory. $2.50

P-11 **I Never Left Home.** *By Bob Hope.* The comedian's own story of his overseas trip last year. $1.00

P-12 **Meet Your Allies.** *Edited by Nicholas G. Balint.* Information on the people of the Allied nations in text and pictures. .... Paper, $1.00; cloth, $1.50

P-13 **Modern German.** *By Robert Lohan.* Fundamentals of grammar and conversation. $2.75

P-14 **The Navy's War.** *By Fletcher Pratt.* How the U. S. Navy turned the tide in the Pacific. Maps and illustrations. $2.75

P-15 **Pacific Ocean Handbook.** *By Eliot G. Mears.* Guide to the Pacific Ocean for the armed forces. Paper, $1.00; cloth, $2.00

P-16 **The People of India.** *By Kumar Goshal.* A study of India, ancient and modern. With a factual discussion of the Indian problem today. $3.00

P-17 **The Rest of Your Life.** *By Leo Cherne.* Problems of the postwar world. $2.75

P-18 **Revolutions In Russia.** *By G. R. Treviranus.* An historical résumé and interpretation of revolution in Russia from the 19th Century to the present day. $3.00

P-19 **Russia and the Peace.** *By Sir Bernard Parés.* The Russian people and their influence in the peace. $2.50

P-20 **The Six Weeks' War: France, May 10-June 25, 1940.** *By Theodore Draper.* $3.00

P-21 **They Fly to Fight.** *By Keith Ayling.* The story of the airborne divisions. $2.50

P-22 **They Were There: The Story of World War II and How It Came About.** *By America's Foremost Correspondents, Edited by Curt Riess.* $5.00

P-23 **Through the Perilous Night.** *By Joe James Custer.* The story of the *Astoria's* last battle by a correspondent who was wounded in the action. ..$2.75

P-24 **War Below Zero.** *By Col. Bernt Balchen, Maj. Corey Ford and Maj. Oliver La Farge.* The story of the battle for Greenland. $2.00

P-25 **Watching the World.** *By Raymond Clapper.* A selection of the late columnist's writings. With a biographical sketch by his widow. $3.00

P-26 **West Point.** *By E. D. J. Waugh.* The story of the United States Military Academy. $2.50

The United States Cavalry Association
1719 K Street, N.W.
Washington 6, D. C.

Gentlemen:

Please send me ..... copies of MODERN RECONNAISSANCE @ $1.50 per copy.

Name.....

Address.....

City and State.....

I enclose check for $..... in full payment. ( )

Please bill me when books are mailed. ( )

Books – Manuals – Texts

INDIVIDUAL ORDER FORM

THE CAVALRY JOURNAL,
1719 K Street, N.W.
WASHINGTON 6, D. C.

Please send me the following checked items:

A — 1 2 3 4 5 6 7 8 9
B — 3 5 7
C — 1 2 3 4 5 6 7 9 10 11 12 13
14 15 16 18 19 20 21 22 23 24 26
27 28 29 30 31 32
D — 2 3 4 5 6 8 9 10 11 12 13
14 15 16 18 19 20 21 22 23 24 25
E — 1 3 4 6 8 9 10 12 13
F — 2 3 5 7 8 9 10 11 12
17 18 19 20 21 23 24 25 26
27 28
G — 1 3 5 13
14 15 18 20 21 23 24 25 26
27
[illegible] 2 3 4 5 6 7 8 9 10 11 12 13
14 15 16 17 18 19 20 21 22 23 24 25 26

OTHER BOOKS

☐ I inclose remittance in the amount of $_____

☐ Send bill to {Co. / Troop Fund} _____
(For unit orders only)

_____
Name (Please Print)

_____
(Street address or box number)

_____
(Town — Post) (City and State)

G. P. O. MANUALS

CAVALRY:

A- 1 (2- 5) Horse Cavalry ..... $ .50
A- 2 (2- 10) Mech. Cav. Elements ..... .20
A- 3 (2- 15) Employment of Cavalry ..... .30
A- 4 (2-220) The Horseshoer ..... .25

BASIC AND TECHNICAL:

A- 5 (25- 5) Animal Transport ..... .25
A- 6 (25- 10) Motor Transport ..... .20
A- 7 (100-5) FSR, Operations ..... .35
A- 8 (100-10) FSR, Administration ..... .25
A- 9 A Manual for Courts-Martial, U. S. Army. 1.00

THE CAVALRY SCHOOL DEPARTMENTAL TEXTS

B- 3 Horsemanship and Horsemastership $1.25
Part One—Education of the Rider, 1941
Part Two—Education of the Horse, 1941
Part Three—Animal Management, 1940
Part Five—Horse Shows, Race Meetings, Hunter Trials, Mounted Sports, Exhibition Rides, 1941.

B- 5 Seats, Gaits, Reactions (Translated from the French) ..... .80

B- 7 The Gaits — The Horseman (Translated from the French) ..... .80

STANDARD GUIDES

C- 1 R.O.T.C. Manual, Basic, CS & MS. (2 volumes)
Paper, each vol. 2.25
Cloth, each vol. 2.75

C- 2 R.O.T.C. Manual, Adv., MS.
Paper 2.50
Cloth 3.00

C- 3 Officers' Guide, 1943 edition 2.50
C- 4 Officers' Manual, *Moss* 2.50
C- 5 Company Administration and Personnel Records, *Virtue* (Paper), 13th edition 1.50
C- 6 Company Administration and Personnel Records, *Virtue* (Cloth), 13th edition 2.00
C- 7 Modern Military Dictionary (Cloth) 2.50
C- 9 Combat Communications, *Allen* ..... .35
C-10 Reconnaissance, *Allen* ..... .35
C-11 Combat Intelligence, *Schwein* 2.00
C-12 S-2 in Action, *Thomas* 1.50
C-13 Soldier's Handbook ..... .50
C-14 Courts-Martial Practical Guide 1.00
C-15 Machine Gunner's Handbook ..... .50
C-16 The Soldier and the Law (1944 edition). 2.00
C-18 Mass Physical Training, *Roycroft* 3.00
C-19 Medical Soldier's Handbook 1.00
C-20 Insignia of the Services, *Brown* 1.50
C-21 Army Food and Messing 2.50
C-22 Practical Manual of Martial Law 2.00
C-23 Map and Aerial Photos Simplified 1.00
C-24 State Defense Manual 1.00
C-26 The Fourth Horseman, *Doherty* 1.00
C-27 U.S.A. Second Lieutenant's Handbook, *Craf* 1.00
C-28 Going to O.C.S. 1.00
C-29 Heavy Weapons Manual 2.50
C-30 Basic Manual of Military Small Arms.... 2.00
C-31 Modern Reconnaissance 1.50
C-32 Handbook to Army Regulations, *Sczudlo*. 2.50

STANDARD BOOKS ON WAR

D- 2 Leadership for American Army Leaders, *Munson* 1.00
D- 3 Infantry in Battle 3.00
D- 4 American Campaigns, *Steele* (2 vols., Texts and Maps) 8.00
D- 5 World's Military History, *Mitchell* 3.00
D- 6 Warfare, *Spaulding, Wright, Nickerson*.. 3.00
D- 8 A Rifleman Went to War, *McBride*.....3.50
D- 9 Maneuver in War, *Willoughby* 3.00
D-10 Allenby, by *General Wavell* 3.00
D-11 America in Arms, *Palmer* 2.00
D-12 Generals and Generalship, *Wavell* 1.00
D-13 U. S. Army in War and Peace, *Spaulding*.. 6.00
D-14 Chemical Warfare, *Wachtel* 4.00
D-15 Roots of Strategy, *Phillips* 3.00
D-16 Technique of Modern Arms, *Muller* 2.50
D-18 Principles of Warfare, *Clausewitz* 1.00
D-19 Engineers in Battle, *Thompson* 1.50
D-20 History of the United States Army, *Ganoe* 5.00
D-21 Gas Warfare, *Watt* (1944 Edition) 2.75
D-22 Defense, *von Leeb* 1.00
D-23 Surprise, *Erfurth* 1.00
D-24 Armored Warfare, *Fuller* 1.00
D-25 Napoleon and Modern War, *Lanza* 1.00
D-26 The Axis Grand Strategy 3.50

GENERAL

G- 1 Story of the Little Big Horn, *Graham*.... 2.00
G- 3 How To Say It In Spanish ..... .75
G- 5 Army Wife, *Shea* 2.50
G-13 A Roving Commission, *Churchill*..... 1.75
G-14 Indian-Fighting Army, *Downey* 3.50
G-15 Army Talk, *Colby* 2.00
G-18 Get Tough!, *Fairbairn* 1.00
G-20 Report From Tokyo, *Grew* 1.00
G-21 Lee's Lieutenants, *Freeman* Vol. 1 and 2, each 5.00
G-23 They Call it Pacific, *Lee* 3.00
G-24 Journey Among Warriors, *Curie* 3.50
G-25 Queens Die Proudly, *White* 2.50
G-26 Thirty Seconds Over Tokyo, *Lawson* 2.00
G-27 Here Is Your War, *Pyle* 3.00
G-28 Australia and the Pacific 2.50

MODERN WARFARE BOOKS

F- 2 Armies on Wheels, *Marshall* 2.50
F- 3 New Ways of War, *Wintringham*..... .25
F- 5 Blitzkreig, *Marshall* 2.00
F- 7 America and Total War, *Pratt* 3.00
F- 8 Under the Iron Heel, *Moën* 2.75
F- 9 Winged Warfare, *Arnold & Eaker*..... 3.00
F-10 Douhet and Aerial Warfare, *Sigaud*..... 1.75
F-11 The Impact of War, *Herring*..... 2.50
F-12 War in the Air, *Garnett* 3.50
F-17 Great Soldiers of Two World Wars, *DeWeerd* 3.50
F-18 Building An Army, *Johnston* 1.00
F-19 Pattern of Conquest, *Harsch* 2.50
F-20 Army of the Future, *de Gaulle* (new edition) 2.00
F-21 Mechanized Might, *Raborg* 2.50
F-23 They Were Expendable, *White* 2.00
F-24 Global War, *Mowrer and Rajchman* 1.00
F-25 The Red Army, *Berchin and Ben-Horin* ... 3.00
F-26 Weapons and Tactics, *Wintringham* 2.25
F-27 Combined Operations, *Saunders* 2.00
F-28 Airborne Invasion, *Hetherington* 2.50

BOOKS FOR THE HORSEMAN

E- 1 A Horseman's Handbook on Practical Breeding, by *Colonel John F. Wall*, U.S.A., Retired (New 1942 Edition). 4.00
E- 3 Horse Training, Outdoor and High School, *Beudant* (translated by Lt. Col. J. A. Barry, U. S. Cavalry) 3.00
E- 4 Horseshoeing, *Churchill*, 1933 ..... 1.20
E- 6 More About Riding Forward, by *Littauer*.. 3.00
E- 8 Position and Team Play, *Devereaux* 1.50
E- 9 Riding Forward, *Capt. V. S. Littauer*..... 2.00
E-10 School for Riding, *Capt. Sergei Kournakoff* 2.50
E-12 Be a Better Horseman, by *Littauer*..... 10.00
E-13 Horses, *Self* 3.00

Books not listed can be supplied upon request.

10% discount on orders of $10.00 or more.

Order Through

The Cavalry Journal

1719 K Street, N.W. WASHINGTON 6, D. C.

Books – Manuals – Texts

INDIVIDUAL ORDER FORM

THE CAVALRY JOURNAL,
1719 K Street, N.W.
WASHINGTON 6, D. C.

Please send me the following checked items:

A— 1 2 3 4 5 6 7 8 9
B— 3 5 7
C— 1 2 3 4 5 6 7 9 10 11 12 13
14 15 16 18 19 20 21 22 23 24 26
27 28 29 30 31 32
D— 2 3 4 5 6 8 9 10 11 12 13
14 15 16 18 19 20 21 22 23 24 25
E— 1 3 4 6 8 9 10 12 13
F— 2 3 5 7 8 9 10 11 12
17 18 19 20 21 23 24 25 26
27 28
G— 1 3 5 13
14 15 18 20 21 23 24 25 26
27
P— 1 2 3 4 5 6 7 8 9 10 11 12 13
14 15 16 17 18 19 20 21 22 23 24 25 26

OTHER BOOKS

☐ I inclose remittance in the amount of $_____

☐ Send bill to {Co. / Troop Fund} _____
(For unit orders only)

_____
Name (Please Print)

_____
(Street address or box number)

_____
(Town — Post) (City and State)

G. P. O. MANUALS

CAVALRY:

A- 1 (2- 5) Horse Cavalry ..... $ .50
A- 2 (2- 10) Mech. Cav. Elements ..... .20
A- 3 (2- 15) Employment of Cavalry ..... .30
A- 4 (2-220) The Horseshoer ..... .25

BASIC AND TECHNICAL:

A- 5 (25- 5) Animal Transport ..... .25
A- 6 (25- 10) Motor Transport ..... .20
A- 7 (100-5) FSR, Operations ..... .35
A- 8 (100-10) FSR, Administration ..... .25
A- 9 A Manual for Courts-Martial, U. S. Army. 1.00

THE CAVALRY SCHOOL DEPARTMENTAL TEXTS

B- 3 Horsemanship and Horsemastership $1.25
Part One—Education of the Rider, 1941
Part Two—Education of the Horse, 1941
Part Three—Animal Management, 1940
Part Five—Horse Shows, Race Meetings, Hunter Trials, Mounted Sports, Exhibition Rides, 1941.

B- 5 Seats, Gaits, Reactions (Translated from the French) ..... .80

B- 7 The Gaits — The Horseman (Translated from the French) ..... .80

STANDARD GUIDES

C- 1 R.O.T.C. Manual, Basic, CS & MS. (2 volumes)
Paper, each vol. 2.25
Cloth, each vol. 2.75

C- 2 R.O.T.C. Manual, Adv., MS.
Paper 2.50
Cloth 3.00

C- 3 Officers' Guide, 1943 edition 2.50
C- 4 Officers' Manual, *Moss* 2.50
C- 5 Company Administration and Personnel Records, *Virtue* (Paper), 13th edition 1.50
C- 6 Company Administration and Personnel Records, *Virtue* (Cloth), 13th edition 2.00
C- 7 Modern Military Dictionary (Cloth) 2.50
C- 9 Combat Communications, *Allen* ..... .35
C-10 Reconnaissance, *Allen* ..... .35
C-11 Combat Intelligence, *Schwein* 2.00
C-12 S-2 in Action, *Thomas* 1.50
C-13 Soldier's Handbook ..... .50
C-14 Courts-Martial Practical Guide 1.00
C-15 Machine Gunner's Handbook ..... .50
C-16 The Soldier and the Law (1944 edition). 2.00
C-18 Mass Physical Training, *Roycroft* 3.00
C-19 Medical Soldier's Handbook 1.00
C-20 Insignia of the Services, *Brown* 1.50
C-21 Army Food and Messing 2.50
C-22 Practical Manual of Martial Law 2.00
C-23 Map and Aerial Photos Simplified 1.00
C-24 State Defense Manual 1.00
C-26 The Fourth Horseman, *Doherty* 1.00
C-27 U.S.A. Second Lieutenant's Handbook, *Craf* 1.00
C-28 Going to O.C.S. 1.00
C-29 Heavy Weapons Manual 2.50
C-30 Basic Manual of Military Small Arms.... 2.00
C-31 Modern Reconnaissance 1.50
C-32 Handbook to Army Regulations, *Sczudlo*. 2.50

STANDARD BOOKS ON WAR

D- 2 Leadership for American Army Leaders, *Munson* 1.00
D- 3 Infantry in Battle 3.00
D- 4 American Campaigns, *Steele* (2 vols., Texts and Maps) 8.00
D- 5 World's Military History, *Mitchell* 3.00
D- 6 Warfare, *Spaulding, Wright, Nickerson* .. 3.00
D- 8 A Rifleman Went to War, *McBride* 3.50
D- 9 Maneuver in War, *Willoughby* 3.00
D-10 Allenby, by *General Wavell* 3.00
D-11 America in Arms, *Palmer* 2.00
D-12 Generals and Generalship, *Wavell* 1.00
D-13 U. S. Army in War and Peace, *Spaulding* .. 6.00
D-14 Chemical Warfare, *Wachtel* 4.00
D-15 Roots of Strategy, *Phillips* 3.00
D-16 Technique of Modern Arms, *Muller* 2.50
D-18 Principles of Warfare, *Clausewitz* 1.00
D-19 Engineers in Battle, *Thompson* 1.50
D-20 History of the United States Army, *Ganoe* 5.00
D-21 Gas Warfare, *Waitt* (1944 Edition) 2.75
D-22 Defense, *von Leeb* 1.00
D-23 Surprise, *Erfurth* 1.00
D-24 Armored Warfare, *Fuller* 1.00
D-25 Napoleon and Modern War, *Lanza* 1.00
D-26 The Axis Grand Strategy 3.50

GENERAL

G- 1 Story of the Little Big Horn, *Graham* 2.00
G- 3 How To Say It In Spanish ..... .75
G- 5 Army Wife, *Shea* 2.50
G-13 A Roving Commission, *Churchill* 1.75
G-14 Indian-Fighting Army, *Downey* 3.50
G-15 Army Talk, *Colby* 2.00
G-18 Get Tough!, *Fairbairn* 1.00
G-20 Report From Tokyo, *Grew* 1.00
G-21 Lee's Lieutenants, *Freeman* Vol. 1 and 2, each 5.00
G-23 They Call it Pacific, *Lee* 3.00
G-24 Journey Among Warriors, *Curie* 3.50
G-25 Queens Die Proudly, *White* 2.50
G-26 Thirty Seconds Over Tokyo, *Lawson* 2.00
G-27 Here Is Your War, *Pyle* 3.00
G-28 Australia and the Pacific 2.50

MODERN WARFARE BOOKS

F- 2 Armies on Wheels, *Marshall* 2.50
F- 3 New Ways of War, *Wintringham* ..... .25
F- 5 Blitzkreig, *Marshall* 2.00
F- 7 America and Total War, *Pratt* 3.00
F- 8 Under the Iron Heel, *Moen* 2.75
F- 9 Winged Warfare, *Arnold & Eaker* 3.00
F-10 Douhet and Aerial Warfare, *Sigaud* 1.75
F-11 The Impact of War, *Herring* 2.50
F-12 War in the Air, *Garnett* 3.50
F-17 Great Soldiers of Two World Wars, *DeWeerd* 3.50
F-18 Building An Army, *Johnston* 1.00
F-19 Pattern of Conquest, *Harsch* 2.50
F-20 Army of the Future, *de Gaulle* (new edition) 2.00
F-21 Mechanized Might, *Raborg* 2.50
F-23 They Were Expendible, *White* 2.00
F-24 Global War, *Mowrer and Rajchman* 1.00
F-25 The Red Army, *Berchin and Ben-Horin* ... 3.00
F-26 Weapons and Tactics, *Wintringham* 2.25
F-27 Combined Operations, *Saunders* 2.00
F-28 Airborne Invasion, *Hetherington* 2.50

BOOKS FOR THE HORSEMAN

E- 1 A Horseman's Handbook on Practical Breeding, by *Colonel John F. Wall*, U.S.A., Retired (New 1942 Edition). 4.00
E- 3 Horse Training, Outdoor and High School, *Beudant* (translated by Lt. Col. J. A. Barry, U. S. Cavalry) 3.00
E- 4 Horseshoeing, *Churchill*, 1933 ..... 1.20
E- 6 More About Riding Forward, by *Littauer* .. 3.00
E- 8 Position and Team Play, *Devereaux* 1.50
E- 9 Riding Forward, *Capt. V. S. Littauer* 2.00
E-10 School for Riding, *Capt. Sergei Kournakoff* 2.50
E-12 Be a Better Horseman, by *Littauer* 10.00
E-13 Horses, *Self* 3.00

Books not listed can be supplied upon request.

10% discount on orders of $10.00 or more.

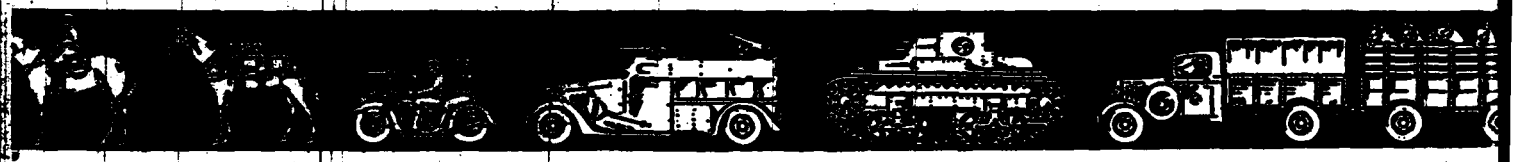
Order Through

The Cavalry Journal

1719 K Street, N.W. WASHINGTON 6, D. C.

The Sixth Cavalry Association

[illegible] St. N.W. Washington, D.C



357.05
CA
cop. 1

THE CAVALRY JOURNAL

THE LIBRARY OF THE
OCT 11 1945
UNIVERSITY OF ILLINOIS

Gen. Jonathan M. Wainwright, holder of nation's highest award for valor, the Congressional Medal of Honor.

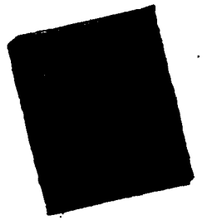
SEPTEMBER-OCTOBER, 1945

ATLASES—*that satisfy the most exacting!*

ENCYCLOPAEDIA BRITANNICA WORLD ATLAS, *Trade Edition* . . .

Follow the War—anywhere on Earth! Two of the World's Celebrated Editorial Boards have collaborated to produce a single, vital and scholarly volume. A Treasure Chest of the World's finest Political and Physical maps—164—newly engraved, richly printed in full, "eye-ease" colors that establish top cartographic standards. A colossal, illustrated Encyclopedic-Index of World Geography: Countries, Mountains, Cities, Rivers, etc., all listed A-Z. No more searching by countries. Edited by Britannica experts. "Built-in" binding for War Supplements and Revision Certificate. NEW AIR AGE MAPS! Illustrated statistical data. Striking washable covers. Size 16½" x 12½" . . . $12.50.

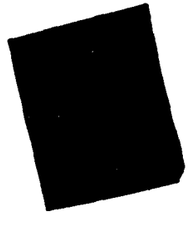
LIBERTY WORLD ATLAS, *Popular Edition* . . .



With Postwar Map Certificate. Home, Office, School—it's Top Grade! A new Global Atlas. 84 pp. of detailed, multi-colored maps (there's wide use of Inset Maps of congested areas), War Section, Gazetteer-Index and Geographical Comparisons. Timely set of Natural Resource Maps show why we can't always get the food, raw materials and other things we want. To top all this, there are pages and pages of intriguing World Geography profusely illustrated with expressive photographs.

The binding is attractive Chameleon Leatherette in Old Spanish grain, fully embossed with a brightly printed jacket from which you can *make your own World Globe.* Size 12¼" x 9½" . . . $1.00.

SELF-REVISING WORLD ATLAS . . .



BRAND-NEW EDITION! A complete collection of unusual Political and Physical Maps of the entire World in full color, 32 pp. of Maps of all Continents and Countries, Charts of the Oceans, Pages of Tabulated Facts, special material of immediate and future import to the war, six Economic-Relief maps of each Continent. Global maps and data. Time Zones, War Maps, Complete Gazetteer, Revision Certificate. Size 12¼" x 9½" . . . 35c.

The Above Books Are Acceptable for Overseas Shipment

***Send Your Order in to* THE CAVALRY JOURNAL**
BOOK DEPARTMENT

The United States Cavalry Association

Organized November 9, 1885

The aim and purpose of the Association shall be to disseminate knowledge of the military art and science, to promote the professional improvement of its members, and to preserve and foster the spirit, the traditions, and solidarity of the Cavalry of the Army of the United States.—Article III, Constitution.

OFFICERS

MAJ. GEN. JOHN K. HERR
U. S. ARMY RETIRED
President

BRIG. GEN. H. S. HAWKINS
U. S. ARMY RETIRED
Vice-President

COL. EDWIN M. SUMNER, Cav.
Secretary-Treasurer

☆

EXECUTIVE COUNCIL

MAJ. GEN. GUY V. HENRY
BRIG. GEN. KARL BRADFORD
BRIG. GEN. HENRY I. HODES
COL. GORDON B. ROGERS
COL. SAMUEL R. GOODWIN
COL. JAMES M. CAPERTON
COL. WILLIAM H. GREEAR
LT. COL. H. S. MERRICK
MAJ. E. J. ST. JACQUES

THE CAVALRY JOURNAL, published under the auspices of the United States Cavalry Association, is not an official publication. Contributions appearing herein do not necessarily reflect official thought or indorsement. Articles appearing in this Journal represent the personal views of the author and are published to stimulate interest in, provoke thought on, and provide a free forum for the decorous discussion of cavalry affairs.

The Cavalry Journal

Published Bimonthly by The United States Cavalry Association

COLONEL EDWIN M. SUMNER, *Cavalry, Editor*
FIRST LIEUTENANT CHARLES E. HEARTSILL, *Associate Editor*
EVELYN S. DRAYTON, *Book Editor*
M/SGT. HOWARD M. COLLINS, *Circulation Manager*
TEC 5 JOHN J. CORNETT, *Asst. Circulation Mgr.*

Volume LIV SEPTEMBER-OCTOBER, 1945 Number 5

CONTENTS

15TH CAVALRY GROUP Part I 2
An Ambush in Brittany 3
Group Supply Problems 5
By Major Glenn E. Foat
Troops Have to Fight Too 6
By Captain Clark E. Lawson and Captain Frank C. Haston
Seizing Strategic Installations 7
Anonymous
Cavalry Secures a Bridgehead 8
By Major W. R. Hudson
MECHANIZED CAVALRY GROUP IN DEFENSE 10
By 1st Lieutenant Robert M. Bailey
YANKS MET COSSACKS IN HISTORIC LINK-UP 12
WE MET THE RUSSIANS 13
By Lt. Colonel Anthony F. Kinkis
FROM ROCHERHAUSEN TO KINBECK 14
By Captain Stuart J. Schorer
COMMENTS FROM COMBAT 15
Help Wanted: A Cavalry Rifle Troop
By Captain Don W. Voorhies
Light Tanks in Pursuit
By Major James W. Cooke
Zone Reconnaissance for the 30th Division
By Captain Samuel M. Lindsay
FROM THE ROER TO THE RHINE 22
THE U. S. NORTH FLANK 24
By Major Thomas J. Brett
RADAR 27
GENERAL HAWKINS' NOTES 28
EDITORIALS 28
THE ATOM 27
By Evelyn S. Drayton
MORE POWER FOR CAVALRY 30
By Colonel Albert E. Phillips
THE RECOILLESS RIFLE 31
By Colonel Rene R. Studler
FLYING ANIMALS OVER THE BURMA "HUMP" 32
By Colonel Ralph W. Mehrl
THE BURMA BOAT 36
VICTORY IN BURMA—THE FULL STORY 37
By Major Lewis Hastings
SOVIET CAVALRY 38
By Captain Sergei N. Kournakoff
MONGOLIAN CAVALRY 44
By Major V. Petrov
A REMOUNT DEPOT IN ITALY 45
By Lt. Colonel Kenneth F. Lafayette
SERGEANT MIYOSHI! 46
THE SLANT-EYED VIEWPOINT 47
SPITFIRE TANKS 48
By 1st Lt. Charles H. Heinfeld
ARMORED COMMAND POST 55
By Captain Charles Gilbert
FIERY CALLING CARDS 56
By Lt. Colonel George O. Gillingham
INCENDIARIES ON TOKYO 58
ARMORED FORCES 60
By Colonel Conrad H. Lanza
BRIDGE LAYING BY ARMOR 73
By Major John North
THE "CHALLENGER"—HEAVY CRUISER TANK 74
By Major R. W. Marland
CHRONOLOGY OF WORLD WAR II 75
BOOK REVIEWS 76

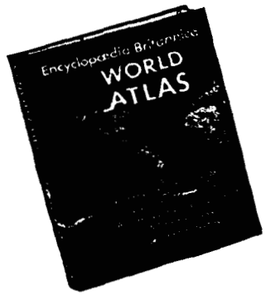
Publication date: September 25, 1945. Deadline date, next issue: October 20, 1945.

THE CAVALRY JOURNAL IS NOT RESPONSIBLE FOR OPINIONS EXPRESSED IN PUBLISHED CONTRIBUTIONS.

Editorial offices: 1719 K Street, Northwest, Washington 6, D. C. Copyright, 1945, by the U. S. Cavalry Association. Publication office: 1406 East Franklin Street, Richmond, Virginia. Entered as second class matter at Richmond, Virginia, under the act of March 3, 1879, for mailing at special rate of postage in Section 412, Act of October 3, 1917. Terms: Domestic subscriptions, organizations, and military personnel, $3.00 per year. Foreign, $3.50 per year. Canada: including War Exchange Tax, $3.50. Domestic clubbing, $4.00. All subscriptions payable in advance. Single copies, 75c. Extra copies to military subscribers, 50c.

ATLASES—*that satisfy the most exacting!*

ENCYCLOPAEDIA BRITANNICA WORLD ATLAS, *Trade Edition* . . .



Follow the War—anywhere on Earth! Two of the World's Celebrated Editorial Boards have collaborated to produce a single, vital and scholarly volume. A Treasure Chest of the World's finest Political and Physical maps—164—newly engraved, richly printed in full, "eye-ease" colors that establish top cartographic standards. A colossal, illustrated Encyclopedic-Index of World Geography: Countries, Mountains, Cities, Rivers, etc., all listed A-Z. No more searching by countries. Edited by Britannica experts. "Built-in" binding for War Supplements and Revision Certificate. NEW AIR AGE MAPS! Illustrated statistical data. Striking washable covers. Size 16½" x 12½" . . . $12.50.

LIBERTY WORLD ATLAS, *Popular Edition* . . .

With Postwar Map Certificate. Home, Office, School—it's Top Grade! A new Global Atlas. 84 pp. of detailed, multi-colored maps (there's wide use of Inset Maps of congested areas); War Section, Gazetteer-Index and Geographical Comparisons. Timely set of Natural Resource Maps show why we can't always get the food, raw materials and other things we want. To top all this, there are pages and pages of intriguing World Geography profusely illustrated with expressive photographs.

The binding is attractive Chameleon Leatherette in Old Spanish grain, fully embossed with a brightly printed jacket from which you can *make your own World Globe.* Size 12¾" x 9½" . . . $1.00.

SELF-REVISING WORLD ATLAS . . .

BRAND-NEW EDITION! A complete collection of unusual Political and Physical Maps of the entire World in full color. 32 pp. of Maps of all Continents and Countries. Charts of the Oceans. Pages of Tabulated Facts, special material of immediate and future import to the war, six Economic-Relief maps of each Continent. Global maps and data, Time Zones, War Maps. Complete Gazetteer, Revision Certificate. Size 12½" x 9½" . . . 35c.

The Above Books Are Acceptable for Overseas Shipment

***Send Your Order in to* THE CAVALRY JOURNAL**
BOOK DEPARTMENT

The United States Cavalry Association

Organized November 9, 1885

The aim and purpose of the Association shall be to disseminate knowledge of the military art and science, to promote the professional improvement of its members, and to preserve and foster the spirit, the traditions, and solidarity of the Cavalry of the Army of the United States.—Article III, Constitution.

OFFICERS

MAJ. GEN. JOHN K. HERR
U. S. ARMY RETIRED
President

BRIG. GEN. H. S. HAWKINS
U. S. ARMY RETIRED
Vice-President

COL. EDWIN M. SUMNER, Cav.
Secretary-Treasurer

☆

EXECUTIVE COUNCIL

MAJ. GEN. GUY V. HENRY
BRIG. GEN. KARL BRADFORD
BRIG. GEN. HENRY I. HODES
COL. GORDON B. ROGERS
COL. SAMUEL R. GOODWIN
COL. JAMES M. CAPERTON
COL. WILLIAM H. GREEAR
LT. COL. H. S. MERRICK
MAJ. E. J. ST. JACQUES

THE CAVALRY JOURNAL, published under the auspices of the United States Cavalry Association, is not an official publication. Contributions appearing herein do not necessarily reflect official thought or indorsement. Articles appearing in this Journal represent the personal views of the author and are published to stimulate interest in, provoke thought on, and *provide a free forum for the decorous discussion of cavalry affairs.*

The Cavalry Journal

Published Bimonthly by The United States Cavalry Association

COLONEL EDWIN M. SUMNER, *Cavalry, Editor*
FIRST LIEUTENANT CHARLES E. HEARTSILL, *Associate Editor*
EVELYN S. DRAYTON, *Book Editor*
M/SGT. HOWARD M. COLLINS, *Circulation Manager*
TEC 5 JOHN J. CORNETT, *Asst. Circulation Mgr.*

Volume LIV SEPTEMBER-OCTOBER, 1945 Number 5

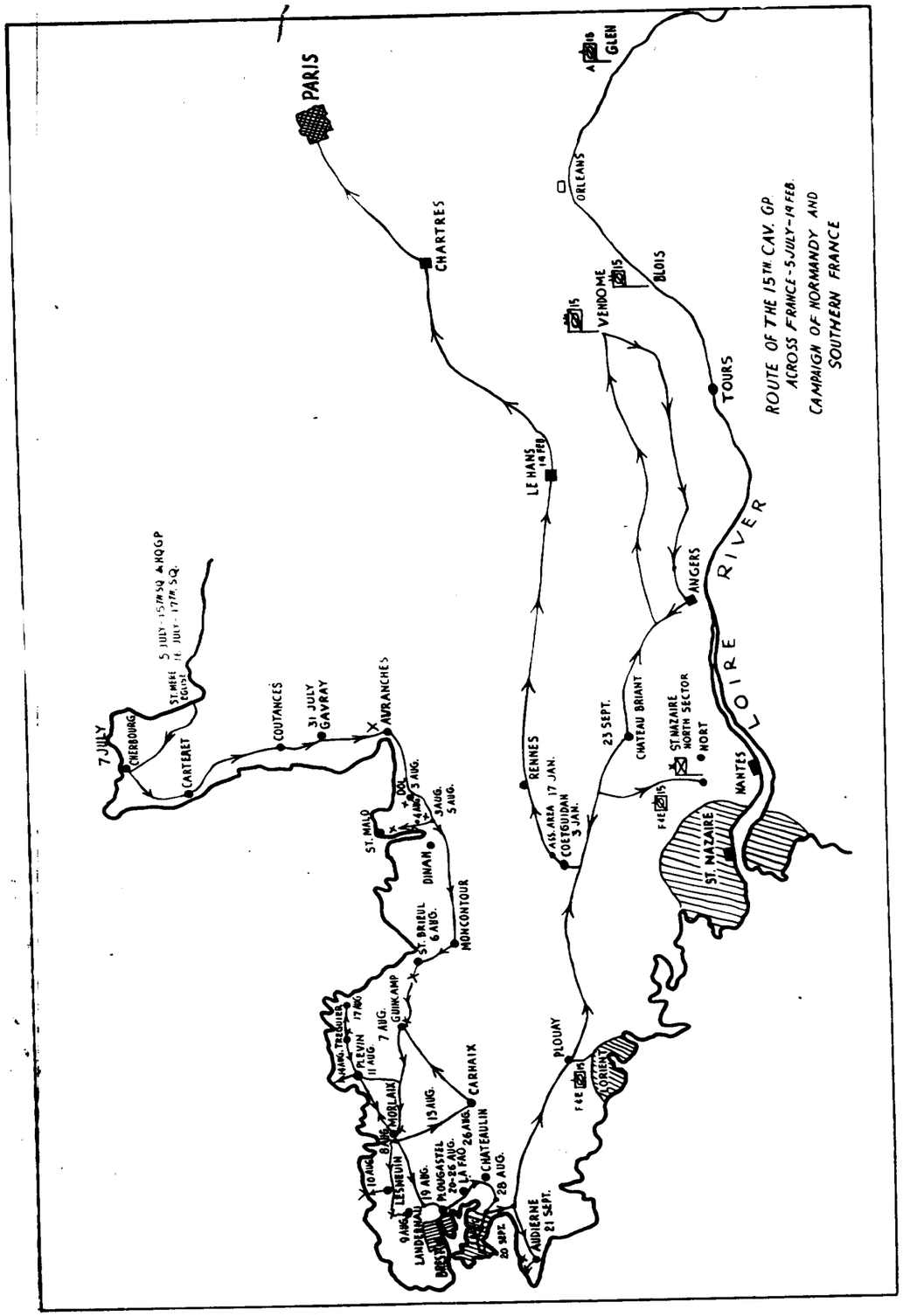
CONTENTS

15TH CAVALRY GROUP Part I 2
An Ambush in Brittany 3
Group Supply Problems 5
By Major Glenn E. Font
Trains Have to Fight Too 5
By Captain Clark R. Larson and Captain Frank C. Horton
Seizing Strategic Installations 7
Anonymous
Cavalry Secures a Bridgehead 8
By Major W. E. Hudson
MECHANIZED CAVALRY GROUP IN DEFENSE 10
By 1st Lieutenant Robert M. Batley
YANKS MET COSSACKS IN HISTORIC LINK-UP 12
WE MET THE RUSSIANS 13
By Lt. Colonel Anthony F. Kleitz
FROM ESCHERHAUSEN TO EINBECK 16
By Captain Stuart J. Seborer
COMMENTS FROM COMBAT 18
Help Wanted: A Cavalry Rifle Troop
By Captain Don W. Veorhies
Light Tanks in Pursuit
By Major James W. Cocke
Zone Reconnaissance for the 30th Division
By Captain Samuel M. Lindsay
FROM THE ROER TO THE RHINE 22
THE U. S. NORTH FLANK 24
By Major Thomas J. Brett
RADAR 27
GENERAL HAWKINS' NOTES 32
EDITORIALS 33
THE ATOM 37
By Evelyn S. Drayton
MORE POWER FOR CAVALRY 39
By Colonel Albert E. Phillips
THE RECOILLESS RIFLE 41
By Colonel Rene R. Studler
FLYING ANIMALS OVER THE BURMA "HUMP" 42
By Colonel Ralph W. Mohri
THE BURMA BOAT 45
VICTORY IN BURMA—THE FULL STORY 47
By Major Lewis Hastings
SOVIET CAVALRY 52
By Captain Sergei N. Kournakoff
MONGOLIAN CAVALRY 54
By Major V. Petrov
A REMOUNT DEPOT IN ITALY 55
By Lt. Colonel Kenneth F. Lafayette
SERGEANT MITOSHI! 56
THE SLANT-EYED VIEWPOINT 61
SPITFIRE TANKS 63
By 1st Lt. Charles H. Heinfeld
ARMORED COMMAND POST 65
By Captain Charles Gillett
FIERY CALLING CARDS 68
By Lt. Colonel George O. Gillingham
INCENDIARIES ON TOKYO 69
ARMORED FORCES 69
By Colonel Conrad H. Lanza
BRIDGE LAYING BY ARMOR 72
By Major John North
THE "CHALLENGER"—HEAVY CRUISER TANK 74
By Major R. W. Murland
CHRONOLOGY OF WORLD WAR II 75
BOOK REVIEWS 76

Publication date: September 25, 1945. Deadline date, next issue: October 10, 1945.

THE CAVALRY JOURNAL IS NOT RESPONSIBLE FOR OPINIONS EXPRESSED IN PUBLISHED CONTRIBUTIONS

Editorial offices: 1719 K Street, Northwest, Washington 6, D. C. Copyright, 1945, by the U. S. Cavalry Association. Publication offices: 406 East Franklin Street, Richmond, Virginia. Entered as second class matter at Richmond, Virginia, under the act of March 3, 1879, for mailing at special rate of postage in Section 412, Act of October 3, 1917. Terms: Domestic subscriptions, organizations, and military personnel, $3.00 per year. Foreign, $3.50 per year. Canada: including War Exchange Tax, $3.50. Domestic civilian, $4.00. All subscriptions payable in advance. Single copies, 75c. Extra copies to military subscribers, 50c.



15th CAVALRY GROUP

PART I

By August 1, 1944, the First United States Army had apparently broken through the German defenses in Normandy and pushed southward along the western coast of the peninsula. The Third United States Army was assigned the task of exploiting this break-through. The 15th Cavalry Group was part of the special task force assigned the mission of cutting across the northern part of the peninsula to secure the vital bridges along the railroad from Brest to Avranches. This is the first of a series of articles covering this action, written by officers of the 15th Cavalry Group, to be published in The Cavalry Journal.

An Ambush in Brittany

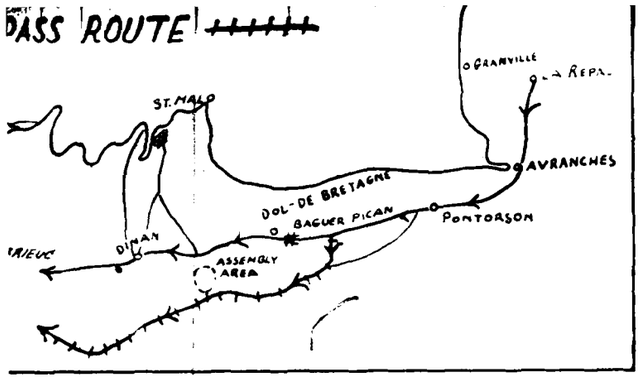
As final plans were made for the break-through after the capture of the Cotentin Peninsula, one obvious problem was presented: this was the Brittany Peninsula. Since access to the planning and strategy of the high level staffs was not available, the problem is considered here from the view of the average officer who was engaged in the campaign.

Unless another amphibious operation were to be conducted on the Brittany shores, upon breaking out from the Normandy Peninsula, some forces must fan out to the west as well as the east. The size of the forces would, of course, be determined by the strength of the enemy in the Brittany Peninsula, the state of his organization and defenses, the amount of mechanization, and other factors. Later information indicated a decrease in the German military effectiveness in the peninsula, as evidenced by the fact that the initial assault force consisted of only the VIII Corps, comprising the 4th Armored, the 6th Armored, and the 83d Infantry Divisions, and Task Force A.

Task Force A, highly mobile and strong in armament and armor, was conceived by General Patton, Commanding General, Third Army, only a few hours before it was born. It was given to the VIII Corps, under General Middleton, who designated General Earnest as its commander. Its formation was undoubtedly the result of late information on the status of the enemy strength in Brittany, which indicated that the northern half of the peninsula was being drained of troops and armor proceeding rapidly to Brest. The one place still expected to be defended was St. Malo. Accordingly, it seemed a good gamble to try to cut the northern half of the peninsula with a comparatively small, highly mobile task force.

The 15th Cavalry Group was assigned to Task Force A on August 1, 1944. In addition to the 15th Group, the task force consisted of Headquarters, 6th Tank Destroyer Group; the 705th Tank Destroyer Battalion; C Company, 159th Combat Engineers; and an engineer Bailey Bridge company. The task force assembled at La Repas, about 20 kilometers north of Avranches, on August 2.

The mission given to Brigadier General Herbert Earnest (now Major General), was to proceed at the greatest possible speed to the vicinity of Brest, along the northernmost route through Avranches, Pontorson,



Dol de Bretagne, Dinan, St. Brieuc, Guingamp, and Morlaix, and drop off small guard detachments to remain at each town until they could be relieved by elements of the 83d Division. A later mission, assigned the afternoon of August 2, required that one troop be detached when the column reached a point south of St. Malo, to make a reconnaissance to determine the extent of defenses and enemy activity around the city. This troop was to rejoin the column upon completion of the mission.

Information from higher headquarters indicated that the 6th Armored Division was advancing on the same route that we were to follow as far as Dinan. After taking Dinan they would turn south and we could therefore expect the route to be clear to that point.

An assembly area midway between Dol and Dinan was to be used by the 6th Armored Division on August 2-3, and was designated as the assembly area for Task Force A for the night of August 3-4. The advance to the assembly area was to be made in one column, in the following order of march: 17th Cavalry Reconnaissance Squadron; Group Headquarters, 15th Cavalry Group; 14th Cavalry Reconnaissance Squadron; Headquarters TFA; 705th TD Battalion; Company C, 159th Engineers; Bailey Bridge Company and Trains; Reconnaissance Company, 705th TD Battalion. Upon reaching the assembly area, final orders were to be issued and troops deployed to advance on the first objective, the bridge at St. Brieuc.

The head of the column passed the IP at 0130, August 3. During the entire march the group commander rode near the head of the column, and led the advance. The order of march of Troop C, the lead troop, was as follows: 3d Platoon, 1st Platoon; Troop Headquarters, 2d Platoon, Troop E (assault guns).

Just north of Avranches the first enemy activity was encountered when we underwent considerable bombing and strafing by hostile planes. We suffered no losses, but a bomb crater in the middle of the road, plus extremely heavy traffic, held up the column for about an hour and a half. Finally Avranches was cleared and the rate of march gradually increased.

Orders received by the group commander had emphasized that speed was of the utmost importance. This was to be a race to Brest with stripped saddles. In view of that, and the delay at Avranches, coupled with the fact that the route was considered clear, the Group CO pushed the column along at a speed between 35 and 40 miles per hour. At about 0620, feeling that this speed was excessive, the commanding officer of Troop C called for the leading platoon to slow down the column.

The leading platoon cleared Baguer-Pican, a tiny town about 4 kilometers east of Dol, from which the highway led a long hill flanked on each side by ditches and the usual hedgerows. At the bottom of the hill was a bend in the road with woods on either side. The point, with the group commander in the lead, rolled down the highway at a speed of 35 to 40 miles an hour and was followed by the remainder of the platoon, which kept about 50 yards between vehicles.

As they reached the wooded bend of the road at about 0630 they hit an ambush which apparently was composed of a heavily defended road block, AT guns, mortars and machine guns, and which had dismounted flankers on each side of the road for several hundred yards. The group commander's jeep was hit and burst into flames. The platoon leader was fatally wounded. Those men not killed in the first burst of fire jumped from their vehicles into the ditch. In the resulting confusion it was extremely difficult for the troop commander to regain control. Enemy machine-gun fire raked the column as far back as the Headquarters Platoon. Getting the vehicles off the road was impossible.

The only thing to do was to extricate Troop C, and try to recover the wounded, most of whom had made it to the ditches but were pinned down by fire. The assault guns moved to the crest of the hill and opened fire on the suspected enemy position with smoke and HE. Troop A, which followed Troop C in column, was ordered to cover Troop C while it pulled out and reorganized. The 3d Platoon was short all but three men. At 0900 orders came from task force headquarters to withdraw. The entire column would by-pass to the south on an alternate route.

The exact strength and composition of the enemy force was never determined. The group commander and 4 men were not recovered. It was later found that they had been wounded, captured, and held on the Island of Jersey until released in May 1945.

Later, we learned that the 6th Armored Division had turned off beyond Pontorson and taken a more southerly route. Had this information reached us in time, there would have been a different story to tell.

There is no new significant lesson to be pointed out from this action. It emphasizes strongly the vulnerability of a road-bound mechanized column to an ambush, and illustrates the necessity for a tactical march formation, even when it is believed that the route of advance is clear. Had Troop C been preceding the main body by a half a mile in the approved formation for an advance guard, there would have been enough warning to allow the squadron commander to dispose his squadron in an effective manner, and for the group commander to employ some reserves. It also brings out the fact that the place for the group commander is *not* up with the point corporal.

Group Supply Problems

by Major Glenn E. Font

ON August 1, 1944, the group received orders to gather up 6 days' emergency rations, gasoline and oil for 250 miles, as much ammunition as it could carry, and to pick up and attach "hedgerow plows" to 4 M5A1 light tanks in each tank company.

As sometimes happens, telephones would not work and radio to higher headquarters bogged down, so many Paul Revere rides took place during the night of August 1-2. Ammunition releases had to be obtained, road priorities had to be arranged for, and rations had to be trucked in from Omaha Beach prior to our rendezvous near Avranches with the units that were to make up Task Force A.

By working supply personnel of both squadrons night and day from August 1 through August 3, all necessary supplies were obtained and in readiness for the jump-off, scheduled for soon after midnight on August 3.

As the supply trains moved through Avranches shortly after the jump-off, the column was dive-bombed and strafed by a small ineffective group of enemy fighter-bombers, but there were no casualties.

The problem of re-supply came up the first night after the break-through. In our first engagement with the enemy at Dol, France, we had lost a number of vehicles, men and equipment. Replacements were needed immediately, as our MSR (main supply route) was stretching rapidly, and was none too safe to travel.

On the night of August 3-4 we ran our first supply train back through territory known to be infested with enemy troops who had been squeezed out on each side of the MSR during our speedy advance that day. To defend the train one jeep mounting a .50 caliber machine gun was used in the point, followed by one M8 armored car, and the supply trucks with a .50 caliber on every third truck. (We had not received all of our .50 caliber mounts at that time.) Near the middle of the train was a half-track with one .50 caliber and two .30 caliber machine guns. The rear of the column was protected by an M8 armored car.

At Pontorson the trains were forced to split up because the various supply dumps were located at different points. The ammunition trucks went all the way back to Omaha Beach to pick up 76mm ammunition for the TDs attached to the task force; the replacement depot for personnel was at Granville; gas and oil was at another place; and replacement vehicles at still another.

After the trains reassembled in the vicinity of Pontorson and returned to the combined trains bivouac (TFA rear), the cavalry decided to run all future supply training during daylight hours to avoid the risk of night ambush and night strafing. The enemy air force was afraid to come up during the day when our air forces controlled the skies.

Supply began to function more or less normally, but day by day TFA was getting farther and farther away from the Third Army dumps. This caused more supply difficulties. Our trains had to go all the way back to the beaches for some of the supplies. During the time artillery ammunition was rationed, just prior to the fall of Brest, it was not uncommon for our ammunition trucks to travel a 500-mile round trip for certain types of artillery ammunition.

The situation was relieved somewhat when a small beachhead was established at St. Michel en Greve and several LSTs anchored with class I and III supplies. This shortened the supply lines for our most urgently needed items: type K and 10-in-1 rations, and gasoline.

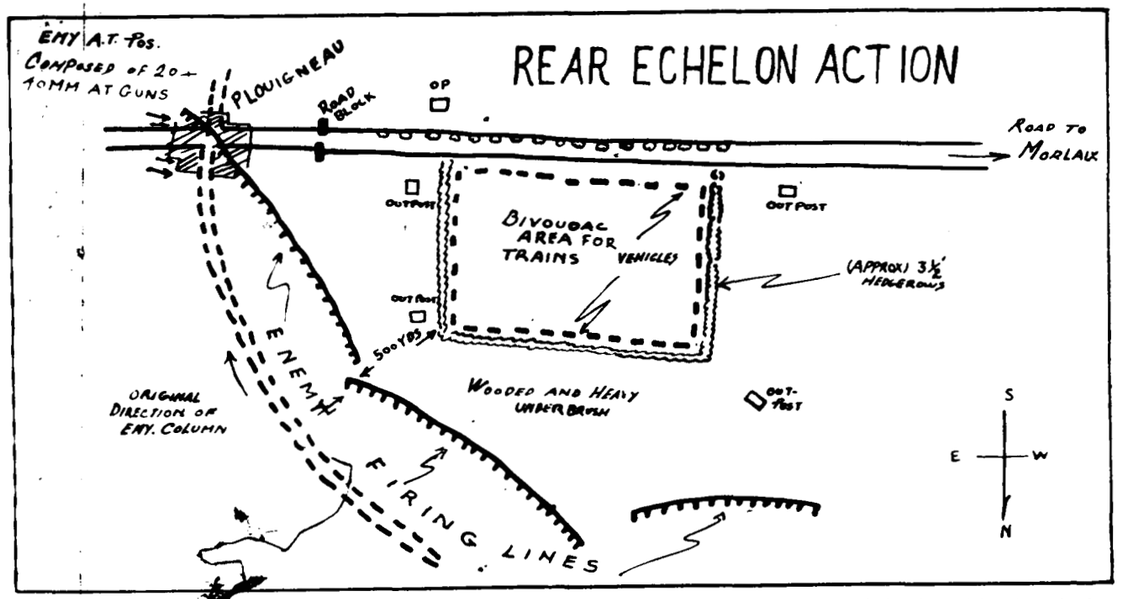
Although the supply was difficult, and nearly impossible at all times, the men were fed, the vehicles were filled, and throughout the operation weapons were never short of available ammunition in the 15th Cavalry Group and attached squadrons.

Trains Have to Fight Too

by Captain Clark R. Larson and Captain Frank C. Horton

WHEN we left Avranches, unit trains in Task Force A were combined to afford better protection from both air and ground attack. With no platoon or section from the combat element attached to our trains, it became necessary to furnish our own protection.

Care was taken to distribute the more heavily armed vehicles along the column, and put an adequate number of vehicles carrying antiaircraft weapons with the lead and tail vehicles. These consisted mainly of half-tracks, two light tanks, which were in each squadron



"A defensive firing line was set up around our area, covered wagon style . . . we returned the fire with all we had."

maintenance section, and three armored cars, which mounted .50 caliber guns. At that time very few of our trucks were equipped with ring mounts.

The first night, before we bivouacked near Epinac, an advance party left the train convoy ahead of time to pick out a suitable area. We continued this practice to make sure that the column could get off the road and go into bivouac under cover as soon as possible, in order to lessen the chances of an air attack upon a halted column. Immediately upon closing in the area, vehicles were camouflaged and security posts organized. We used the tanks, half-tracks and armored cars to establish outposts at strategic points so situated that all-around security would be provided. Crew members rotated the guard duty, but always remained in pairs. Local security was set up within the immediate vehicle area. This became SOP for our train security while in bivouac.

On the morning of August 9, we were bivouacked about 8 miles east of Morlaix, near Plouigneau. The 15th Cavalry Group trains had been detached from the rest of those belonging to the task force. About 0700 we were attacked by a German force moving south across a highway over which the task force had passed only the night before. Because of a heavy fog, we were at first unable to determine the strength and dispositions of the enemy force. Later it was found to consist of more than 200 men and light horse-drawn antitank weapons.

The attack began with harassing small-arms fire and an occasional mortar shell. Fearing that the enemy wanted our supplies more than they did us, our first interest was to save our vital gasoline, ammunition, and rations. We immediately attempted to move out, but could not because both entrances to the bivouac area were covered by antitank fire.

A defensive firing line was set up around our area, covered wagon style, from which we returned the fire with everything we had. Headquarters was notified by radio, and we were told that help was on the way.

Lieutenant Hall of Troop B, 14th Squadron, brought his reconnaissance platoon through Morlaix and arrived during the fire fight. After reconnoitering he decided to attack by fire in an attempt to neutralize the enemy long enough for our train to evacuate the area. His attack was repulsed but confused the Germans, who switched some of their 20 and 40mm antitank weapons.

Captain Herman M. Marlow, CO of Headquarters Troop, 17th Cavalry Squadron, mounted an armored car and made a dash for the highway leading to Morlaix. He got through successfully and raced on to the outskirts of Morlaix where he contacted a tank platoon from F Company, 14th Cavalry. Details of the situation were given the platoon which informed headquarters of its anticipated actions, and then turned back and attacked full speed up the road, firing as it came.

It knocked out the antitank positions which had been set up at the cross road in Plouigneau, and with its tanks established a road block between us and the enemy. The addition of the tank fire power afforded us the opportunity to move out of the area and to rejoin the remainder of Task Force A trains, situated on the outskirts of Morlaix.

Seizing Strategic Installations

Anonymous

TASK FORCE A had an initial mission of securing key bridges along the Brest-Rennes railroad line, and a secondary mission of mopping up isolated enemy troops in the northern Brittany Peninsula. Without this rail line the port of Brest had little value, since if damaged, several of the bridges were of such length and construction as to require weeks to repair. The mission was ideal for cavalry since it required mobility, surprise, and strong shock action for quickly overcoming the anticipated resistance.

There were three bridges at St. Brieuc, two at Guincamp and three at Morlaix. The FFI already had taken St Brieuc by the time Task Force A reached its outskirts on August 6, 1944, and all bridges were found intact. As in St. Brieuc, it was found that the Germans had fled Guincamp in great confusion without blowing the two small railroad bridges, and that the FFI was guarding them.

On the night of August 7 the 17th Squadron was given the mission of spearheading the drive on Morlaix, where the three railroad bridges were to be seized. General Earnest stressed the importance of taking the largest bridge intact. It was over a defile 250 feet deep and 200 yards wide. Because of the lack of proper construction equipment, destruction of this bridge would paralyze the Brest-Rennes railroad line indefinitely.

Since resistance so far had been scattered and disorganized, the squadron commander decided to attach to Troop A, which was to lead the squadron, one platoon of light tanks, one platoon of assault guns, and one platoon of men in half-tracks from Troop C for dismounted action. This gave the commanding officer of Troop A a powerful punch with which to overwhelm any road blocks.

The order of march was a reconnaissance platoon, a light tank platoon, troop command section, an assault gun platoon, the dismounted platoon in half-tracks, and the other two reconnaissance platoons.

At daylight August 8 Task Force A left its assembly area near Guincamp, France, and headed for Morlaix on Highway N12. At 0900, just east of Plouigneau, two 40mm guns were located under a railroad trestle, covering the highway. The point immediately pulled into defilade and opened fire. The tank platoon leader came forward and sized up the situation with the reconnaissance platoon leader. Since there were no guns larger than 40mm antitank, it was decided to run two tanks abreast down the road, assigning one to each gun. Six men were dismounted to cover the tanks. The two 40mm guns were quickly knocked out, and the remaining three tanks and the dismounted platoon in half-tracks continued the march.

Dismounted German troops were encountered immediately on the other side of the railroad trestle. The tanks moved up the road firing all guns, and within 5 minutes, more than 70 Germans had been taken prisoner. The tanks kept moving, and within two more minutes ran into the rear of an enemy column and began shooting it up. This column was reported to higher headquarters, which ordered the tanks to halt and display panels marking their location. A call was put in for planes, which arrived within half an hour and began strafing the enemy. At 1030 the column was ordered to advance, and although everyone was on the lookout for the enemy column, it was not contacted again.

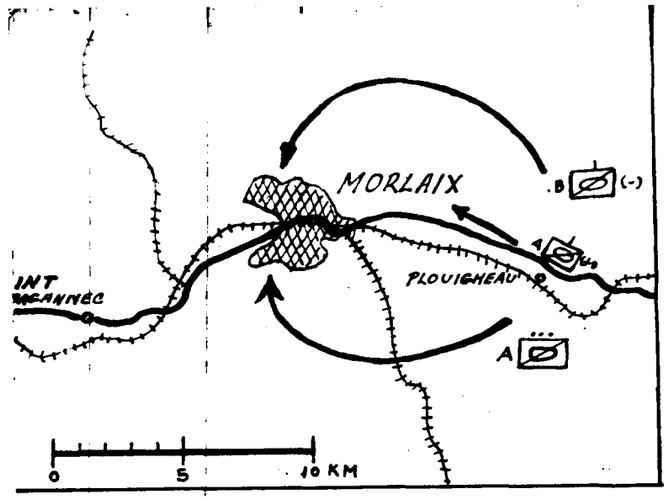
As Troop A passed through Plouigneau, the troop CO was ordered to try to get a platoon into Morlaix from the south along a road that ran parallel to and south of Highway N12. At the same time Troop B, less one platoon, was ordered to move by secondary roads and enter Morlaix from the north. Because of minefields and large antitank obstacles, however, neither Troop A nor Troop B was able to enter the town.

About noon, just as the lead bantam came in sight of the outskirts of Morlaix, it spotted a 20mm gun under a railroad trestle. The bantam opened fire, knocked the gun out, and set it on fire before the Germans could man it. Men of the two lead bantams dismounted and advanced slowly alongside an armored car. This time they spotted a 40mm gun under a second railroad trestle 200 yards down the highway. Just as the Germans were loading the 20mm gun, the armored car opened fire and knocked it out. At this time machine-gun and small-arms fire opened up and pinned down the dismounted men.

The CO of Troop A came forward and reconnoitered. Dismounting part of his 3d Platoon and Troop Headquarters, he had them set up in hedgerows about 200 yards on either side of the column. He then called forward the platoon of tanks and the dismounted platoon of Troop C.

The tanks moved down the road two abreast, followed by the dismounted platoon. They engaged the enemy in a chateau on the right side of the road and along the railroad embankment. The squadron commander realized that the enemy not only had been alerted but was in some strength, and that the bridge might be blown. He called the CO of the attached infantry company, ordered him to move to the railroad embankment and follow it until he reached the big railroad bridge, which was to be held at all costs.

Within 10 minutes the infantry company was moving down the road and by the time it reached the railroad



embankment, Troop A had captured over 270 enemy in and around the chateau and had knocked out the machine-gun positions along the railroad embankment.

Troop A reorganized immediately, mounted up, and moved into town. Sniper fire from buildings along the street caused men in the bantams to take cover, and the tanks were called forward to fire on the buildings. By this time the enemy was surrendering so quickly and in such numbers that Troop A had all it could do to handle them.

The infantry company met but little opposition and soon had the bridge firmly secured. By 1500 all opposition had ceased and more than 600 Germans had been captured at a cost of two men wounded and no vehicles knocked out.

With a complete lack of information concerning the enemy, it was almost impossible to make a planned and coördinated attack. Our situation, however, was that the enemy troops were disorganized, had very little or no communication, and knew as little about the American forces as the Americans knew about them. This made it advisable for the lead troop to become a small task force, to enable it to knock out the enemy before he could become organized. This proved so satisfactory that it was made SOP for the entire Brittany Peninsula.

The lesson to remember, however, is that when moving against scattered enemy resistance and when neither side knows the whereabouts of the other, the head of the column should be loaded with a hard wallop, in order to overwhelm the enemy before he can organize any resistance.

Cavalry Secures a Beachhead

by Major W. E. Hudson

AT the base of the Normandy Peninsula enemy lines had been punctured and the Allied exploitation phase was in full progress. With advance elements in the vicinity of LeMans, the bulk of the Third Army forces were moving rapidly on the epic sweep through France toward Paris.

The 6th Armored Division, also under Third Army control, had swept westward from Avranches, plunging through the Brittany Peninsula to the outskirts of the port of Brest. The enemy lines, though penetrated, battered, and falling back, were still cohesive, and strong counterattacks were being pressed in the vicinity of Mortain with the ultimate objective of reaching Avranches. This would sever the supply lines of the break-through forces, rendering them immobile and subject to destruction. Should Avranches have been lost, the Allied counter move would have been the establishment of a supply line from some port or beachhead along the northern coast of the partially liberated Brittany Peninsula.

The 15th Cavalry Reconnaissance Squadron, part of Task Force A, which had been mopping up along the northern coast of the Brittany Peninsula since August 3, had just completed a successful day's work. During the morning Troop A, with a platoon of assault guns from Troop E, had completely surprised an enemy force in the vicinity of Plougerneau, taken over 300 prisoners, inflicted heavy casualties and captured many weapons. Other troops of the squadron, not as fortunate as Troop A, had spent the days sweeping their assigned zones. At 2000 the squadron was assembled in bivouac in the vicinity of Lesneven to re-gas and prepare for the following day's mission.

At 2230 on August 10, the commanding officer of 14th Cavalry Reconnaissance Squadron received orders to proceed to St. Michel-en-Greve and to secure the beach area and high ground against enemy attack by 1200, August 11. That afternoon, at least three cargo ships of LST class were scheduled to discharge their supplies across the beaches.

A map study disclosed that the shortest main route from Lesneven to the beach area was Lesneven-Landivisiau-St. Theogonnec-Morlaix-Lannieur-Plastin-St. Michel-en-Greve, a distance of some 70 kilometers. This route, however, would channel the entire squadron on one road, and it approached the beach area from

a flank. Should this access be blocked, valuable time would be consumed deploying and by-passing such an obstacle. Time had become precious, so an alternate was selected.

The squadron would proceed in column to Morlaix, then eastward along the Morlaix-Plougerneau-Belle-Isle-en-Terre highway. Upon reaching suitable secondary routes, south of the beach area, the securing forces would turn north along roughly parallel routes, and proceed in deployed formation to the objective. Three routes along secondary roads were selected for further map study; their pattern was desirable, one route leading to the left flank, one to the center, and the remaining route to the right flank.

A reconnaissance troop with an assault gun platoon attached was assigned to each route. Squadron headquarters, with the light tank company, was to follow the center route behind the reconnaissance force. Objective areas covering the commanding ground around the beaches were also allotted. The necessary order and instructions were issued to the assembled troop commanders at midnight, August 10, and at 0100, August 11, the squadron moved out.

During the initial hours of the road march, intense ground fog slowed the squadron to 5 to 8 miles an hour because of the poor visibility. Road guides had been posted from the leading elements and proved invaluable in preventing elements of the column from taking the wrong turns at critical points.

The over-all distance to the objective had been increased to between 85 and 90 kilometers by the selection of an alternate route. Morlaix was reached and passed in the first light of dawn. A few kilometers farther a halt was called to eat breakfast and receive last minute instructions. The column moved out on the final phase at 0800.

Inasmuch as the turn-off points from the main east-west route were about three kilometers apart for each reconnaissance troop, the head of each troop column turned north at nearly the same moment, thus moving the squadron column into a line of troops in column formation with the squadron command element following the center troop. Because of the condition of the secondary roads, progress in this deployed formation was consistent but not rapid. Security teams put out by each flank troop were nevertheless hard put to maintain the pace being set by the main body.

Upon nearing the beach area reports of undefended road blocks were received, giving the first indication that the area was either free of enemy or that he had pulled his defense into a smaller ring. Extensive minefields were discovered, but again no enemy fire was received.

The reconnaissance troops searched for by-passes around mined road blocks, and through aggressive action the reports of "on objective" were soon forthcoming. No enemy were encountered although in addition to the minefields, road blocks and barbed wire entanglements, and heavy coastal guns in hillside pillboxes sited to cover the approaches to the beaches were discovered along with adequate numbers of tetrahedron type steel obstacles.

After securing the high ground and reconnoitering the immediate vicinity, including flanks, the cavalry mission was completed. That supplies were being unloaded across the beaches by 1600 on August 11th is sufficient testimony to the success of the operation.

(To Be Continued)

The story of the 15th Cavalry Group will be continued in the November-December, 1945 issue of The CAVALRY JOURNAL in a series of articles. Stories and authors in the series are as follows:

MECHANIZED CAVALRY IN DISMOUNTED ACTION ..... *by Major William R. Kraft*
MOPPING-UP AN ENEMY POCKET ..... *by Lt. Colonel Garrett J. Dobbins*
ASSAULT GUNS IN DEFENSIVE ACTIONS ..... *by Captain Edwin E. Lassen*
CAVALRY AND INFANTRY AT ST. MALO, *by Lt. Colonel Garrett J. Dobbins and Captain Thomas Fiori*
RECONNAISSANCE OF AN ENEMY POSITION ..... *by Captain James N. McGuire*
THE 17TH SQUADRON HOLDS A RIVER LINE ..... *by Major Morton McD. Jones*
THE GROUP RELIEVES AN ARMORED DIVISION ..... *By Major Herman M. Marlow*
BRITISH-AMERICAN CONTACT ..... *Anonymous*
THE 15TH SQUADRON HOLDS A RIVER LINE ..... *by Major W. E. Hudson*
A NIGHT PATROL IN THE SIEGFRIED LINE ..... *by Captain Norman F. Rolston*

Mechanized Cavalry Group in Defense

by 1st Lieutenant Robert M. Batley*

As the XIX Corps, spearheaded by the 113th (Red Horse) Cavalry Group, drove generally east through Belgium and into Holland, the first obstacles of one of the world's most formidable defense systems were encountered and outflanked. The Corps crossed the Maas River at Liege, Vise and Maastricht, then struck northeast to beyond Gulpen and Valkenburg, Holland, thence north to Sittard, Holland, and then east to Gilrath, Germany. In this area the long drive lost momentum. The first defenses of the Siegfried Line had been reached, and the left flank of the First U. S. Army was left uncovered. Thus the stage was set for the forthcoming rôle of the 113th Cavalry Group.

In one of the longest cavalry dashes in modern history, the Group had fought its way from the Seine River to Maastricht, a distance of 225 miles in 9 days. In conjunction with the 2d Armored Division and the 30th Infantry Division, it had cleared the area bounded by Maastricht, Valkenburg, Heerlen and Sittard, and elements of the Group had crossed the German border.

On September 19, the Group CP was at Hoogeruts. The Group then was comprised of the 113th Cavalry Reconnaissance Squadron, commanded by Lieutenant Colonel Allen D. Hulse, which was assembled southeast of Maastricht; also Company B, 82d Engineering (C) Battalion, less two platoons. Company A, of the 803d TD Battalion, was in Corps reserve. Four days earlier, the 125th Cavalry Reconnaissance Squadron, commanded by Lieutenant Colonel Anthony F. Kleitz, had been attached to the 30th Infantry Division to protect the division's right flank, and to maintain contact between it and the left unit of the VII Corps. For this assignment the squadron, less Troop B, had been reinforced by two platoons of engineers, and a TD company less one platoon.

Mission

About midday, the Group commander received orders to relieve elements of the 2d Armored Division by moving north and taking over a portion of the Corps' left flank along the line Berg-Sittard-Gangelt, between the Maas River and the Holland and German border. (See sketch No. 1.) The Group was to be reinforced by a light tank battalion (less one company), an engineer combat battalion, and a company of TDs.

For this key defensive mission, with its wide frontage and terrain which favored the enemy, it was directed that maximum use be made of road blocks and mine fields.

Plan

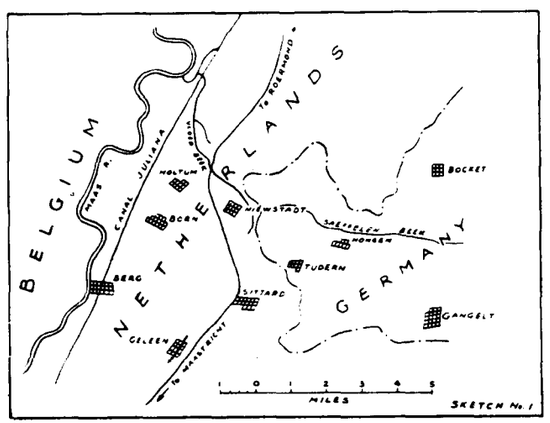
The Group commander's plan for executing the defense was as follows: Employed on the west would be the 113th Cavalry Reconnaissance Squadron (less Troop A and one platoon of Company F), and reinforced by a platoon of Company A of the 803d TD Battalion, and by Company B of the 246th Engineer Battalion. Employed on the east would be the 744th Light Tank Battalion, commanded by Lieutenant Colonel Richard J. Hunt (less two companies), and reinforced by Troop A, 113th Cavalry Reconnaissance Squadron; Company C, 702d TD Battalion, less one platoon; and by Company C, 246th Engineer (C) Battalion. The engineer company attached to each unit would be used as infantry, and engineering work would be the duty of the engineers in the Group reserve. Group reserve was comprised of the 246th Engineer (C) Battalion (less two companies); Company B, 82d Engineer (C) Battalion (less two platoons); one company of the 744th Light Tank Battalion, and one platoon of the 702d TD Battalion.

Orders were to dig in armored vehicles, dismount automatic weapons, establish mortar positions, and to prepare range cards for all fixed weapons. (See sketch No. 3.)

Considerable difficulty had been encountered in assembling such a conglomerated force, and darkness came before the relief was completed on the right. Fortunately, the 2d Armored Division elements were able to remain in position until well into the following morning. In addition the 92d Armored Field Artillery Battalion was ordered to support the Group for 8 days.

On September 20, engineers with bulldozers began to dig in the armored vehicles for hill defilade. Work was also begun to establish road blocks, mine fields, and other obstacles. Aggressive reconnaissance then was initiated to the north to establish contact with the enemy.

The following day, September 21, orders were received from the XIX Corps to extend the Group's sector of responsibility to the east to include the town of Gangelt, Germany. Company G, 66th Armored Regiment, of the 2d Armored Division, and Company C, 234th Engineer (C) Battalion (which was mounted on tanks and had been trained to fight as infantry), were attached to the Group for defense of the extended sector.



Map 1

In its new sector, the 113th Cavalry Group, reinforced, was defending more than 9 miles of the Corps' flank, thus causing wide intervals between strong points.

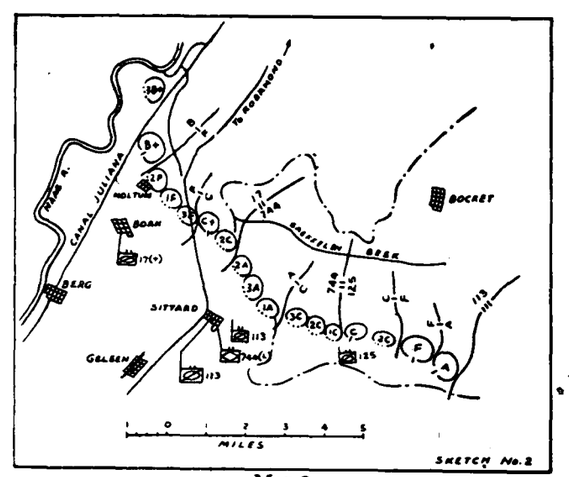
XIX Corps was preparing for the operation to breach the Siegfried Line, on September 29. As a diversionary effort, the 113th Group was ordered to assume an offensive attitude on September 28 with special emphasis on its left, along the Maas River toward Roermond. Prior to that time, the 246th Engineer (C) Battalion and Company A, 803d TD Battalion, were to be detached.

Reconnaissance

Before the order was received, reconnaissance had shown Nieustadt was strongly held by the enemy, but that west of the town, the defense was lighter. East of it in Germany the enemy was disposed generally along the high ground north of Saeffeler Beek. Some indications of withdrawal had been noted on the west, although in general the enemy appeared to have considerable artillery support and to be capable of strong resistance.

The 744th Light Tank Battalion was assigned the main effort, and was reinforced by the remainder of the medium tank, and the mounted engineer companies. The 113th Squadron simultaneously was to execute a mounted harassing action in its sector.

*113th Cavalry Group (Mecz).



Map 2

Attack

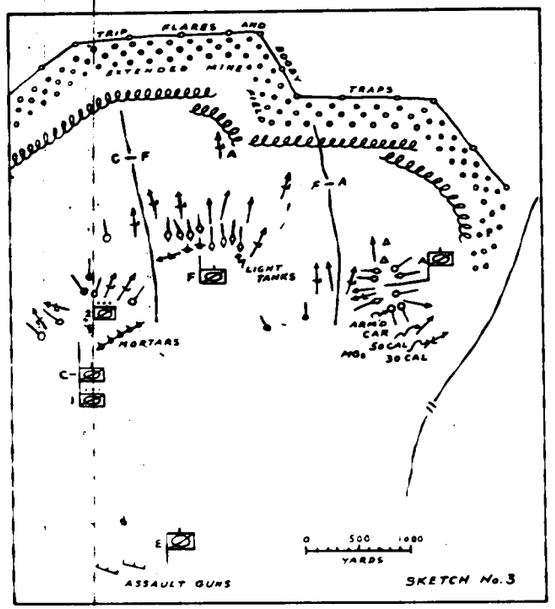
The attack opened as planned at 0700 hours, September 29 and progressed well to the left. Niewstadt was taken, and by night a line running generally along the Vloedbeek Canal had been established. By this time the 113th Squadron had forced a bridgehead over Saeffeler Beek, near Isenbruch, and was holding it in the face of heavy artillery, mortar, and small-arms fire. The following day the Group was attached to the 29th Infantry Division, for its general offensive October 2. It was planned to have the 113th Squadron enlarge its bridgehead, then wheel to the northeast; the 744th Tank Battalion to follow the 113th through the bridgehead, then attack north and northeast; the 125th Cavalry Reconnaissance Squadron was to rejoin the Group on September 30 to follow the 744th Tank Battalion, and then operate to the left of the Group, with its flank on the river. (Company C, 66th Armored Regiment, to be replaced by Company C, 747th Tank Battalion.)

The attack was launched early October 2 and was resumed again the next day. The 113th Squadron reached Saeffeler Beek, opposite the town of Havert, but the planned objectives could not be accomplished because of losses in personnel and vehicles. So on October 3, the general offensive effort of the division was discontinued. The following night the Group resumed the defense of its sector, extending 8 miles from Gangelt to Roosteren. (See Sketch No. 1.)

Return to Defense

The three units of the Group now were disposed abreast from the right in the following order: 113th Cavalry Reconnaissance Squadron, 744th Light Tank Battalion, and the 125th Cavalry Reconnaissance Squadron. One reconnaissance troop of the 113th Squadron was attached to the 744th Tank Battalion. The Group reserve consisted only of one platoon of tanks of Company F, 125th Squadron. Each unit was able initially to keep a small reserve of one platoon, but later it was slightly increased by regrouping. Artillery support was excellent, varying from two to 5 medium and light battalions. The assault guns of all three units proved invaluable in indirect fire rôles, especially since artillery ammunition was limited. Detailed defensive fires of all types were prepared; and extensive mine fields and wire obstacles were erected by supporting engineers. (See sketch No. 2.)

Aggressive patrolling was SOP, but because of the enemy's excellent observation this activity was limited to the hours of darkness. Much information concerning the strength and dispositions of the enemy was gained



Map 3

by patrolling and by the use of OPs during the day, and listening posts at night.

Early in November, the 17th Cavalry Reconnaissance Squadron, 15th Cavalry Group, was attached to the 113th Cavalry Group; and the arrival of the fourth unit made it possible for the Group commander to initiate rotation for troops. The 17th Squadron relieved the 125th Squadron which, after a week in reserve, relieved the 113th Squadron. Before the 744th Tank Battalion could be relieved, however, the Guards Armored Division of the 30th British Corps took over the sector, and November 12 the defensive mission of the 113th Cavalry Group came to an end.

Comments

As a summary of the weeks of defense in the vital Sittard area, it is well to note, first, that a mechanized cavalry group, with reinforcement and support, was able to defend a 9½-mile line for 6 weeks; second, that the experience and ability of cavalrymen in dismounted patrolling kept the enemy well back of his MLR, and all but nullified the efforts of his patrols.

The 113th Cavalry Group throughout this defensive action suffered comparatively few casualties, and through rotation, was able to effect maximum rehabilitation under field conditions.

The greatest need during this defensive action was for more ground troops—for use on patrols, for the protection of combat vehicles, and for other purposes.

Lastly, it was shown that in a situation of this kind the organic assault guns of the cavalry are indispensable when used in an indirect fire rôle

Yanks Met Cossacks in Historic Link-up*

(Sergeant Ed Cunningham, Yank *staff correspondent was with the First Army to report the meeting of the First Army's 69th Division with the 58th Guards Division of Konev's First Ukrainian Army.)*

A 28-MAN, 6-jeep patrol of 69th Division Yanks, under the command of First Lieutenant Albert Kotzebue of Houston, Texas, and his platoon sergeant, T/Sgt. Frederick Johnston of Bradford, Pennsylvania, and a Russian cavalry patrol made the first link-up between the Eastern and Western Fronts. The meeting took place on a hill outside the village of Zauwitz just before 1330 hours on April 25.

The jeeps roared up the hill smack into the middle of a group of hard-riding Cossacks who were patrolling the area in search of stray pockets of German resistance. Both units recognized each other so there was none of the confusion that attended later meetings.

The Cossacks detailed a Russian civilian to guide Lt. Kotzebue and his men to where the CG of the Russian division was waiting to greet them on the other side of the hill. Then they galloped off.

The American patrol crossed the Elbe in jeeps ferried on a platform raft and fell headlong into a lively Russian celebration.

A Russian major who spoke a few words of English set the tone of the celebration with a toast. "Today," he said, "we have the most happy day of our lives. The years 1941 and 1942 were a most difficult time. Germany was at Stalingrad. It was the most difficult time of our lives. At that time we do not think of our lives; we think of our country."

Major Fred Craig of Friendship, Tenn., and Second Lieutenant Thomas R. Howard of Mississippi, were in command of the second patrol to meet the Russians. They made contact at 1545 April 25 at Clanzchwitz with a column of Russian cavalry.

The Russians galloped across an open field to meet them, throwing their helmets in the air. Major Craig was ferried across the river and taken back to the Russian corps headquarters to meet the lieutenant general commanding.

The major and his men had two meals with the Russians, one at 1900 and one at 0930 the next morning. Once again there were toasts and mutual greetings. The Russians had several cameramen and correspondents on hand to record the meeting and seemed sorry we did not have any of our own. The general told the major he was sending a message direct to Stalin to inform him of the meeting. The Russians and Yanks fired each other's weapons and criticized them. Red Army men found our M1 too heavy for their taste but liked our carbine and .30 caliber machine guns.

*From *Yank*, June 1, 1945.

WE MET THE RUSSIANS

*by Lt. Colonel Anthony F. Kleitz**

THE war was apparently over for the 125th Cavalry Squadron. It was to be relieved on April 28, 1945, from maintaining an active defense along the Elbe River, where, with the 83d Reconnaissance Troop attached, it had outposted and patrolled part of the west bank in the 83d (Thunderbolt) Infantry Division's sector.

The squadron's future rôle brightened early in the afternoon, however, when it was assigned the mission of contacting the Russians the next day.

Instructions were given by Major General Macon, commanding the 83d Infantry Division to "Contact the Russians with as few casualties as possible. Do not get into any big fights, and by-pass resistance which cannot be easily overcome. A limit of reconnaissance will be given."

Troop commanders were given their final instructions, which included a report on a German division assembly area near Zieko (see map); the latest Russian positions; and possible routes for the mission. Troop A, with a platoon of M24 light tanks and a platoon of M8 assault guns attached, was to follow the Red route, and by-pass to the north if necessary. Troop C, with similar attachments, was to use the White route, and by-pass to the south.

The squadron crossed the Elbe on Ap[illegible], and at 0700 Troop C, commanded by Capt[illegible]dolph C. Ploehn, left the last infantry outpost at Zerbst, and was on its way.

Troop A, commanded by Captain Samuel M. Lindsay, followed and moved on to Rosslau. Leading the troop column was the 3d Platoon, commanded by Lieutenant Robert O. Bradley, followed by Lieutenant Gibson's platoon of tanks, the 2d Platoon, commanded by Lieutenant Jeremiah J. O'Donnell, a platoon of assault guns and troop headquarters. The assault guns were placed to give either indirect fire or "thicken" the direct fire of the tanks. The 1st Platoon of Troop A served as the rear guard, and if the column was held up, it was to start looking immediately for a by-pass to the north.

Troop A met no resistance until it neared Rosslau, where a small enemy force was covering a mine field on the main road. The enemy withdrew after a sharp fire fight. The 1st Platoon, however, had already discovered a by-pass, and after marking the mines for squadron headquarters, which was using the route, the troop moved into Rosslau. A brisk fight around the railroad station netted 200 German PWs, so a detail was left to guard them until squadron headquarters could take over.

Troop A then pushed on a mile east of Rosslau, where it overran an Allied PW camp and liberated 800 French and British soldiers. Continuing east, it captured 200 prisoners, most of whom were Hungarians, and sent them back to the cage at Rosslau.

The woods were becoming quite dense, and since the vehicles were canalized, Lieutenant Bradley dismounted as many men as possible and had them fan out ahead of the leading vehicle. This slowed down the column's speed to that of foot troops, but it reduced the possibility of an enemy ambush. The tactics paid dividends, because the leading platoon began to round up many Germans who had pulled off the road and were setting up defenses around the numerous *panzersperres*.

Shortly afterwards, the troop overtook a patrol of 10 Hitler Youths riding bicycles, each of whom carried two *panzerfausts*, or parts of a light machine gun. The impatient machine gunner in the lead peep commenced firing and the enemy took cover along the roadside, where a short fire fight ensued. Our fire was lifted, and under the protection of covering guns, the youths, two of whom were badly wounded, were rounded up.

The enemy was alerted by this action, and west of Klieken the leading platoons ran into heavy fire from machine guns and *panzerfausts*. Because of the dense woods only minimum fire could be brought on the enemy, and casualties were heavy on both sides. In a few minutes our casualties were three officers, three enlisted men, two tanks, and one peep. Wounded were recovered under a heavy cannister fire from the attached assault gun platoon.

The resistance was more active than any previously encountered, and it appeared to come from a sizable outpost force at Coswig. Troop A was therefore ordered to withdraw to Rosslau, replace its tank platoon with a fresh one, and then move north and east, to by-pass the resistance believed to be at Klieken and Coswig.

Meanwhile, Company F, less 2 platoons, as part of squadron reserve, had cleaned out a large German military hospital and engineer training post on the northeast edge of Rosslau. After several instances of determined enemy resistance, our tanks rounded up more than 600 PWs.

An SS captain who had two artificial legs was in charge of the hospital. He had locked himself in a room, but when the door was broken in he caused no trouble and asked only to be moved out before the arrival of the Russians. He remained in charge, however, while our troops moved on.

A German lieutenant was captured who stated that his tank and crew were at Thiessen and wished to surrender. He said, however, that between us and his tank were German soldiers who would not let Americans pass. This incident was climaxed the next day when

*Commanding 125th Cavalry Squadron.

one of our medical half-tracks took the wrong road in the dark, and ended up in Thiessen. It returned with a Panther tank and crew, and about 100 willing German PWs. The tank was full of ammunition and gas, and in excellent running condition except for one motor which missed occasionally. The Panther obviously had seen hard action—it was heavily scarred from battle, and rings on its gun barrel indicated a bag of 7 Allied tanks and 5 Allied antitank guns—a very fair score.

In the meantime Troop C had broken out of the bridgehead. The order of march was 1st Platoon in command of Lieutenant Bierman, the tanks, in command of Lieutenant Earl T. Zelle, and the 2d Platoon, led by Lieutenant Glenn R. Murphy. The assault guns and troop headquarters followed. The 3d Platoon, commanded by Lieutenant Charles E. Barrett, acted as rear guard.

Although capturing 25 prisoners en route, the troop encountered no resistance, and took Muhlsdorf without a fight.

Continuing on through heavily wooded terrain to the approaches of Streetz, where a civilian reported that a company of Germans was dug in, the 1st Platoon met small-arms fire from the left flank. It moved on the enemy positions, with tanks deployed in the fields, and the armored cars firing from the road. A dismounted section entered and cleared out the buildings. The 2d Platoon moved up and established road blocks at the road junction northeast of Streetz. At 0830 the town was cleared and 45 prisoners captured. By monitoring the radio, the troop kept posted on Troop A's fire fight in Rosslau.

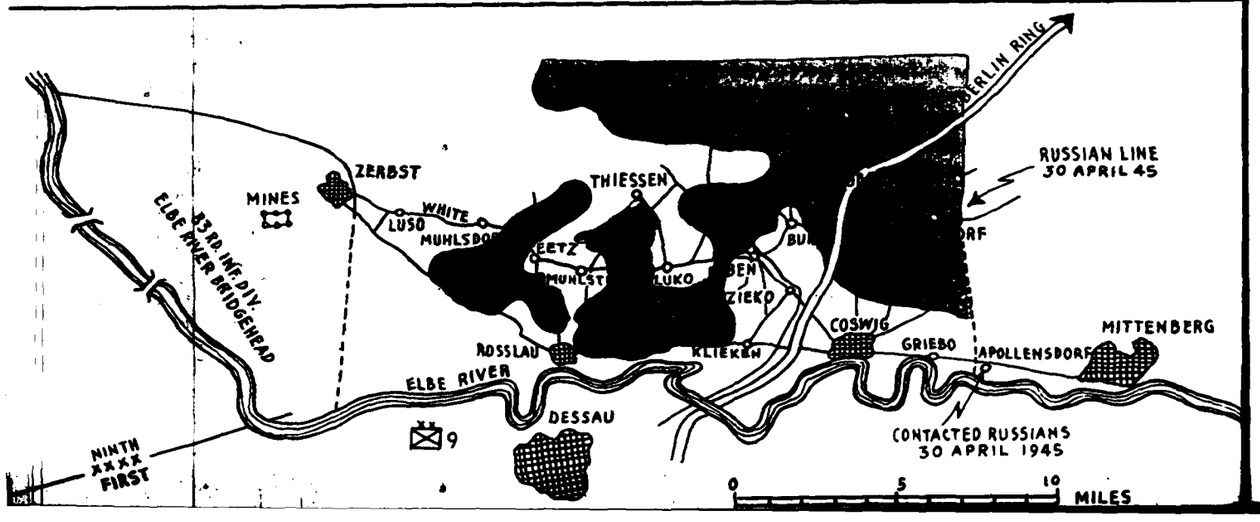
Troop C (less the 2d Platoon, which remained at the road blocks) then moved on Muhlstedt, where the 1st Platoon seized the Rossel River bridge, and captured 25 more prisoners. The 2d Platoon rejoined the troop a short time later and, with prisoners mounted on all available vehicles, moved south to contact Troop A at Rosslau, where a PW cage was being set up by squadron headquarters. It drew small-arms fire at Meinsdorf, so moved cross-country to by-pass the resistance. In crossing through a wooded area 40 more prisoners were captured and left at Rosslau. The platoon then rejoined the troop, moved out again, and crossed the bridge toward Luko along a heavily wooded route.

After clearing the woods, the tanks again deployed and entered Luko from the northwest, as the 1st Platoon, continuing on its axis, entered from the west. Twenty-four prisoners, including an unknown number of enemy wounded, were taken. By 1500 Luko was cleared and the troop continued toward Duben, with tanks deployed on the right flank and the assault guns, with a supported platoon, on the left flank.

As the 1st Platoon reached the high ground west of Duben, it received small-arms fire. It observed several horse-drawn wagons, approximately 30 trucks, and other camouflaged equipment in the woods on the left flank. Armored cars were deployed to fire on targets and also to cover the wooded area. The tanks came forward to fire directly into the town, and the assault guns, on the left flank, moved to high ground north of town to cover the two main roads running east and southeast out of Duben, in order to prevent the enemy from gaining the high ground to the east. After an hour of fighting, enemy white flags went up in Duben, and a German officer came forward to surrender. Troop C immediately moved into the town and took 550 prisoners. The 1st Platoon outposted the two main roads out of Duben, and radioed back that the town was clear of enemy snipers.

The 2d Platoon then came up to relieve the 1st of its outposts, to guard captured prisoners, and to protect the troop's left rear flank. The troop was again reorganized in order to care for enemy casualties, and to replenish ammunition. The discovery of such enemy strength confirmed previously received G-2 information that this was the assembly area for what was believed to be the remnants of the Scharnhorst Division. These enemy units, facing the Russians, were surprised to discover such aggressive action as ours at their rear.

The 1st Platoon continued the march to Zieko to reconnoiter and outpost the autobahn (a German super



highway). Upon arrival at the outskirts of the town small-arms and indirect antitank fire was received from an enemy road block. The column deployed, with a tank platoon on the right flank, and the assault guns in platoon battery on the left. (The assault gun platoon was to cover the advance of the 1st and 3d Platoons by firing on the enemy road block. As soon as the dismounted elements of the 3d Platoon were 100 yards from the road block the fire was to be lifted 500 yards higher into the town.)

The 3d Platoon moved through Zieko dismounted, and the 1st Platoon outposted the town. Approximately 750 prisoners, 15 command vehicles and 14 supply vehicles were captured intact.

At this time a cub plane from the 83d Division Artillery reported that an enemy antitank gun was firing on our troops in Zieko from a position just east of the autobahn. A short time later the Germans started shelling the town and by 1700 the artillery fire was so heavy that Troop C was ordered to fall back and outpost Duben.

As soon as Troop A had been reorganized, a tank platoon from Company F was attached and the troop was ordered to move northeast to Buko, thence east toward the Coswig road. Should the road be clear, the troop was to pick up an engineer platoon in Rosslau and reduce the road block west of Klieken, which had barred its progress earlier. SCR-610 receivers were issued to enable it to hear reports from the cub plane, and the troop left Duben for Buko.

Just east of Buko it captured the wagon trains of Battalion "Oest," composed of SS men. It was believed that they had formed part of the defenses of Berlin, and had been slightly displaced because of the Russian advance.

The troop moved on to the autobahn without encountering resistance, but found that all the overpasses to the south had been blown up and no good by-passes could be located. It therefore continued east on an old logging trail through some dense woods toward Wahlsdorf.

Reports by civilians and PWs indicated that the Russians were near by, so the town was outposted. Small patrols were sent out in an effort to get as close as possible to the Russian lines, send up green flares, the recognition signal previously agreed upon, and await an answering red flare from the Russians.

A patrol led by Lieutenant Solomon reached a point 500 yards west of Cobbelsdorf, but their signals were answered by heavy machine-gun and mortar fire, and Wahlsdorf received 25 rounds of artillery fire, so the troop was ordered to assemble in Coswig.

Troop C moved out of Duben at 0700, in the direction of Coswig on a mission of aggressive reconnaissance to contact the Russians. Rapidly passing through Zieko for the second time, 25 more prisoners were taken. At 0900, the autobahn was crossed, and Lieutenant Murphy reported seeing white flags ahead in Coswig, a city with a population of about 40,000.

The leading platoon drew sniper fire as it neared the city, but went on through and established road blocks on the eastern approaches. The 3d Platoon cleared out the buildings on the axis of march, and by 1130 reported that the axis through Coswig was clear, and that the platoon was moving on Griebo to support the 2d Platoon.

The remainder of Troop C moved in and occupied Coswig, establishing security in all directions.

The 2d Platoon reached Griebo, took it without resistance, and continued toward Apollensdorf. The 3d Platoon came up to outpost the town, using its assault guns to cover the high ground to the northeast.

West of Apollensdorf, a civilian reported that the Russians had been in the town, so a green flare was immediately sent up. Once again the reply was made with small-arms and mortar fire.

The 3d Platoon, under Lieutenant Barrett, was sent around the right flank to attempt contact from that direction. At the same time a light tank with the loudspeaker, which had been used so successfully by the 2d Armored Division, was brought to the point where the small-arms fire had been received. Broadcasts were made in Russian and Polish, saying that we were Amerikanski and wished to contact them. Broadcasts were also made to the Germans in their own tongue, saying that the war was over, and for them to surrender before we really shot them up. This was repeated several times while our tanks fired into the woods. The opposing small-arms fire finally stopped, and soldiers were seen moving on a hill to the left front. Their uniforms were indistinguishable because of the distance. It was necessary to be cautious because the dug-in positions ahead might have booby traps and mines protecting them, and anyone dashing forward to meet the Russians could easily trip one off.

Just then the headquarters of Troop C received the following message: "Contact made. Signed Private Raymond Lombardi, Private Ralph V. Cabana, and Staff Sergeant Raymond T. Gard, 3d Platoon, Troop C, 1330." Everyone cheered and jumped in his peep to go to the point of contact.

The movement was held up while the squadron commander with many other joyous Americans, walked cautiously through the Russian mine field along the Russian line. They assured the Russkis that Amerikanskis were out in front. The Russian mines were then removed from the main road, and that part of Troop C still on the main road was instructed to come on down the road and meet the Russkis. The remainder of Troop C came forward in peeps.

Colonel Biddle, the group commander proceeded immediately to the contact point with Lt. Colonel Kleitz, the squadron commander, and greeted the Russians. It was found that the Russian unit was the 1st Battalion, 320th Infantry Regiment of the 121st Russian "Elite" Infantry Division.

FROM ESCHERHAUSEN TO EINBECK - -

*by Captain Stuart J. Seborer**

ON April 17 we crossed the Weser River, in the sector occupied by the 2d Armored Division. The terrain to the east toward the Leine River was an area of long corridors, lined on either side with rangy ridges, some of which were 200 or more meters high. The corridors provided natural avenues of approach for the attacking forces. All we had to do was follow the east-west grid line straight toward Berlin!

The mission given the 113th Cavalry Reconnaissance Squadron by Lt. Colonel Allen D. Hulse, commander, was to advance rapidly in the assigned zone, engage and destroy all enemy forces of light and moderate strength, and to contain and by-pass all enemy forces that it could not destroy. Any heavy enemy forces met by our containing elements were to be taken over by the 329th Infantry Regiment, 83d Division, which was to follow us in trucks and on tanks.

The platoon leaders and sergeants assembled at the troop command post at Escherhausen at 1600, and marked zone boundaries on acetate mapboards.

Sergeant Fehseke, the 1st Platoon leader, was to lead off to the first fork out of the corridor we were in, which was 4½ kilometers down the road. Lieutenant Fenner would follow with the 3d Platoon and outpost Wickensen, the first town, after Sergeant Fehseke had cleared it. Troop headquarters was to follow, and Lieutenant Ross' 2d Platoon was to bring up the rear.

The 1st Platoon moved out at 1630 and met 20mm fire southeast of Escherhausen. Counterfire was laid down from .50 caliber machine guns, but as the enemy was in a wooded range on a hill it apparently was ineffective. Artillery was called for, and silenced the two or three 20mm enemy guns with 12 rounds.

As we waited on the road, 12 enemy planes flew over the column. The vehicles pulled off the road, and fired several .50 caliber bursts at them. We radioed the information back by SCR-508, and all eyes were sky-happy for the remainder of the afternoon. Two P-51s made a sudden appearance a half hour later, and we quickly displayed our special air panels. For the rest of the afternoon we watched them gracefully swooping down mothering our column.

The 1st Platoon cleared Wickensen, and encountered enemy machine-gun fire just beyond the town. Again there was difficulty in locating the enemy guns. Sergeant Fehseke's and Lieutenant Fenner's platoons were directed to clear out the resistance. The 1st Platoon sprayed fire on both sides of the road and advanced on through, as headquarters and the 2d Platoon moved in to outpost the town and keep close to the leading platoon.

When the 1st Platoon reached a road fork leading into the two corridors comprising the troop's sector, one section went down the left fork and two down the right. The 3d Platoon moved up to the road junction, and was prepared to move in either direction. The first section of the 1st Platoon soon radioed back that one and a half kilometers down the left fork an overhead railroad bridge had been blown, and that it would require our attached engineer platoon about two hours to clear it. A dismounted party of 6 men was sent to investigate the bridge, which was on the outskirts of Lenne, and reported about 75 SS men with machine guns and panzerfausts around it.

After receiving orders from higher headquarters to change plans Colonel Hulse ordered the troop to continue developing the right flank corridor in order to provide security for the engineers who were to clear the north road, which Troop A was then to reconnoiter.

It was now dark, and Lieutenant Kilbane was sent up to expedite the advance from the road junction, and to use the SCR-508 in his armored car as a relay station. Since it was impossible for him to deploy his vehicles in the corridor's narrow defile, Sergeant Fehseke left his ¼-tons behind and moved in with his three armored cars. A squad had been attached from the 330th Infantry Regiment to provide dismounted security, and they moved up along either side of the road.

Machine-gun and rifle fire came from houses on both sides of the road. One of the men threw a hand grenade into what he thought was an open window. But the window was screened, and it bounced back, wounding him in the leg.

Our advance was now completely halted by panzerfaust and small-arms fire, and after a radio conversation regarding the situation, it was decided to bring artillery fire to bear on the Jerries. Lieutenant Kilbane directed the platoon to move back 200 yards and "Cohort" fired a problem. The 105mm's had a pulverizing effect, and after the barrage the 1st Platoon went forward and took Lenne without meeting resistance. When headquarters and the 2d Platoon moved in shortly thereafter, the town was burning from white phosphorus.

As the 1st Platoon moved through town it encountered machine-gun fire which it reduced with 37mm high explosive.

As the 3d Platoon advanced to establish a road block on high ground to the southwest, it ran into about 30 Germans with panzerfausts. A ¼-ton was knocked out, but no casualties were suffered. The enemy was dispersed, and the road block set up.

The 1st Platoon rolled into Wangelnstedt without trouble, took 4 prisoners, and outposted the town. The 2d Platoon continued past the town and took Lithorst, where 20 prisoners were captured. Lieutenant Ross quickly began administrating the town by ordering the burgomeister to have all weapons turned in, and calling for any German soldiers still in the town to surrender.

While Lieutenant Ross was in the Mayor's office, the phone rang. The Mayor was directed to answer it, and one of our men who understood German listened in.

"Are there any Americans in your town yet?" the voice on the wire asked. The burgomeister was influenced to answer, "Nein." From the other end came the reply, "Well, they are coming. Be on the lookout for them. Heil Hitler!"

The 3d Platoon moved through the 2d Platoon toward Doitersen in the following order: armored car, machine gun ¼-ton, two armored cars, and mortar peeps. En route, it had just picked up two prisoners when an enemy gasoline truck was seen moving 1,500 yards away along a parallel road. It was set afire and knocked out by several long bursts of .50 caliber incendiary. The gunner had about 25 rounds left in the gun belt, and decided to expend it into a near-by haystack in order to reload with a new belt. The burst set the haystack ablaze. And out from behind it came 9 Jerries, shouting, "Kamerad, Kamerad!"

The 3d Platoon entered Doitersen, captured three Krauts, and outposted the town. Troop SOP was quickly put into effect—wires were cut, arms of all occupants turned in, and pistols equally distributed. It was about 1000 hours, and the men had a late but delicious breakfast of fresh eggs, which were contributed by the German residents.

Headquarters moved into Lithorst. As the first sergeant's ¼-ton turned a corner in the center of town it was confronted by 5 German "diehards" armed with at least two panzerfausts. One fired a rifle and another a panzerfaust at a range no greater than 20 yards. Both occupants piled out of the ¼-ton, which was hit and immediately began to burn. An SS captain 5 yards away suddenly rose and aimed his Luger at the sergeant's back. The troop commander's driver, who was racing around the corner, came to a sliding halt and fired a full clip from a .45 caliber Thompson submachine gun at the SS captain, who ran about 50 yards with at least five bullets in his chest before he fell dead. The others escaped. An armored car then sprayed near-by doorways with .50 caliber machine-gun fire, and moved to the east edge of town to maintain guard.

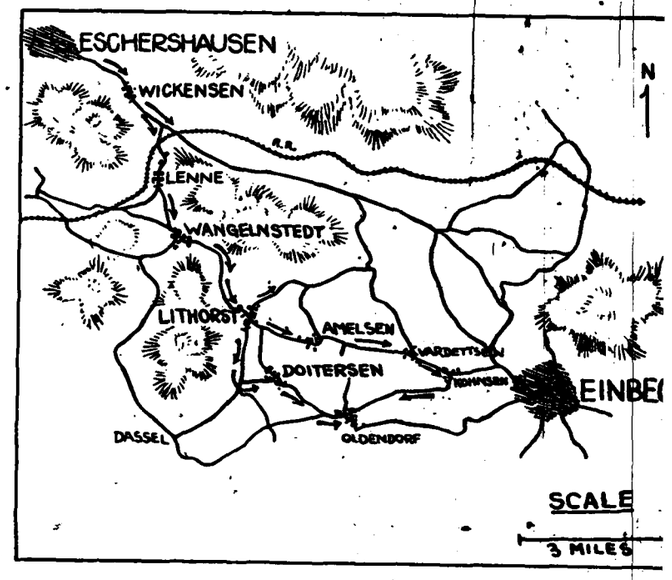
The 1st Platoon moved east into Amelsen, the next town, in the following order: two armored cars, two machine-gun peeps, one armored car, and three mortar peeps. Upon arrival it collected from residents several dozen rifles, pistols, shotguns, and various other weapons, all of which were found to be loaded.

The 2d Platoon moved in to occupy Vardettsen without meeting resistance. Several prisoners on the road stared at our armored cars, muttering that the Americans were not supposed to be within 40 kilometers.

A short time later, the 2d Platoon continued to Kohnsen, which it occupied and outposted without difficulty, and headquarters moved into Vardettsen so that it was more centrally located.

The 3d Platoon followed the 2d, taking the southwest bend in the road at Kohnsen. It was to provide south flank security by observation of activity at Oldendort, where a battalion of enemy were reported bivouacked. En route, it overtook a horse-drawn five-wagon ammunition and supply train, took 27 prisoners off and blew up the train, which carried small-arms ammunition, panzerfausts and mines.

Our mission was completed. We maintained our security, and relaxed a bit after a continuous reconnaissance that in 36 hours had carried us from the Weser to the Leine. We slept well that night, and the next day we took Einbeck.



*Commanding Troop B, 113th Cavalry Reconnaissance Squadron (Mecz.).

Comments from Combat

Help Wanted:
A Cavalry Rifle Troop

by
Captain Don W. Voorhies
3rd Cavalry Group

MORE MEN! How often that plea has been made. And with considerable justification, I think, when it has been voiced by cavalry commanders. Certainly, a cavalry reconnaissance squadron needs them badly for a number of reasons.

Combat employment in the European theater has not by any means been limited to reconnaissance. Cavalry has been used in offensive actions, pursuit, and delaying actions. It has been used to exploit breakthroughs; to seize and hold important terrain features; to defend river lines; to protect exposed flanks of divisions and corps, and to maintain contact between those organizations. And it has been this multiplicity of rôles that has pointed up the shortage of personnel.

This shortage has been most acute when attacking strong points, clearing towns or woods, organizing defensive positions, and employing tanks in the attack.

In actual practice, cavalry commanders frequently have found it necessary to operate with a sparsity of troops who are spread dangerously thin, and to send out tanks which have no protecting riflemen. Most emphatically, yes, more personnel was needed! It was needed as an organic part of a cavalry reconnaissance squadron because the temporary attachment of infantrymen on a short-time basis were unsatisfactory. Such troops were too often grudgingly assigned, and too often were unschooled in the tactics and technique of cavalry. Moreover, they were sometimes suspicious, distrusted their mission, and wondered if they were going to be put out in front to do all of the fighting for the unit to which they were attached. This precluded the well-coördinated teamwork that is desired. No, the much needed riflemen must be an *organic* part of the squadron.

The squadron should be given another troop—a Troop "D" of ever-ready, trained cavalrymen who would be completely loyal riflemen. They would be used to good advantage. In making such an addition, it is suggested that the troop could well be set up along the lines of existing armored infantry companies (less the antitank platoon), thereby taking full advantage of present, well thought-out, battle-tested tables of organization and equipment, much as was done when cavalry added the tank company organization from the armored force.

Some of the advantages from having such a troop of riflemen would be that, with these additional men, strong and effective task forces could be formed around Troop E and Company F. Or, if the situation indicated, the riflemen could be apportioned to each troop, thereby making possible three powerful forces composed of one reconnaissance troop, one assault gun platoon, one tank platoon, and one rifle platoon. Such a force would be well-balanced, self-sufficient, and would possess tremendous striking and holding power. The rifle company at times could be used in entirety to hold ground, and to clear towns or woods. The ancient bugaboo of the river crossing would be capable of solution with an organic company of riflemen. The tank troop could, for a change, assault a town with riflemen on the deck, and thus keep off the panzerfaust fanatics.

Cavalry employment should be viewed in its *broadest* concept, and the squadron should be given the necessary additional personnel. Cavalry would then be *completely* ready to perform the wide variety of missions which are expected of it. It would perform them with the usual high degree of skill and thoroughness, but without the "calculated risk" that existed on ETO combat missions.

The 3d Cavalry, with its motto of "Brave Rifles," has again proved its bravery—but found that it lacked the rifles.

* * *

Light Tanks in Pursuit*

by Major James W. Cocke, Cavalry

A typical action, which confronted many tank troop commanders in cavalry squadrons during the closing stages of the war in Germany, shows the utilization of speed, and shock action by light tanks against a disorganized enemy.

Situation

THE action began between Hagenbach and Huttenbach, Germany, when the 191st Tank Battalion, commanded by Lt. Colonel W. G. Dolvin, moved out in an advance that called for destruction of the enemy, retreating toward Huttenbach.

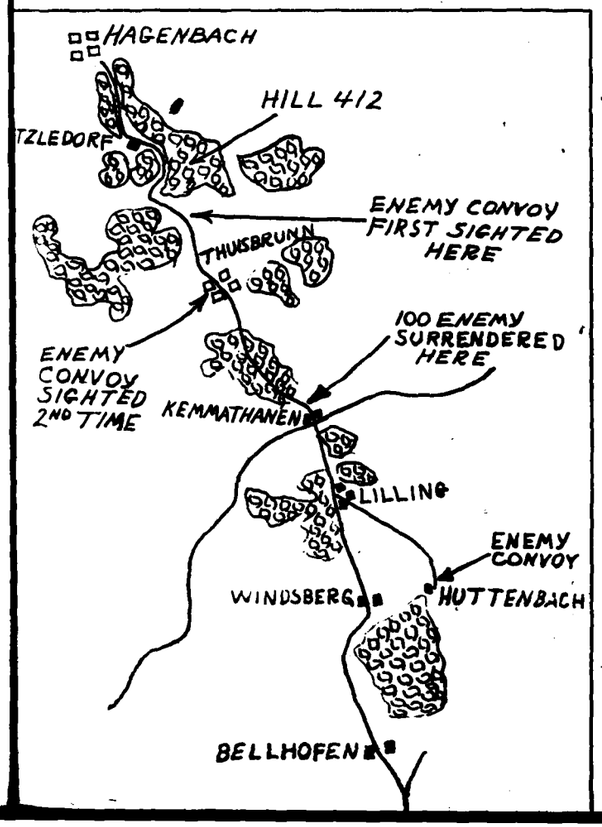
As the Germans withdrew they left a small covering force which offered small-arms fire as token resistance.

Company D, comprised of light tanks, was ordered to send out a platoon as an advance guard, which was reinforced by a platoon from the 157th Infantry, of the 45th Division. The tank battalion was ordered to move in two columns.

The Attack

To make possible the additional speed needed in such an operation, the 4th Platoon of Company D moved out with the infantry platoon mounted on the tanks. The infantry platoon commander was the only man mounted on the lead tank, because, as the first tank to encounter the enemy, it would have to bring its fire power to bear quickly.

The column advanced for some distance without meeting resistance, for the enemy was retreating in mass under pressure. As the tanks cautiously approached the first point where stiff resistance was expected, the infantry dismounted and proceeded along the flanks of the tank column. This precaution was unnecessary, however, for the enemy already had evacuated the town.



The infantry remounted the tanks, and the advance was resumed to Hetzledorf at a rapid pace against only light scattered small-arms fire.

Enemy Column Sighted

As the unit rolled forward, the platoon leader made every effort to stay on high ground for better observation. Arriving on Hill 412, the commander of the lead tank observed an enemy convoy of motor and horse-drawn vehicles moving southward from Egoloffsteinenhull. The infantry dismounted and the light tank platoon immediately moved into line to fire at the convoy, only to find that it was out of range. Leaving the infantry in position, the tank platoon commander moved closer, and from line formation destroyed enemy vehicles and captured some prisoners. The infantry then came up to rejoin the tanks, and the attack was resumed without delay.

The column continued to the outskirts of Thuisbrunn where it met small-arms fire from an enemy delaying force. The infantry dismounted again and moved on either side of the column as it entered the town, routing the enemy from the cellars and houses from which they had been firing.

The pursuit continued, and the convoy was again caught north of Hohenschwarz. Here the same routine was followed: infantry dismounted while the tanks moved into line to bring the column under fire, and enemy vehicles were destroyed or set on fire. The main enemy column, however, continued moving south.

The infantry reorganized, mounted the tanks, and the advance continued to the high ground in the vicinity of Lilling, where the enemy convoy was again sighted. The platoon leader picked up speed, and maneuvered to flank Huttenbach from the west. At the same time the medium tank column, followed by the light tanks, moved through Windsburg in order to fire on the southern part of Huttenbach (see sketch).

The enemy convoy was taken under fire by both columns and almost completely destroyed. After the prisoners were rounded up, the tank columns reorganized and continued the attack to the south.

Comments

In commenting on the action, Colonel Dolvin said: "When a column is making an attack on a fleeing enemy, a smaller force must precede the main body as

*(From the Battle Experience Report to Armored Section, Seventh Army, by Lt. Colonel W. G. Dolvin, Commanding Officer, 191st Tank Battalion.)

a covering force to protect the column from a surprise attack. Because of their mobility, light tanks are especially suited for this type work. Their mission is to contact the enemy and, destroy him if possible. The light tanks should precede the main force by from 300 to 500 yards, so that the latter can deploy whenever the covering force of tanks contact an enemy that they cannot handle.

"The light tank platoon leader must possess initiative and be tactically inclined. In this action, the platoon leader possessed the necessary qualifications; he selected a route along the high ground, to give him better observation of the enemy, and maintained contact with the retreating convoy at every opportunity.

* * *

Zone Reconnaissance for the 30th Division

*by Captain Samuel M. Lindsay**

THE 125th Cavalry Reconnaissance Squadron (Mecz), which had previously provided flank security, on April 12, 1945, was given the new mission of furnishing aggressive reconnaissance for the 30th Infantry Division as it advanced toward the Elbe River. Its mission was to destroy all enemy units of its own strength, to report and by-pass stronger enemy resistance, and upon reaching the Elbe River line to report all bridges and possible ferrying sites.

*Commanding Troop A, 125th Cavalry Reconnaissance Squadron (Mecz).

Enemy Situation

Little was known of how much resistance the enemy could offer, but reports indicated that they were trying to get back across the Elbe regardless of formation or orders. It was therefore believed that the mission could be accomplished faster and with less chance of casualties if the troop moved out fast with three platoons on line, instead of moving two platoons on line and holding one platoon in reserve. A point in favor of this was that the existing road net would enable one platoon to come to the aid of another without delay.

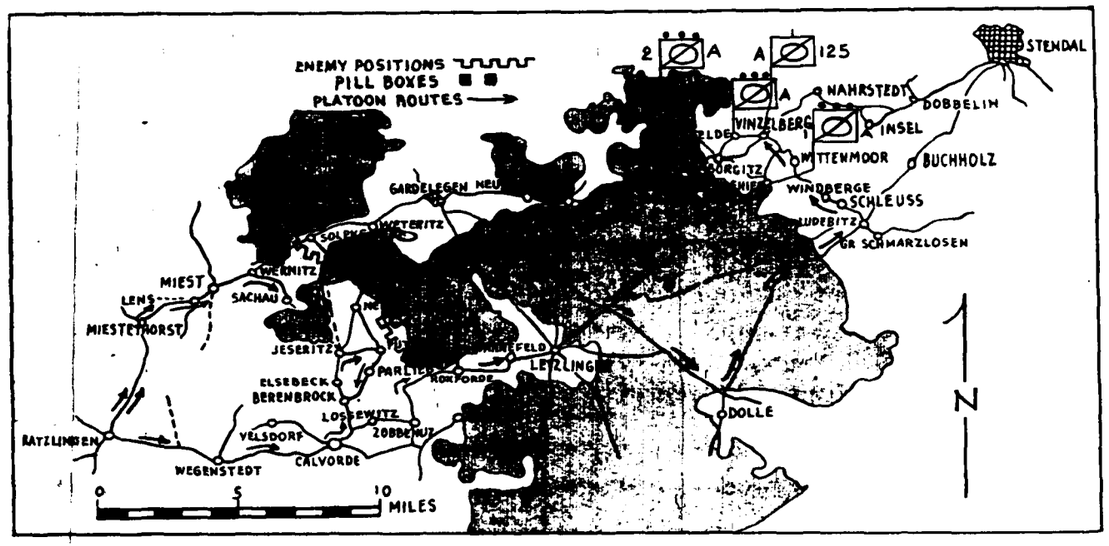
Order of Movement

Troop A took the north sector and Troop C the south sector of the squadron zone. Troop A moved out with the 1st Platoon on the north, and the 2d Platoon and Troop Headquarters in the center route, which was to form the axis of communication and the evacuation route for all wounded and PWs. The 3d Platoon was on the south. Contact between A and C Troops was maintained by radio.

Attached to the troop was one platoon of light tanks from Company F and one platoon of assault guns from Troop E. The 1st and 2d Platoons had attached a section of tanks, and the 3d had a platoon of assault guns. The tank sections and assault guns were placed immediately behind the first armored car in each platoon so that they could rapidly act as a base of fire should heavy resistance be met.

Execution of the Mission

After leaving the assembly area, the three platoons met feeble resistance along their respective routes, but were moving so fast that the enemy was unable to set up a defense strong enough to stop them. At Ratzlingen



the enemy was setting up a rear guard to protect the withdrawal of approximately 1,000 troops. Our tanks and lead armored cars fanned out immediately, and dismounted personnel went forward quickly to disperse the enemy troops. In the pursuit that followed we captured nearly 1,000 PWs.

As darkness was near, and our PWs had become quite a problem, the troop was ordered to assemble in and outpost Ratzlingen for the night, and to continue the mission the next morning.

The next day the 1st Platoon ran into stubborn resistance near Solpke. The surrender of the enemy force was sought with the aid of a German civilian; however, even under the threat of an air strike, the enemy was determined to fight. The 2d Platoon then moved from its position at Sachau to help the 1st Platoon by bringing fire on the enemy's flank. Both platoons were stopped before they could reach Solpke. The 3d Platoon, meanwhile, had continued east, but hit an enemy strong point 1,000 yards northeast of Potzehne. These contacts made it evident that the enemy held a strong defensive line running southeast from Solpke and blocking all routes into Gardelegen. The troop maintained contact long enough to determine that the enemy strength amounted to a battalion. This was accomplished by dismounted patrols, captured PWs and our own recaptured PWs' statements.

Permission was obtained to use Troop C's route in order to by-pass this resistance, and on reaching Letzlingen, the platoons went back to their original routes. The 1st and 3d Platoons were halted once again by excellent enemy defensive positions, which included several pillboxes. The area proved to be an ordnance proving ground whose troops were well equipped, knew the terrain perfectly, and were ready to meet our advance.

The troop's mission was altered, and instead of continuing on to the Elbe River it moved around the heavily wooded area and set up a series of road blocks on its northeastern edge. This cut the enemy's route of withdrawal and enabled other friendly troops to engage him on his front and close the trap. Three blocks were set up facing west to cut the enemy off completely. During the day two strong patrols from each platoon were sent into the woods where enemy contact was gained and maintained. In the following three days, 700 PWs were captured as they tried to get back across the Elbe. On the third day a patrol from the 3d Platoon, taking 85 PWs en route, contacted a unit from the 102d Infantry at Gardelegan which had been cleaning up pockets left behind by the 5th Armored Division on our north.

Conclusion

It is believed that the successful completion of the mission without loss of personnel or matériel was due to the following reasons:

1. Tanks and assault guns were kept well forward so that they could be brought into action as quickly as possible.

2. A prearranged plan on dismounted work eliminated confusion and delay.

3. A constant checking on platoon positions allowed help to be given to any position that was in trouble, with a minimum lapse of time.

COMBAT EXPERIENCES

Now is the time to write us a story of your experiences in combat.

The lessons you learned are valuable for future study.

Even though the war is over, the record of what happened still is important—and will be.

Now that you have more time, why not write up how your unit fought, what it learned, and the mistakes it made?

Write it your own way. Include photos if possible.

Anything from 100 to 2,000 words.

Send it through your Public Relations Officer for "field clearance." Address it to: The Cavalry Journal, 1719 K St., N.W., Washington 6, D. C.

What have you learned in combat that should go into the record?

From the Roer to the Rhine

This story was written by a member of the M Department, Sergeant Chase Donaldson, and sent to The Cavalry Journal by his bro ames Donaldson. Sergeant Donaldson was later killed during fighting before Hannover e battle of the Weser River, on April 8, 1945.

THE military strategists said it could not be done. The experts claimed the tactics were wrong. But, notwithstanding, the march of the 84th Infantry Division from the Roer to the Rhine, in the closing days of February, 1945, will always rank as a brilliant achievement, rivalling Patton's dash across France last summer.

This is not a story of tactics, it is the tale of a typical rifle company that walked some 45 miles in 11 days, through hell and high water. It is the account of the doughboys of Company I, 335th Infantry Regiment, and begins late on the afternoon of February 23, in the battle-pocked town of Svgvath, Germany, a few miles west of the Roer.

The boys knew that the big drive of the Ninth Army to the Rhine was on. They had rehearsed it and lived it for days before. Already the 102d Division was pouring across the Roer up ahead. The 84th's mission was to follow up, then make an end run and drive on through.

The full impact of what might happen did not dawn on the men of Company I until a few hours before they jumped off, when a chaplain from the 2d Battalion came down to where the 4th Platoon was sitting around a blazing fire.

"I'd like to say a few words of prayer with you men," he said quietly, and the men got up and followed him into the room of a wrecked German home. There among the debris, the chaplain prayed for the men, and they prayed with him.

A few minutes past 1600 Company I moved out, down the road to the Roer, with the slender figure of Captain Charles E. Phillips in the lead. The road was clogged with traffic—most of it moving toward the river. Spread out in single file on both sides of the road, the doughboys marched into the dusk, through Lindun, Germany, where only a few months before they had stormed the town and taken it. Passing familiar ground they moved to within sight of the Roer. Suddenly the horrible nightmarish scream of enemy rockets cut the air. Instinctively the men threw themselves into the ditches along the roadside.

The artillery threw up geysers of dirt about 100 yards away, cutting a checkerboard pattern across the field. Then it stopped, and the company moved ahead. On the outskirts of Linioch, where they made the crossing, the men dropped into foxholes and ate a cold K ration supper.

Company I crossed the Roer shortly after 1900 that night. There was nothing noteworthy about the crossing. They had to go by the bodies of fallen Americans to get there, and the dead still clutching their rifles pointed toward the opposite end of the river bank, lay peacefully along the footpath, where they had died that morning.

A sergeant stood at the end of the narrow footbridge and counted the men off as they sloshed across the bridge. Only two on the bridge at a time. It was dark, and one could hear the roar of the river below as he double timed it along the slippery planks to the other side, where a main road ran sharply by the river bank.

It was nearly midnight when Company I dug its foxholes on the edge of Konnigsrit. To the left was K Company and Company L was to the right. They strung out over about 400 yards of front—and M, the Heavy Weapons company, supported them from the rear. Lt. William Elinburg, 4th Platoon leader, took over a partially bombed-out chateau for his CP. The other platoons were located farther down the narrow road that paralleled the front. It was 2:00 a.m. and raining—8 miles that day, and across the Roer.

As they entered Houverath, Company I underwent the worst artillery bombardment the outfit had ever known—air bursts, railway guns, light and heavy artillery and mortars blanketed the line of march. A later report informed them that the entire divisional artillery for the 183d Volksgrevadier Division had been zeroed in on them. This same artillery was captured intact when its positions were overrun by the 2d Battalion.

Casualties mounted, and aid men organized stations in shattered buildings. Houverath was too hot to handle.

The major Company I milestone came on February 25th between the towns of Houverath and Golkrath, a distance of about 1,500 yards. Golkrath was a communications center for the Jerries. Companies I, K and L had to knock it out. Company I spearheaded through the center; K went to the right and L to the left.

Company I jumped off from Houverath at 10:15—right on schedule—into the worst hell that they had known. They did it without artillery or tank support. Lieutenant George A. McIntyre and his 2d Platoon spearheaded from the left. Lieutenant Harry Wilson led his 1st Platoon on the right. The Weapons Platoon was in the center, the 3d Platoon in reserve. They had to cover 1,500 yards over open, rolling terrain, perfect targets for Jerry.

German artillery poured down, but the doughboys were too fast. All but the 3d and 4th Platoons moved in under the artillery and ahead of it. Those men clawed holes and cursed, ran again, dropped, ran again and kept on. Nine minutes after they started, Lieutenant McIntyre's first elements, the 2d and 3d Squads, were inside Golkrath and Lieutenant Wilson's moved in a few minutes later. The field behind was littered with dead and wounded and a haze of artillery shell smoke covered the route, but the objective was taken.

All that day and night the Germans poured artillery into the town. Then, the next morning it was quiet, except for the rumble of our own heavy equipment as it massed inside the town. The siege was over, the back of the German defenses was broken in that sector, and from there to the Rhine it was a mad dash to chase the Germans.

Footsore, bedraggled, sloppy and unshaven, Captain Phillips' men plugged on, day after day. They fought at night and slept in captured houses till noon, then got out and walked 8 more miles. They walked from noon until dawn the next day, across and down the proud Hitler concrete highways.

They lived like kings one minute and shivered in foxholes the next. They yelled at German soldiers as they marched by, hands over their heads. Laggards were sped up by well-placed boots on their Teutonic tails. For a few glorious days they had all the captured bikes that they could use, then Division cracked down, and Company I went back to hoofing it.

Sometimes electric lights and telephones were still connected and working. One doughboy tried to put through a call to Brooklyn, another ate 14 eggs. Some carried their eggs with them. Others lugged sausages and onions, potatoes and hamburger sauce.

The night I Company stopped on the edge of the big German industrial city of Krefeld, the troops slept in houses. In one of them a dead American soldier lay at the entrance to the basement. A flashlight picked him out there on the floor. Kindly hands carried him away.

Six men piled into one room where there was a big double bed. There was not space for all of them on the bed, so some slept on the floor on the *hausfrau's* finest linens. At midnight German artillery struck the house and the boys in the bed scampered for the basement. Those on the floor scooped up their bedding and climbed on the bed, pulled the covers over their heads and went back to sleep. To hell with the artillery.

The company spent 6 hours in Krefeld next morning and the time passed without excitement. From Krefeld the company had to go north 10 miles and then east through Moers to the Rhine. In the farmhouses along the way the doughboys met Russian slave laborers, who ran out and kissed them.

But about those last miles to the Rhine. The company was gathered at Hell's corner in Moers. Two German self-propelled 88's, safe and well protected under a viaduct, blasted away at anything that moved on the corner. Tanks were knocked out and men killed. Company I went into the basements, waited, and cooked eggs in the cellars.

Shortly after dark the company got its orders to take the town of Boul. That meant a move of 5,000 yards. To get there Captain Phillips took his men 2,000 yards to the flank and behind the German lines. Ahead was L Company, to the left K Company. The whole 3d Battalion staged a combat patrol that night.

They moved out in the moonlight, down a road to a viaduct where two American tanks had been hit and were burning, creating an eerie half light. The men moved right past the burning vehicles, along a railroad embankment to the edge of a small lake. After the manner of commandos, the company crawled and scaled the sides of the lake ledge, within 20 yards of a German command post where 6 German officers were playing cards, and past German dugouts that still smoked. Once a German machine gunner who was nervous from the silence of the night and probably heard a twig snap, opened vicious fire. The tracers sped across the lake. Two men were wounded. It looked as if the company were surrounded. For an hour the men lay there, until their feet became numb from cold. Some were dead tired and fell asleep, the silence was punctuated now and then by a snore. Far across the Rhine they could hear the air raid sirens going in Duesberg and Dusseldorf, where the RAF was at work.

The doughboys finally moved along the lake shore and, taking care not to show themselves against the skyline, felt their way around the cliffs. An hour later the whole company had skirted the lake and reached the edge of Boul. Past Boul they marched, then stopped. Some of the men were scared. Their situation was precarious. The company was in a fair way to be cut off. Captain Phillips waited for new orders. Meanwhile the exhausted men lay down along the railroad embankment and, for the first time in 35 hours, slept.

Then the orders came through and the company moved again, this time back to Boul. Captain Phillips set up his CP in a house near the railroad.

Here the last tragic action of the drive took place. The men were grouped around the CP, half awake, or sleeping in the gutter and on the sidewalk. In the early dawn somebody lit a cigarette. An instant later the whip and crash of 88 shells split the air. A self-propelled gun hidden down the very tracks along which they had just marched had spotted them. One man was killed.

By 6:00 a.m. the platoons had dug in, establishing a perimeter defense. Here they waited for a counterattack which never came. Just before dawn they heard an explosion; the Germans had blown the Rhine bridge.

The morning light broke on a clear sky as the sun came up. The weary men looked from their holes with bloodshot eyes and nudged their sleeping companions. There it was, below and ahead about 400 yards, rippling away, clear as the Mississippi at St. Paul. There was the Rhine.

"Objective reached," Captain Phillips radioed back. As he did so the sound of American tanks and big guns came up the road. I Company was no longer behind the German lines.

THE U. S. NORTH FLANK

*by Major Thomas J. Brett**

Signal Corps Photo

American armor moves to a Roer River crossing at Linnich, Germany, as entrucked infantry await their turn.

THE open and vulnerable northern flank of the 9th Army was safeguarded by the 11th Cavalry Group from the Roer to the Rhine, then to the Weser, the Leine, and on to the Elbe.

Little was heard of this mission of the 11th Cavalry in the bigger picture comprising the "Battle of the Bulge," and in other actions which had their "mechanized heroes"; but the mission was accomplished with such success that a statement frequently made at XIII Corps Headquarters was: "We have the 1st Army on our right—and the 11th Cavalry Group on our left!"

The fulfillment of the mission occurred along the most northern flank of the U. S. forces, where a most critical open spot existed. The strategic plans of the British Army left our north flank under enemy control most of the time. From the Roer to the Rhine, the British were preoccupied with an attack far to the north, which later resulted in their joining us at the Rhine. But from the Rhine, the British drove northeast to Osnarbruck, Celle, Uelzen, and then to the north. This left large gaps of enemy-held territory between the two Allied forces.

The Group, therefore, had more than a single mission: It had to protect the north flank, and keep in physical contact with the British on the left, and the infantry division on the right flank. It also became a separate spearhead that captured towns, cleared woods, and seized bridges across important canals and rivers.

The success of this campaign can be attributed to one principle: *Follow the book!* The Group was not supported, as were other units on similar missions, by a large task force of infantry, engineers, TDs, and armored field artillery. One company of SP TDs was attached at one time and one battalion of TDs at another. Neither did the Group use some unusual formation or idea to accomplish the mission. It employed a balanced combination of reconnaissance elements, assault guns and light tanks, deployed them according to their capabilities, and drove forward to its objective.

The 44th Cavalry Reconnaissance Squadron had seized the only bridge over the Leine River in the XIII Corps' sector. The enemy held near-by positions in strength. But instead of clamoring for field artillery, infantry and tanks to secure the bridgehead, the 36th Squadron was diverted from a march to the north. It advanced dismounted at night directly underneath the enemy guns and by daylight had neutralized all resistance, thus opening the way for the 84th Infantry Division's assault on Hannover from the flank and rear.

*S-3, 11th Cavalry Group (Mecz.).

During our advance from the Rhine to the Elbe, the group executive officer had been captured. The search was taken up by the 36th Squadron, which was preparing to halt for much-needed maintenance. The following account of an engagement during the search was made by one of the platoon leaders. It emphasized the value of sound instruction which leads, even under the heat of battle, to the quick employment of accepted tactical principles for overcoming enemy obstacles:

"Shells were observed falling in Langenhagen, north of Hannover, as we prepared to enter it. Troop C's 2d and 3d Platoons, led by dismounted parties, were sent forward and entered the town on roads from the south and west. Each platoon had two light M24 tanks attached. The 1st Platoon, and headquarters, which was supported by an assault gun platoon, were held in reserve on the outskirts of town.

"In the town, we found signs of an earlier fight. The Germans, however, had withdrawn to the east, leaving two 88's covering the route of our advance. As two assault guns of Troop A fired in an attempt to reduce them, Troop C sent a dismounted patrol north along the railroad to look for a by-pass around the 88's. The patrol, after following an unimproved road parallel to the proposed route for a mile, found it impassable, and returned.

"The two 88's had been knocked out in the meantime by 37mm fire from Troop A's armored cars, which killed two Germans and wounded others; the remainder were dispersed by fire from Troop E's assault guns.

"Our 3d Platoon moved past the wrecked 88's, and ran into a few dismounted Germans. Several were killed, and three were captured. The prisoners said that they were from a flak outfit 600 yards from the main road. The platoon leader after reconnoitering led a dismounted party to a large building overlooking the flak emplacement. He then brought armored cars and tanks into position behind stone buildings, and opened fire on the installations with .50 caliber machine guns, 37's and 75's. Several buildings were set on fire by tracers. Since the only fire that was returned for several minutes was from weapons no heavier than 20mm AA guns, the platoon leader brought up a tank and his armored car, and started moving in on the position. When the tank was about 200 yards from the road, however, and the M8 armored car had just started to move out from behind the building, an 88 fired a round which passed about 10 yards in front of the M8. The car immediately moved back behind the building, and signalled the tank to return. But the tank had found cover behind another building, and returned the fire, destroying a 20mm position.

"The platoon leader then radioed the tank to withdraw. This was successfully accomplished under a concentrated covering fire from all available weapons, including mortars. By this time, several 88's had been located by their flashes, and an effective fire was laid on them by two assault guns of Troop E, and our three 60mm mortars, which had been set up in battery. The firing was stopped at dark, and a dismounted platoon went forward and found the position abandoned. The toll from the mortars and howitzers was: four 88mm guns destroyed, four 88's abandoned in good condition; several 20mm guns destroyed, and five light machine guns abandoned.

"Our experience with the 88's has shown that they are a weapon to respect, but not to fear. We feel that we can beat them every time with indirect fire which is used in conjunction with direct fire, and by sending out a dismounted enveloping party."

Battle experiences reaffirm the essential soundness of the old principles found in the FM—hit hard, use the base of fire and enveloping force, move fast, and use expedients. (Our speed during the mission, for instance, was 23 miles per day.)

An illustration of one expedient was the method by which the 36th Squadron crossed the Niers Canal during the drive from the Roer to the Rhine. In this instance, the 84th and 102d Infantry Divisions of the Corps were piling into Suchteln and Viersen, and up against the Niers, over which all bridges had been blown. The 36th Squadron was ordered to extend its north screen from the canal to, and including, Kempen, which was to the east. Upon its arrival it made a reconnaissance for fords, but found none. The usual pro-

Abandoned bridge and assault boats on the Roer River following a surprise crossing by the U. S. Ninth Army.
Signal Corps Photo

cedure would have been to sit tight and wait for the engineers.

Instead, the squadron CO assembled more than 200 German civilians with wheelbarrows and shovels who filled in the gap in the bridge overnight. It wasn't a good bridge, but the Group crossed it the next morning and continued on its mission. The bridge later became one of the crossing sites for the Corps.

Because of our rapid advance and increasing distances, radio communication became correspondingly difficult, and radio contact with the Corps CP was interrupted at times. Contact was never completely lost, however, because Group headquarters did not rely solely on radio communication. In order to insure information getting through, it assembled a pool of liaison officers, and instructed them to keep moving, keep their eyes open, and to continuously exchange situations with the assigned headquarters. This made possible the preparation of a situation map at Group headquarters that was more up to date than any in the sector, and permitted information on both enemy and friendly troops to be furnished adjacent and higher commanders. The liaison officer carried an overlay of this amassed data on each trip he made to a headquarters.

An operation cannot be planned successfully unless all means are used to keep the commander and the troops posted on enemy information. Prompt but careful PW interrogation by experts under the supervision of the Group S-2 supplied us with much valuable information. We learned that the interrogator first should be briefed on the information that is desired, furnished with maps, and then left to his own method to secure the information. When a large number of prisoners were taken, a hasty "screening" revealed those most likely to give the information needed. They were segregated for a more careful interrogation.

Other intelligence sources were aerial photographs, and large scale maps on which enemy defenses had been over-printed or plotted. These were supplemented by information secured from scouts, and reconnaissance and combat patrols. Another vast amount of information came from exchanging periodic and patrol reports with units on each flank, to and including the battalion level. Harmful delay can be avoided by not waiting for the patrol reports of adjacent units to be processed through regimental, division and corps echelons. This information was exchanged while it still was useful by using messengers, or wire if the situation was static.

In furnishing subordinate units with the required maps, charts, overlays and aerial photos, the principle of anticipating their requirements and drawing supplies at every opportunity, prevents running out of necessary items at critical times. Constant contact with squadron S-2's keep them eager to secure and relay information.

All of the "know-how" for securing, evaluating, interpreting and disseminating information on the enemy also is in the book; and a situation where the book method, plus adaptability and common sense won't work, is usually a situation where nothing will work.

A tremendous supply problem confronted us after we crossed the Roer River. The principles of supply as given in FM 100-10 were followed closely, and proved adequate for every normal situation. The advance of mechanized units, however, out-paced the reasonable range of supply sources. Therefore, the tactical mission dictated supply policy, and expedients again saved the day. Squadron truck companies, composed of organic transportation, captured and "requisitioned" trucks, drove hundreds of miles over congested roads to bring gas to our advancing troops. When supply points were 200 miles to the rear, only by a "liberal interpretation" of gas and ration allowances could we assure the necessary supplies. Instead of carrying two days' rations, the squadrons carried five; instead of 700 gas cans, one unit had 1,800.

Conclusions from the experiences of the mission are as follows:

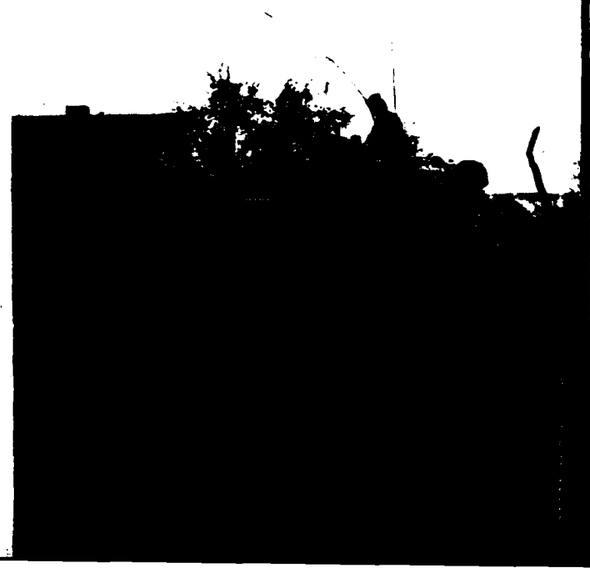
(1) Cavalry squadrons can accomplish any cavalry mission, provided they employ the fundamental cavalry principles of speed and shock, and use properly the combinations of forces that are available within the squadron.

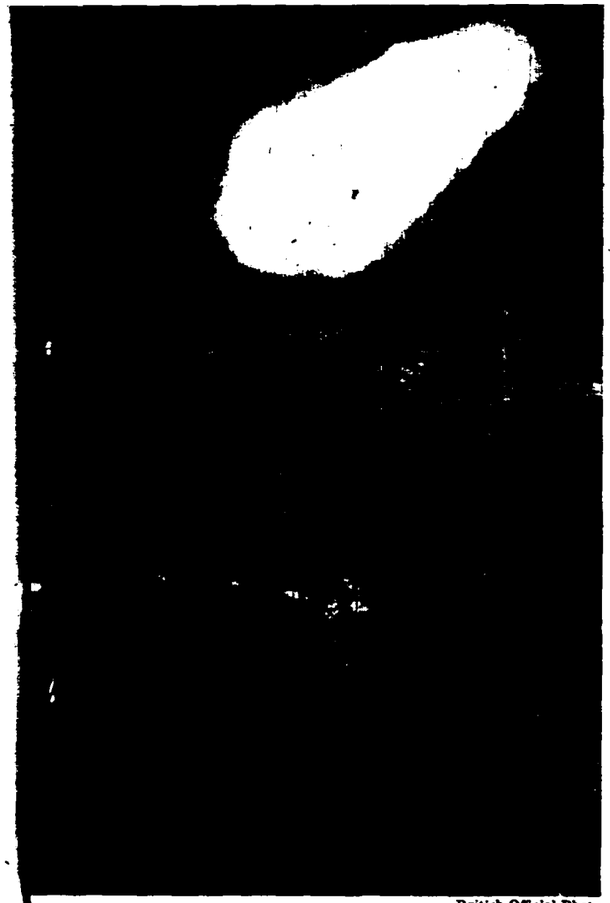
(2) The Group staff must set the pace for the Squadron staff; and likewise, the Squadron staff must be with the troops, leading them. General Patton's phrase "You can't get behind spaghetti and push it; you have to be out in front and pull it" is especially true in cavalry action.

(3) Staff work must be correlated. Effort must be made to keep *all* key staff members informed of all plans, operations, methods and expedients, so that the staff will function as a team but at the same time will discharge individual responsibility to the commander.

An improvised road block of an armored car and a jeep was established by the 36th Cavalry Squadron in the vicinity of Bromenzein, Germany.

Signal Corps Photo





British Official Photo

A predictor detachment of British servicewomen assigned to a battery of antiaircraft guns passes the order to the guns' crew to fire. Radar provided the data which enabled the predictor to guide the guns onto invisible enemy planes over Britain during a night raid—one of many uses.

RADAR*

PARTIAL lifting of the radar censorship ban makes it possible to reveal the importance of radar's part in the defeat of Germany.

Radar's first triumph was in the Battle of Britain. Without Britain's extensive operational radar system, the "Few" of Mr. Churchill's immortal tribute would have been too few to stem the massed attacks of the Luftwaffe. Radar alone made it possible for them to dispense with wasteful standing patrols and to intercept the enemy at the right time and place.

Two years before that, when Mr. Chamberlain flew to Munich, the British radar chain was already in operation. So, while the whole civilized world held its breath in the darkest days of 1940, Britain was secretly protected by a curtain of radar waves—hundreds of miles in extent—through which no aircraft could approach undetected. Not even the British public knew of its existence.

*British Information Service.

Its future, in peacetime applications, is one of almost fantastic potentialities.

The entire strategy of air defense has been changed by it.

For effective defense—as the Battle of Britain proved—it is not enough merely to detect approaching aircraft and to know their distance. Efficient fighter interception demands three-dimensional location of the enemy—distance and direction plus altitude, and an estimate of the numbers. Radar provided the answer to all three, and gave all the essential data to enable British air defense to win the Battle of Britain against great numerical odds.

After determining the position of an aircraft the first problem was how to make friendly aircraft continuously exhibit a difference from others in their "radio" responses. This was accomplished by giving coded alterations of the returned echoes. These devices are known under the generic term "I.F.F." (Identification, Friend or Foe).

How Radar "Sees"

Radio detection and ranging, or "Radar" as it has become known, is the generic name for various radio techniques based on the use of radio echo.

To give a simple analogy, a person standing not far from a cliff can usually get an audible echo from the cliff by shouting toward it. The nearer the cliff, the shorter the time interval between the shout and the echo.

Radar works on a similar principle. But a radio wave is used instead of a sound wave or shout and the returning echo wave is picked up by a special radio receiver instead of the human ear.

The indicator used to display echoes returning from aircraft was the cathode ray tube, and many improvements were made in this device in the course of its transition from a delicate and expensive piece of apparatus of somewhat uncertain behavior and a short life to a precise instrument, some 50 times better in performance and costing as many shillings as its predecessor had cost pounds.

The earlier techniques of radio location involved a signal display in the form of a bright line across the face

Radar contributed more to victory than any other single development of World War II and, with the exception of the atomic bomb, was the most effective and sensational development.

of the cathode ray tube, the aircraft echoes being signalled by a V-shaped projection—a "blip"—above or below the line. The distance of this "blip" from one end of the line was an accurate measure of the distance of the aircraft causing the signal.

Mobile Radar

The large aerial system used for the coastal chain was not adapted to naval or military purposes. Higher frequencies (hence smaller aerial systems), however, made possible the development of compact equipment which could be mounted on the masts or superstructure of ships, in a mobile trailer, or on a searchlight.

The detection of hostile warships from aircraft, the warning of our ships of the approach of enemy aircraft, the defense of harbors and coasts against small enemy vessels, the feeding of gunnery data to predictors from radio location equipment, the control of searchlights by radio location so they could unmask with the certainty of illuminating the aircraft target immediately —all these (though later improved) were accomplished facts by the outbreak of war in September, 1939.

It was realized that if fighter aircraft could be made to carry a complete miniature radio location station, they could seek out and even fire on enemy aircraft on the darkest night or in a cloud. A windscreen was developed for mounting on the plane and on which the enemy echo indicated itself as a spot which grew "wings" as the enemy approached and moved up or down, to port or starboard—just as the appearance of the enemy itself would have done had it been visible.

On many occasions, successful interception was first marked by the appearance of the telltale green spot on the windscreen somewhere away from the fighter's line of flight. The pilot would make a rapid adjustment of course and altitude to bring the spot ahead and centered. Then the spot would develop "wings" as the distance lessened. Finally, the real enemy would appear as a dark shape in the night sky, just where the green outline hovered.

A burst of fire from the fighter's guns, and a successful interception was almost certain.

The toll of German bombers rapidly increased after radar was installed in night fighters. By early 1941, the first sets had been put in. In the whole of January of that year the number of enemy bombers which fell to the British night fighters was 4. The destruction of one bomber in a raid made headlines in those days. But, after dropping to three in February, the figure leapt to 24 in March, 52 in April and 102 in May. Then the attacks dwindled. Losses became so great before Hitler started his attack on Russia that the Luftwaffe could no longer afford them.

Other devices indicated the precise altitude of an aircraft above the surface of the ground and gave warning to ships of the proximity of mountains, icebergs or other vessels.

Others found towns for bombers on the darkest cloudy night, and even displayed a moving map of harbor details, railway lines and similar features.

It became possible to project optically a map, aircraft indications and hand-written plots all together on a translucent screen. The dream of many commanders is realized in this—the power to sit in a room at headquarters and see all the movements of hostile and friendly aircraft displayed before them on a map.

The extraordinary and immediate success which followed the introduction of bombing with the aid of centimeter-wave radar deserves particular attention.

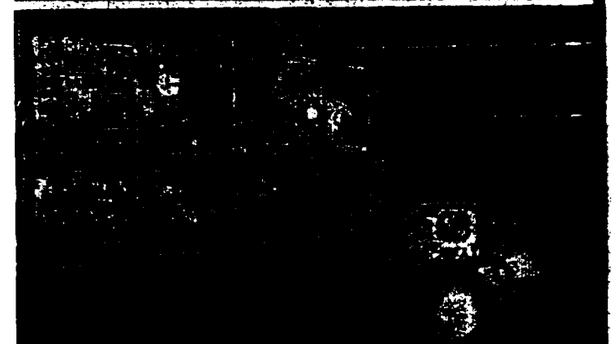
The sound strategic decision was to withhold the use of such devices until enough had been produced to make a succession of devastating attacks on Germany's great industrial centers. The premature loss of one such device to the enemy might have destroyed the element of surprise which made impossible the enemy's effective reply.

The proportion of bombs falling on worthwhile targets was greatly increased and other offensive and defensive functions of aircraft fitted with radiolocation devices were made much more effective.

Statistical analyses of operations show that an aircraft so fitted is worth at least five without these aids.

Exterior and interior of a British radar warning station is shown. It was developed to meet the need for a highly mobile equipment which could be transported quickly to sites which could not be reached except by light units.

British Official Photo



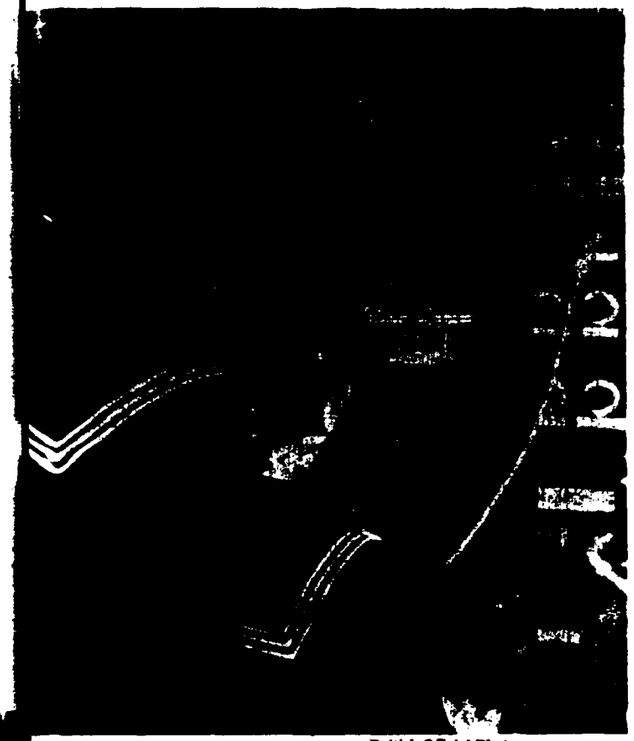
RADAR NAVIGATOR*

An electronic navigator for ocean, lake and river ships, that will detect above-water obstacles such as other vessels, icebergs, land, lighthouses and buoys by radar, is under test on shipboard by the U. S. Maritime Commission.

It will detect these obstacles through darkness, fog and storm at distances up to 30 miles, depending on the size of the object.

The tests are being made on the SS American Mariner, training ship of the U. S. Maritime Service. Additional sets will be placed soon on other vessels.

*The Washington News.



British Official Photo

Gunnery radar in a cruiser. Operator turns the handle to align the radar echo with a marker and so to transmit the range automatically to the guns. A sample image has been painted on the screen for the purposes of reproduction.

Exchange of Data

After the United States entered the war, no war secret of Great Britain was withheld from her. The disclosure of all British progress in radar to date had been made to the United States in August, 1940.

Under the stimulus of war, the United States quickly built up a research organization and manufacturing facilities far larger than Britain's. Ingenuity in manufacturing methods, peculiarly American, enabled supplies of radar equipment to be made available to the Allied Forces in the great quantities needed for the successful asault on the Reich, and for the war in the Pacific.

The fact remains, however, that Britain put radar into operational use earlier and on a far greater scale than any other country in the world.

In both countries, prediction was often ahead of experiment. Experiment, too, frequently was ahead of production. The evolution of improvements progressed so rapidly that it was sometimes necessary temporarily to "freeze" development to permit large-scale production.

Although enemy countries followed in our footsteps, they never caught up with Allied developments, many of which must still remain secret.

Radar—In Brief

Radar solved problems of defense and attack, and in the air made possible the crippling of Germany by nonstop bombing.

Radar has been used during the war so that:

(1) RAF bombers could take off, navigate and return from mass saturation raids with minute accuracy, fixing positions on special gridded maps by aid of what are known as "Gee" signals from ground radar stations. This system changed the number of bombers that could be put over a target in an hour from 100 to 1000.

(2) Another system entirely self-contained in a bomber made it possible for the crew to "see," in miniature, by means of radar reflections from the ground, despite darkness or fog, outlines of a coast or town they were approaching.

(3) Perhaps the most fantastic installations of all enabled ground radar operators sitting in England to guide individual bombers to enemy positions, "see" when they were precisely over the targets and then signal for the bombs to be dropped. This method accounted for the deadly accuracy with which the big guns on the invasion coast were destroyed before D Day. It was also used against Essen and other Ruhr targets.

Picture on a Tube

Still more bombing aids were developed, and these met the need for accurate bombing at any range. A startling device was in use which enabled a navigator to see, on a cathode ray tube screen, a picture in glowing green spots and shadows comparable to a map of land, water and built-up areas over which he was flying,

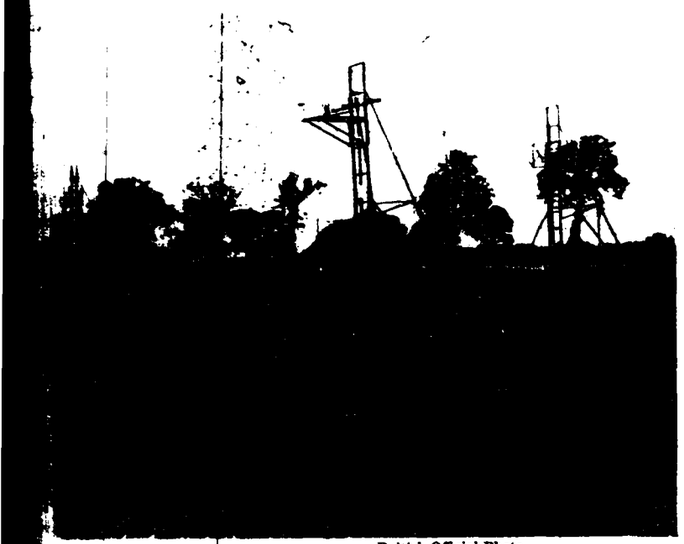
even in complete darkness. Using this set in July, 1943, Hamburg, in 4 successive raids by 2,630 aircraft, was three-quarters destroyed in damage greater than the total suffered by all the towns in the British Isles from German aerial bombing.

These were early sets, and the picture produced on the tube was not good enough to single out clearly various areas of a big target like Berlin. By November, however, a newer set was produced which showed extra detail and enabled the decisive Battle of Berlin to start.

As Germany crumbled under the weight of Allied bombs the question of invasion came to the fore. For the ultimate success of D Day, it was essential that the enemy's heavy guns along the Channel coast of France should be silenced. Forty of these were within range of the selected invasion route and it was necessary for the Bomber Command to silence them. In order not to reveal the area where the landing would take place, they had to attack heavy guns along the entire coast. On the night before D Day not one of these guns fired. They all had been silenced by bombs released from a height of over 20,000 feet by aircraft using signals from England.

Another radar story is of the "Rebecca-Eureka" combination, secret of the airborne force, which guided hundreds of parachutists and glider troops to their objectives on D Day. This was a development which grew out of the family of automatic beacons or radar "signposts" devised by scientists for such purposes as guiding the navigator of an aircraft searching for a friendly airfield or shipping convoy. Many of these radar beacons, erected on the ground or aboard ship, worked only when a coded radar signal of the correct wave length reached them from the searching aircraft. "Eureka," which was the name of the beacon used by airborne troops, was dropped by parachute with the first wave. It was unpacked and assembled often under enemy fire. Later gliders carrying the other half of the equipment, called "Rebecca," could pick up the signals from "Eureka" and so make sure of arriving at the right spot. In other words "Eureka" marked the spot and "Rebecca" led the aircraft to it.

Radar equipment of a British Army mobile heavy antiaircraft regiment is shown against the backdrop of an English farm. Receiver, generator are in the foreground, transmitters in background. Radar changed war's tactics.



British Official Photo

Radar at Sea

From the start of the war it was appreciated that the detection of surface submarines demanded some means other than Asdic. The radio location equipment designed for the detection of aircraft was found inadequate for this purpose, and the centimeter-wave equipment ultimately provided the decisive solution for the detection of submarines by air and surface ships.

Consider the achievement of finding on a pitch-black night, in an area of many square miles of sea, a piece of metal projecting from the water's surface for little more than the height of a man.

Naval radar has revolutionized warfare at sea. Perhaps the greatest tribute to it was made by Admiral Doenitz, then commander in chief of Germany's submarine fleet, when he made a speech at Weimar during a lull in the U-boat war.

"The enemy," he said, "has deprived the U-boat of its essential feature, the element of surprise, by means of radar. With these methods, he has conquered the U-boat menace. The scientists who have created radar have been called the saviours of their country. It is not superior strategy or tactics which gave him success in the U-boat war, but superiority in scientific research."

The British Admiralty considers that the application of radar to anti-U-boat warfare was the most important single factor in ensuring the defeat of the U-boat and consequently in winning the vital Battle of the Atlantic. The detection by radar of so small an object as a submarine periscope or conning tower in the water considerable distances away was thus one of the major events of the whole war.

In gunnery, radar meant that guns could effectively open fire at greater ranges and engage unseen targets, both surface ships and aircraft, with accurate ranges to within a few yards. The 26,000-ton *Scharnhorst*, sunk in 1943, was detected first by a British cruiser at a range of 17½ miles. Contact was lost for a time, but was reëstablished by radar at 17 miles. Until the arrival of *H.M.S. Duke of York*, the *Scharnhorst* was shadowed by a destroyer force, which relied entirely on radar and kept outside visibility distance.

Plots Shell's Fall

It may be added, as a tribute to the sensitivity of these sets, that the actual fall of the shell can be plotted

by radar; the water thrown up by a falling shell gives a sizable "echo" which can be plotted in relation to the target. The whole system of "spotting" in gunnery can thus be taken over by radar, with a consequent elimination of guesswork and the errors and uncertainty of visual judgment.

Radar also proved of inestimable value in the assault landings in North Africa, Sicily, Italy and Northern France, where its efficiency for navigation assisted in the control of the enormous masses of shipping which arrived and assembled at the beachheads. On countless occasions radar solved problems of navigation and weather, and enabled assault forces to be put ashore at an exact spot exactly at the required time.

Radar saved many lives, too, in "air-sea rescue" operations; it has guided rescuers to airmen adrift in rubber dinghies or perched on the wreckage of their sinking planes.

Radio Navigation

At sea, in the air and even on land radio navigation is now possible with an accurracy which makes the finest achievements in stellar navigation seem grossly inaccurate by comparison. A ship's navigating officer is considered good if he can fix the position of a ship at sea by stellar or solar observation to within about a mile of her true position. An airplane can seldom rely on better position-finding by astronomical observation than within 10 miles of its true positon.

Yet it is now possible by various devices to have a continuous indication of the position of a ship or airplane to within a few yards of its true place on the earth's surface. Indeed, no map or chart can be printed with sufficient accuracy or permanency to vie with the possible accuracy of the equipment.

Gun That Aims Self

One of radar's most uncanny developments—a gun which aims itself and follows a moving target automatically and unerringly—was the climax, in 1944, of the British Army's research into radar applications.

This British invention was incorporated into United States equipment and quantities were manufactured and shipped to Britain, just in time to shoot down 80 per cent of the flying bombs which were destroyed by antiaircraft batteries.

Other Army radar developments were coastal guns which, at 20 miles range in the dark without the aid of a human eye, have sunk 11 out of 18 German ships.

Artillery radar is now so accurate that its error is less than the ballistic error of the guns. This means that if the target is not hit "blind" with the first shot, it is the gun itself, or its charge, which is not quite accurate—not the aim.

Finally, it can be disclosed that a somewhat different—but related—technique gives the measure of the speed of an object relative to the observation station. This is so sensitive that a single infantryman wriggling along the ground many yards away, or even a pebble kicked towards the equipment, will give a response. A tank, moving camouflaged and at night along a distant road, will stand out clearly from the background of fixed road and countryside.

Combat uses of radar still are being developed.

* * *

American Uses*

Without radar the Eighth Air Force never would have been set up in Europe; radar guaranteed enough control of the weather factor to justify building up this massive bombing organization. It hoodwinked the Japanese all over the Pacific during almost 4 years of fighting, made possible the spectacular naval victories around the Solomons and put the finger of destruction on almost every one of Japan's big fighting and merchant ships.

Aboard ship, radar's information is synchronized with fire-control mechanism to shoot up enemy vessels many miles away, targets never seen except on the radar "scope" or screen. When BTO radar equipment (bombing through overcast) is tied with the bombsight it does the same thing; drops the load on a target that's never visible, separated from the attacking plane by thousands of feet of clouds, darkness or smoke.

Radar goes under the water, too. An American submarine prowling the Pacific can pop its radar antenna out of the water, ascertain the range and speed of a Jap ship and let go its torpedoes. Can do it—and has, perhaps hundreds of times by now.

B-29s today are described as flying electronics plants, with every valuable phase of radar equipment worked into their compact sets. Radar helps them to bomb, to navigate, to keep formation. In addition, it warns them of the approach of enemy fighters, and when necessary can take them down through overcast and fog and land them safely on emergency fields the pilots have never seen, such as Iwo Jima.

General Claire Chennault's Liberators, flying out of China, piled up a colossal total of Jap shipping, thanks in large measure to radar.

Now, our scientists believe, we are miles ahead of the Japanese on radar. The margin was not so great in the battles around the Solomons but enough to account for a few sensations.

The cruiser *Boise*, going it on radar, fired 100 5- and 6-inch shells in 27 minutes, and sank three cruisers and three destroyers.

The cruiser *San Francisco* ran right through the middle of the Jap fleet at night, firing on both sides as she raced along. Confused Jap gunners started shooting at each other. Before it was over, 27 Jap vessels were sunk, mostly by one another's gunfire.

*George Counery, in *The Washington Post*.

WELL, the war is over. Both the army and navy have won glorious victories and coöperated with each other in the most commendable way.

In consideration of the splendid success of our armies it would seem like carping criticism to pursue the subject of most of these *Notes* which for 8 years have been urging the maintenance and use of cavalry in our army. The high authorities in the army decided against this proposition and suppressed our cavalry at the outset of this war (except in the form of mechanized troops). As such, our cavalry regiments have engaged in field operations and battle against our enemies in the most gallant and efficient style. Cavalry officers detached to serve with other branches have distinguished themselves in a manner that justifies great pride and satisfaction in the hearts of all the old cavalrymen who are retired or were too old to take part.

The fact that military successes in our army without the use of horse cavalry does not alter in the least my opinion that such cavalry in large numbers could have been used to great advantage in tactical operations which would have saved both time and losses. But it is all over now and there is little use in pursuing the subject, except for those academic discussions in the future which may interest military students and historians who like to delve into the secrets of past wars and into the reasons which have actuated the leading personalities in their decisions and activities in the conduct of those wars.

The development of the atomic bomb in the very last phases of the war against Japan may so alter the whole subject of weapons and tactics that it may be useless to speculate now on these subjects. What the future holds forth, no man can tell. Perhaps war itself may become impossible without such utter devastation that the scientific answer to the question of how to stop war has already been found.

Under these considerations, it seems futile, at least at this time, to discuss military operations and tactics as we understood them before and during this last war. The object of these *Notes* has, therefore, disappeared. And it is perhaps time for me to offer a somewhat sad and grateful farewell to those who have in the past been patient and curious enough to read my contributions to The Cavalry Journal for what they may or may not have been worth.

To the Editors and staff of The Cavalry Journal I am very grateful for their help and patience shown me during the last 8 years. And so, this is a termination of the regular appearance of my *Notes*.

★ ★ ★ ★

The Cavalry Journal.
September 18, 1945.

My dear General Hawkins:

It is with a sincere feeling of nostalgic regret that we publish your last regular contribution to The Cavalry Journal. I am sure that this feeling is shared by all of our readers who have followed your *Notes* in the past 8 years.

You can be justly proud of the inspiration you have been to the younger officers who have been so fortunate as to come under your guidance and leadership during your years of active service. You can also gain a great deal of satisfaction in knowing that the ideals and wisdom you have attempted to impart to our cavalry officers through your writings have not been in vain. The responses to your *Notes* that have been received by The Cavalry Journal have attested to that.

We earnestly hope that although you do not find it possible to continue with your regular *Notes*, you will from time to time be able to give us a special article.

With best wishes from the staff and my own best personal regards, I am

Very sincerely,

Edwin M. Sumner,
Colonel, Cavalry,
Editor.

General Jonathan M. Wainwright

Citation

Citation, the Congressional Medal of Honor: "General Jonathan M. Wainwright, commanding United States Army Forces in the Philippines from 12 March to 7 May 1942, distinguished himself by intrepid and determined leadership against greatly superior enemy forces. At the repeated risk of life above and beyond the call of duty in his position, he frequented the firing line of his troops where his presence proved the example and incentive that helped make the gallant efforts of these men possible. The final stand of beleaguered Corregidor, for which he was in an important measure personally responsible, commanded the admiration of the nation's Allies. It reflected the high morale of American arms in the face of overwhelming odds. His courage and resolution were a vital inspiration to the then sorely pressed freedom-loving peoples of the world."

THE return home of General Wainwright has been characterized by an official and public welcome such as has never before been accorded a returning hero. But mere words are inadequate to express the feelings of all of us who knew him so well. The wisdom, strength, faith and courage displayed by him in military adversity and during the following years of imprisonment by the Japs is worthy of emulation by all Americans in the years to come. For The Cavalry Journal and all of the multitude of his friends in the cavalry may we say "God Bless you, 'Skinny,' it is wonderful to have you back home."

★ ★ ★

Leadership*

by 2d Lieutenant Alvin J. Willink

MAN'S recorded history is a comparatively short one. Before he came, this old earth was dominated by animals whose instinct led them only to survive. He, however, was destined to rule. In these few thousand years of which he has made a record of events, we have seen nations rise and fall; we have seen success and failure; we have seen his weaknesses and his triumphs. In every age, man has been striving to improve his standard, but it has been the minority who have recognized abilities, who have made that something we call progress.

I like to think of Moses as a great human definition of this thing we have come to know as leadership. He had a passion for the interests of his people, under bondage and persecution of Egyptian pharaohs. Out of those hundreds of thousands whose backs were bent under slavery, there was a man imbued with a sense of duty, for he recognized the worth of the individual.

He knew his thoughts, he shared his sorrows and privations; he held his confidence, and when he went before the pharaohs seeking deliverance for his people he was disregarding the personal issues at stake—his life—for the sake of his people. Then with cool and thoughtful actions and yet with resolution and determination Moses led his people to higher ground.

The world has seen others with those same qualities who chose to use them for personal gain, but the law of retribution has continued to work. Alexanders, Caesars, Napoleons and Hitlers have had their day. True, they were great men, but their ambitions led to oblivion.

From these thoughts, I believe we may briefly view those things which constitute leadership. Dictionaries tell us one thing; diplomats give us another; military men herald their ideas—all a little different, but all meeting on a common ground.

Foremost is character. Character has a beginning in the little habits and motives initiated in youth. Those habits grow and in the final integration with everything else a man is, there is character. Does he know the things that are right or wrong? Does he believe in them to the extent that they become honest convictions, radiating into the lives of all with whom he comes in contact? Does he win his way into the minds and hearts of men, seeking to understand their thoughts, their problems, their aspirations? Is he a friend who is true, who feels his responsibility in taking them into places of danger, facing everything bravely, not letting them down when the going is rough? Does he have pride in his men and does he recognize and praise their accomplishments? Character—it's first in leadership.

That man who leads must have intelligence—knowing more than he expects his subordinates to know, knowing what to do in an unexpected situation, where to employ what he has at his disposal.

In war, morale has great fluctuations. Here, too, is a component of leadership; for the man who establishes morale and keeps it stable has behind him men who are willing to follow at all events. When the going's tough, all will stand. "Where there's a will, there's a way." A leader will create that will to pull them in whatever direction he chooses.

The world has always needed its leaders to lift the less fortunate. At present we stress leadership in war, but look to a better day of peace. More than ever we are going to need men who can "take it and grin," for in them we have hope for the aspirations of a free people and of a better world.

*Prize-winning essay in O.C.S. class 79, graduated August 4 at The Armored School.

Letter to Drew Pearson

Chinese Combat Command
APO 280
c/o PM, N.Y., N.Y.

Dear Mr. Pearson:

I have just received a clipping written by you in a newspaper article dated 26 June 1945, which was sent me by a friend in the States. In this particular article you inferred criticism of the War Department for including in their appropriations several thousand dollars for the cavalry's horses. You further stated that not a single cavalry operation has been used in the entire war.

I then ask have you ever heard of the U. S. 26th Cavalry? They are the cavalrymen who fought such a splendid delaying action on Bataan in the early days of the war. They used their horses very effectively from all reports. Probably Cavalryman Lieutenant General Jonathan M. Wainwright can give you more on the subject when he is released from the Japanese. That is one incident when there was an American cavalry operation in this war.

Animals, particularly mules, were used in the bitterly fought battles in the mountains of Italy and on some of the larger islands of the Pacific. Here in China today, animal transportation is one of the most important phases in army supply due to the terrain and lack of roads.

Both the Germans and the Russians used horses in both cavalry and artillery with great successes in various phases of the war. It is true that the Russians are surely busy with new war weapons and developing present ones, but I am sure that they are not neglecting their cavalry in the least.

I fought with the 124th Cavalry of the Mars Task Force during the campaigns to drive the Japs out of Northern and Central Burma. Here we found both our horses and mules indispensable. Here, our operations would have been impossible without them. For hundreds of miles we went through jungles and mountains where no vehicles of any sort could go, not even the Army's famous little "jeep." All of our heavy equipment and supplies were carried by American horses and mules. Horses transported portable surgical hospitals with equipment that saved many American lives. Without this animal transportation we could not have had that splendid medical support. Our successes were to a large extent due to the fact that we were able to get our forces and equipment, and keep them supplied, in areas and positions the Japs thought impossible because of terrain and weather conditions. We were able to be there with our equipment because of our animals. Without them it would have been hopeless. Thousands of American horses and mules were used in the Burma campaign.

Politics tend to always split ideas into a "pro and con" or "this versus that" attitude by those concerned; ex. a horse vs. tank. That is not the way those of us down in the companys and troops who depended with our lives on our animals for success in battle look at it. It is quite evident that a horse cannot do what a tank can, but it too is evident to many of us that a tank or vehicle cannot replace a horse or mule. Actually tanks never replaced the horse, for they are used against new obstacles and weapons that the horse soldiers never opposed. Those fine points of maneuver and transportation over rugged terrain which the animal units have still stand. For it has been proven again that there are still places to go that the tanks can't go. In other words, animal units still have the same advantage over other units that they've always had.

Now, our attitude is not one to lower the ability and accomplishment of our airplanes, tanks, etc. We fully realize the magnitude of their part in the war, for only a mentally incapacitated person could fail to. But at the same time, realizing that animal-borne units play a very, very small minute part in modern war, we *do* realize that they play a definite part. A complicated machine has many cogs and wheels aiding in its operation, but it may be the wearing away of one little cog that causes it to cease functioning. True, the large parts play the great part in the mechanical operation, but that little cog still does its work. It is so small that you don't realize its value until you find yourself without it.

The use of animals in modern warfare doesn't seem to be quite understood by most people. There's the tendency to think that where airplanes, rockets, etc., start, the horse and mule end. That is not true, for we used bazookas, rockets, heavy mortars, and many other new weapons in our mounted outfits. And we couldn't have used them unless we had had our animals to transport them with. These weapons don't replace cavalry and mule infantry and artillery; they become a part of it just like they become a part of motor transported infantry, tanks, and air forces. Modern animal units are a far cry from the ones in years gone by. They develop new weapons, new tactics, and new uses just as other types of combat organizations do. And on top of that, we don't stop where the air corps starts. We work together. Our supplies were parachuted to us from planes which brought it to us from bases hundreds of miles away. Then our animals carried them to us and transported them wherever the tactical situation demanded. True, without those C-47's we could not have gotten our food and ammunition and other supplies but it is also true, that they would have been of no tactical value to us if we had not had the mules and horses to move them to where they could be employed against the enemy. It is also interesting to note that in certain operations, further coöperation between animal combat units and the air forces was obtained when hundreds of mules were flown to areas where needed by air transportation.

There are great numbers of officers of higher rank who could spend much time on this subject, but I, as are many other company grade officers, am interested in it because we have actually seen the value of our animals in combat. We believe that it would certainly be a mistake for the army to forget animal units entirely. For in this war we have found in our own outfits on many occasions a crying need for men experienced and better trained in animal management, and the proper care of animals is a most important thing in animal units. We strongly believe that the postwar military plans should have in it better and improved training in animal management and employment of animal combat units. For mechanics are just as out of place in the cavalry as a veterinary technician in a tank battalion. Let's train them both, for we can't predict the future. Who knows what terrain we will fight on in the next one? It might be on terrain such as in Burma and Italy. There's no way of telling, for much of that type of country is in our own hemisphere. So, we feel we'd better stay prepared for *anything*.

In short, I am trying to say that a person cannot come to a conclusion that animals aren't needed in the future and weren't used in this war if he looks at the entire war. If he looks at the European campaigns only, maybe so. But please remember that American soldiers sweated up trails and mountains with mules and horses against the enemy, that American blood was spilled and American lives were lost in other places besides Europe. Men and officers of outfits such as Merrill's Marauders and the Mars Task Force can tell you of practical and valuable use of our animals in this war. By all means, cavalry, "jackass" infantry, and pack artillery should be considered in our postwar military plans. Don't you really agree?

I know that you are very busy, and that there is a great possibility that you shall never see this letter personally, but if you do, and your time permits, I would sincerely appreciate an answer.

Very sincerely yours,

BENJAMIN H. CARPENTER,
1st Lt., Cavalry.

* * *

Let's Face the Facts

by Colonel Roy W. Cole, Jr., U. S. Cavalry

NOW that the war with Japan has ended, a group of young and vigorous cavalry officers who have earned their spurs in combat will return to the States, clamoring for new assignments. The majority will endeavor to secure a detail which will further reputations already well established in their chosen career. The degree of success open to these deserving officers depends on the prompt solution of a problem unique in the annals of the mounted arm. It is time to face the facts—the existence of the cavalry in all its name implies hangs by a very slender thread.

What are our officers doing today? Through the unavoidable exigencies of war, save for a few old faithfuls guarding the North Gate at Riley, they have been weaned away from the cavalry. They serve, in what General Krueger proudly calls the "incomparable infantry" of the 1st Cavalry Division. They serve in the veteran mechanized reconnaissance squadrons and superb armored divisions now being redeployed after their European victory. Throughout the world they serve on staffs of all denominations, sizes, and descriptions, daily demonstrating the thoroughness of their training. Nowhere on the horizon does one see the nostalgic "low, thick cloud of dust" which, according to the "Tactics and Technique," means a *mounted* column. The cavalry of today, therefore, is that in name alone. Actually it is infantry, armor, and spare parts. In summation it appears that everything points to a gradual and inevitable strangulation of the arm. This, then, is the combination of circumstances which causes cavalrymen of staunch heart to shudder with dismay when asked, "What is going to happen to the cavalry?"

Nobody knows the answer, so it seems. As far as cavalry officers overseas can determine, their future careers are nebulous somethings engulfed in a universal and abysmal ignorance resulting not from apathy but from the lack of an announced policy.

Paramount is the all-important question of whether cavalry shall exist in name or in actuality. For detailed reasons too numerous to mention but inseparably integrated with tradition, accomplishment and combat necessity, it seems logical to assume that as long as we have an army, we will have a cavalry. Only its form seems in doubt. We should have cavalry because a branch and a way of life which produces leaders like Patton, Truscott and Mudge cannot be discounted without incomparable potential loss. We will have a cavalry because the battle-tried veteran officer of today is qualified as never before to assist in the recuperation of our arm after the War Department has performed the necessary surgery; because the accepted standards of the mounted arm over the years of our nation's wars have been equalled in valor and surpassed in versatility of our troopers of today. In the modern army to be maintained by our dynamic country after this war, should we not include the additional safeguard to our balanced ground force of a mounted arm? Should we not continue to maintain a cavalry component which like its associates will be second to none in personnel, arms, equipment and indoctrination?

It has been stated that cavalry is fighting as infantry or armor. Assume one is an officer of the regular establishment or one aspiring to a permanent commission, what do the coming years have in store? It is an established fact that one's combat record will largely determine the success or mediocrity of one's subsequent career. Should the cavalry retain its name but be absorbed by the armored force, hundreds of infantry-trained officers who have fought through the great battles of the Pacific war will be lost to the arm. Their combat experience will avail them little and should they remain faithful to the crossed sabers, except for certain staff-trained individuals or outstandingly su-

perior commanders, they will perforce be passed over and rightly so. It would appear that the dismounted cavalry officer with such a background may find his best opportunities with the infantry. Conversely, should our cavalry be doomed to fight dismounted, then the equally valuable services of our mechanized-trained officers will be lost to the branch and their sole salvation would be in the waiting arms of the armored force.

In this war, our cavalry officers have lived up to their heritage and in the next they inevitably will do the same. Do they not deserve to decide the trend of their future careers while the time is right rather than wait for an uncertain future to force the decision upon them? If we are to be infantrymen or tankers, tell us so we can make our plans and compose our souls. If there is a fighting chance for a fighting mounted branch, encourage us to the end that our experience and ideas can assist in its revitalization. Surely there are cavalrymen who in time of war prepare for peace that future wars will be victorious. Strengthened by an abiding faith in the future of cavalry and inspired by the challenging regimental motto "Suivez Moi," may they show us the way toward an enduring and successful career.

The Charge of Okinawa*

THROUGH the red, soupy swamps and the rice paddies came the Marines, not on foot or in tanks, but like Cossacks, booting their horses into the fray. Instead of swords they brandished flame throwers and charges of TNT. They rode through the northern reaches of the island in what historians may speak of as the Charge of Okinawa.

Mounted on native steeds commandeered from the countryside, the horsemen formed a highly mobile unit that in 7 days pushed remnants of retreating Japs 9 miles farther northward. They did it by flushing out caves and pillboxes with flame and dynamite. The horses made the work quicker, and more terrifying to the pedestrian enemy.

It was spectacular, and fun for the Marines, with one possible exception. One guy's horse enthusiastically took a 6-foot cliff in his stride. Down went the rider with an armful of explosives, his heart in his mouth. He came up unhurt, but that didn't stand much in the way of his getting back to the foot soldiers, posthaste.

Soviet Cavalry Against the Japs

Soviet Cavalry was on the move again during that nation's brief war against Japan. During the period of the week that Russia fought Japan press dispatches that told of the success of Soviet cavalry followed one another to the world's front pages.

Soviet cavalry, Mongolian cavalry, and Cossacks—previously so feared by the Germans—in coördinated attack with tanks, swept easily through the Manchurian Japanese army.

*The Leatherneck.

Excerpts from Soviet releases which told of the part played by cavalry follow:

Aug. 9 (AP)—The Red Army's Stalin tanks, infantry and massed cavalry rolled through numerous gates in Manchuria's defenses with sensational advances today, Moscow dispatches reported, and Tokyo announced the broadening of the Soviet attacks to Korea and Sakhalin Island. . . .

As waves of Russian infantry, tanks and cavalry, backed by massed artillery, battered into Manchuria from the east, west and north in a huge pincers operation against the Japanese Kwantung Army, Moscow reported swift initial gains. . . .

London, Aug. 10 (AP)—Using tactics proved in the war against Hitler, Generalissimo Joseph Stalin's armies made their deepest slash into Manchuria in the northwest.

Tanks and cavalry following infantrymen manning armored trains surged 93½ miles from the Russo-Manchurian border area north of Hulun (Dalai) Lake and captured the rail junction and five-way highway junction of Hulun (Hailar), Moscow's broadcast said.

From Hulun, the Russians battered another 12½ miles into the 2,660-foot-high foothills of the Great Khingan mountain range barring the path to the central Manchurian basin, and tearing out a total gain of 106 miles. . . .

Some 130 miles to the south, tanks and cavalry swept across the arid, almost waterless desert land east of Lake Bor and, pushing far beyond the Outer Mongolian border, again reached the foothills of the Great Khingan range.

. . . For 180 miles south of Foyuan, the Russians were battling across the eastern frontier of Manchuria in rapidly spreading fighting, spearheaded by big Stalin tanks and hard-riding Cossacks. . . .

Siberian horsemen and tank-tipped armored spearheads, breaking across the great Khingan mountain range with its 8,000-peaks, emerged on its eastern slopes at a number of unidentified places and plunged toward Harbin from the northwest. . . .

London, Aug. 12 (UP)—The Soviets last night revealed that their tanks and Mongol horsemen had advanced more than 120 miles across the waterless wastes of western Manchuria in the fourth and newest of their offensives in the 6-day-old war.

Bursting out of the Nomonhan area of Outer Mongolia, the column by-passed the heavily-fortified railhead at Wenchuan, cut the Korean-Mongolian railway at Solun and swept on another 60 miles through the railway city of Wangyehmiao, 220 miles west of Harbin.

The advance completely outflanked the Khingan mountain barrier and the ancient Manchurian Wall to the north. It also narrowed the gap between the eastern and western arms of the Soviet pincers on Manchuria to less than 400 miles.

THE ATOM

The data for this story was obtained and compiled by Evelyn S. Drayton, Book Editor

Glossary

ATOM—One of the billions of almost inconceivably small "solar systems" of which the known elements of the universe are composed.

ATOMIC NUMBER—The number of excess nuclear positive charges or the number of planetary electrons of a unionized atom.

CYCLOTRON—Giant atom-smashing machine which scientists used for research.

ELECTRON—Negatively-charged particle which speeds in an orbit around the nucleus of an atom.

ISOTOPE—A variant of an element having identical chemical properties as the original element but atoms of different atomic weight.

MOLECULE—One or more atoms joined in chemical combination.

NEUTRON—Neutral particle found in the nucleus.

NUCLEUS—Center of the atom, containing one or more neutrons and one or more protons.

PROTON—The natural, elementary quantity of positive electricity when associated with a mass of atomic magnitude.

RADIOACTIVE—Capable of emitting spontaneously rays consisting (at least in part) of material particles traveling at high velocities.

URANIUM—A luminous white metal which comes from pitchblende and is found principally in Canada and Rhodesia.

URANIUM-235—Uranium atom having an atomic weight of 235.

URANIUM-238—Uranium atom with an atomic weight of 238—heaviest natural atom.

THE structure of the atom is best described by saying that it compares to our solar system, but in infinite miniature. The center, or sun, is the nucleus, around which revolve the planets, or electrons. The nucleus is composed of a conglomeration of tiny particles of two types: protons, which are positively charged; and neutrons, which are neutral. Thus all matter is made up of three things:

Electrons: negative charged, small weight.

Protons: same charge, 1840 times the electrons weight.

Neutrons: no electric charge about the same weight as protons.

These are bound together by tremendous energy supplied by the attraction between the protons in the nucleus and the electron planets.

Definite elements are known to be made of atoms which differ in the number of electrons. Thus, the hydrogen atom contains one electron, the iron atom contains 26, the lead 82. Going up the atomic scale adding one proton and a varying number of neutrons for each successive element we arrive at last at uranium. This heaviest element is invariably characterized by 92 protons and 146 neutrons, giving it a total of 238. Two other forms weighing 235 and 234 also occur in small quantities. These are called the three natural isotopes of uranium.

All known elements heavier than mercury have isotopes that are naturally radio-active. Their nuclei are so complicated that occasionally one will spontaneously simplify itself by shooting off a particle.

The atoms are so small that they run about 100,000,-

000 to the inch. The nucleus is a tiny speck 10,000 times smaller, but containing tremendous force, much greater than electrical force. The greater the atom the greater the force binding it together.

Scientists have chosen uranium for their experiments in atom-smashing because if one of the atoms of uranium is increased by one unit in the process of shooting with a neutron "bullet" it becomes unstable and smashes into two equal parts.

To smash an atom really means to produce a violent rearrangement in the tiny central nucleus. The difficulty of this becomes apparent when it is recognized that the atomic field contains a great deal of space, just as the solar system contains vast areas of space between its planets.

In order to smash an atom of uranium with a neutron bullet a motive power must be supplied the electrically negative neutron. This is sometimes provided by the use of the heavy hydrogen atom, which contains a nucleus in which a proton and a neutron are combined. When whirled in the cyclotron, or atom-smashing machine, the hydrogen atom hits the target—the uranium atom to be smashed—and the hydrogen nucleus breaks apart. The uranium nucleus, stimulated by the neutron bullet, may divide into two smaller nuclei of roughly equal parts. These fragments are not themselves stable, and quickly disintegrate to form still another nucleus. In fact, the whole series of transmutations generally follow the fission of uranium.

When the uranium atom is split in two parts and two lighter atoms are formed, they require less energy to hold together, the excess energy explodes and produces 200,000,000 electron volts. A far greater supply of energy than is required by the original projectile.

This apparently great amount of energy is by no means so tremendous when compared to the atomic universe. Unless the disintegration spreads to other atoms it cannot even be observed by the eye.

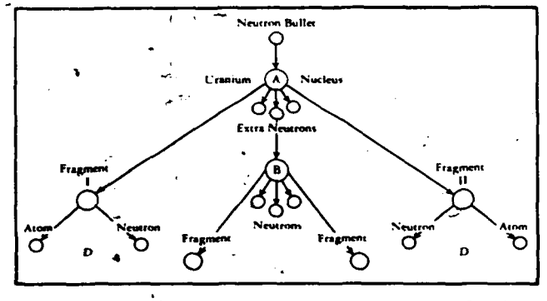


Diagram of the theoretical chain reaction for Uranium. The neutron bullet at the top splits the Uranium nucleus A into fragments I and II and in addition erupts three extra neutrons. One of the latter may hit another Uranium nucleus B, split it into similar fragments and neutrons C. Each of the first two fragments may break down into another atom plus neutron, as at D.

The neutron bullet must be slowed down to penetrate an atom of U235 and blast it. In order to produce a chain of disintegration the free neutrons must be slowed down from their usual pace in order that they may continue to strike and blast more atoms. This chain disintegration is necessary to produce the power required if atomic energy is to be productively useful.

Gamma rays emerge out of the blast that tears the uranium atom in two. These are powerful radiations that can tear electrons off of atoms and shatter them. This creates debris in the field of the atom and the chain of reactions is carried on by the countless neutrons being released from each split atom. In this process the neutrons are slowed and thus continue the process by striking atom after atom. In the course of these explosions a tremendous amount of energy is released.

Atomic energy, released through the splitting of atoms, differs radically from ordinary types of energy hitherto available to man in that it involves annihilation of matter. When an atom is split, part of its matter is converted into energy.

This is materially different from obtaining power by the use of a water wheel, or by coal or oil. In the case of the water wheel the water molecules taking part remain entirely unchanged. In the case of burning coal or oil a more intense process takes place. As the atoms of carbon, hydrogen, and oxygen are regrouped by combustion into new molecules forming new substance the atoms themselves remain unchanged—they are still carbon, hydrogen and oxygen. So far as can be measured none of them lose any part of their mass.

In the case of atomic energy, however, the atom itself completely changes its identity, and in this process of change it loses part of its mass, which is converted into energy. The amount of energy obtained is directly proportional to the amount of atomic mass destroyed.

According to current theory, it is the same energy stored in the atoms of the material universe that keep the sun radiating heat and light and the stars radiating their enormous quantities of light and heat for billions of years, instead of burning themselves out in periods measured only in thousands of years.

The sun is believed to obtain its energy through the partial destruction of its hydrogen, through a complex process in which the hydrogen is converted into helium. In this process 4 hydrogen atoms, each with an atomic mass of 1.008 (total, 4.032 atomic mass units), combine to form one helium atom, which has an atomic mass of 4.003. This represents a loss in mass on the part of the 4 hydrogen atoms of 0.029 atomic mass units, converted into pure energy. The amount of energy liberated in this process represents an actual loss of the sun's mass at the rate of 4,000,000 tons per second, a mere speck of dust in relation to the sun's total mass of two billion billion billion tons.

It is this power that scientists harnessed to develop the first atomic bomb. In this power there also appears the prospect of an ultimate flow of multiple benefits.

More Power for Cavalry

by Colonel Albert E. Phillips*

SOUND military strategists have always maintained that *every increase in fire power and armament increased the power and value of cavalry*. Even though planes and tanks were supposed to have sent the horse permanently to pasture, horse cavalry emerges from the war a strong, more powerful, more essential combat arm than ever. The strategists knew that planes could serve cavalry and cavalry could serve tanks. They also knew that planes were often grounded, and that there was a great deal of terrain which laughed at the internal combustion engine.

The modern motorized army called for horse cavalry, pack artillery and pack trains. The great war machine that rolled so rapidly to cut Sicily in two was halted for battle along the north coast road at Randazzo, temporarily stymied by a series of natural barriers, rugged mountains, precipitous ridges, gutted hills, and many rivers. The leaders of this army were, for the most part, cavalrymen—Patton, Truscott, and others—and they knew that on the flanks, horse cavalry has a field of its own that cannot be supplanted.

In Italy, it was a matter of operating against the enemy's flank and rear in mountainous terrain where horse cavalry was the only combat force that could move faster off the roads than the retreating German infantry could move on them.

No single large-scale operation was undertaken on the Russian-German front without active participation of Russian cavalry.

As recently as August 9th the Moscow radio reported that in the war against Japan: "We will use the same successful tactics we used against the Germans. Russian tanks and cavalry are everywhere." With air power leading, the Russian tanks and cavalry overwhelmed Japanese cavalry and other forces.

U. S. horse cavalry is a force apart from European cavalry, including the Russian. We long ago discarded the saber for the M1 rifle and have always used the packsaddle for all weapons capable of being packed. It

*U. S. Cavalry, Retired.

With the development of the recoilless rifle, the power of cavalry can be further increased. Shown below is the 75mm "kickless" weapon: it is 82 inches in length, fires a 14-pound shell more than 4 miles and is used from a light tripod.
Official Photo, U. S. Army Ordnance Depot

was the world's most powerfully armed cavalry and with the development of recoilless rifles we can now further increase that power by artillery fire.

The 57 and 75mm recoilless rifles provide terrific fire power for their weight, and thus will create new opportunities for cavalry, particularly horse cavalry. These rifles put into the hands of the dismounted soldier the striking power of artillery. More important, they may be used against tanks, and in close-up assault positions against pillboxes and snipers as effectively as at the longer artillery ranges. The rifles are capable of being packed and may be moved over rugged terrain at the speed of cavalry instead of the marching rate of pack artillery.

The 57mm Model 18 is 61 inches long, fires a high explosive shell weighing nearly three pounds a distance of two miles, and may be fired from the three rifle positions or from the .30 caliber machine-gun tripod. This rifle weighs only 45 pounds.

The 75mm is 82 inches long, fires a 14 pound HE shell more than 4 miles and may be fired from a .30 caliber M.1917-A tripod. It weighs 110 pounds. This rifle can be easily transported on one horse by pack. Both rifles are extremely accurate. Telescopic sights are provided for both direct and indirect fire with the 75mm.

If we concede that the army of tomorrow must be organized for wide dispersion and high mobility, then the need for horse cavalry is definitely proven. In the European theater alone the natural obstacles to armor were many, not even considering the man-made obstacles of tank destroyers, bombs, guns, mines, traps, and other road blocks. Officers of mechanized cavalry regiments in that theater were among the first to urge the incorporation of horse cavalry "where mechanized cavalry could no longer move with ease, such as in wooded areas, in crossing fordable rivers, and in circumventing mine fields." The ability to climb, especially in muddy and rocky terrain, might be added. Whereas the 4-wheeled drive vehicle climbs on all 4 wheels, the horse pushes with his hindquarters, and pulls with his forequarters. The legs do not work in unison, it is push and pull as needed. Another phase of the horse's tractive power is the ability to dig in and grip. As Kipling wrote:

> "They send us along where the roads are,
> But mostly we goes where they ain't,
> We'd climb up the side of a signboard,
> And trust to the stick o' the paint."

The fully integrated and self-contained division remains as the most adaptable unit in our army for a vast series of operations—a task force supreme—with infantry, cavalry, and artillery action and fire, to which the recoilless rifle is an invaluable addition.

For coöperation with mechanized cavalry, the horse elements should be lightly armed with rifles and light machine guns and, perhaps, with mortars and the 57mm recoilless rifle.

In the rage of conflict there is no team comparable to cavalry for knocking the enemy out of the hills, blocking him on the roads and striking at vital and critical points either alone, or in coördination with mechanized and armored units. There is also the typical cavalry tactic—the "in-and-out" actions, in which a relatively small force may inflict a series of damaging blows. If the enemy is without cavalry, all the more reason for us to have it. *We would not give up armored units because an enemy was not equipped with armor.*

With the assurance that we will never be less than first in the air and in armored strength, an adequate complement of horse cavalry will complete the trinity of the mobile arms. Instead of outmoding cavalry, planes and tanks have increased its value to a modern war machine.

If warfare has taught the cavalryman anything, it is that when the employment of cavalry is indicated and not used, there is a great loss of "time" resulting in heavier casualties.

From the great war of the machine age there emerges a composite military team, mechanized and horse - for all the distinctive missions of cavalry, particularly those on the always critical flanks of friend and foe. With the advent of the recoilless weapons the cavalry has further improved toward its battle maxim fire power and mobility.

The 57mm recoilless rifle can be fired from the three rifle positions, and will shoot a three-pound shell two miles.
Official Photo. U. S. Army Ordnance Depot

The Recoilless Rifle

*by Colonel Rene R. Studler**

TWO spectacular new weapons—the 57mm rifle, M18 and the 75mm rifle, M20—have been recently standardized by the Ordnance Department. These rifles make available to our soldiers, individually and in small groups, weapons of artillery striking power and range at weights permitting hand-carrying and, in the case of the M18, shoulder firing. Enthusiastically received by service boards even in early pilot-model form, and battle tested in both theaters of operation, the recoilless rifles are already respected veterans in the field of firearms.

Both standardized types of recoilless rifles operate on the same basic principle—counteracting the thrust given to the projectile by permitting the rearward escape of a portion of the expanding gases from the burning propellant charge instead of by the conventional recoil mechanism of standard artillery. The idea is not new—it has formed the basis of an extensive patent literature covering a period of over 25 years. Successful application of the principle has, however, required solution of many complex problems ranging from highly theoretical interior ballistic computations to equally involved work in mechanism design. The resulting weapons are simple, rugged, lightweight, and powerful. In each a hinged breech containing a trigger-operated sear, hammer, and firing-pin mechanism and provided with Venturi tubes for gas escape, opens into a chamber of considerably larger diameter than the complete round with which it is loaded. The round consists of a standard type artillery shell and a cartridge case of conventional shape. The shell has a pre-engraved rotating band which engages the rifling of the weapon's bore on loading, and the cartridge case, which contains the propellant powder and primer, is perforated to permit the escape of gas, on firing, to the enlarged chamber and thence through the Venturi tubes in the breech to the outside air. A waterproof paper lining protects the charge prior to firing and assists ignition by requiring a small pressure build-up within the case before rupturing. Rotation of the projectile is counteracted by proper alignment of the Venturi tubes, and replaceable metering elements in the breech of each weapon provide for corrections of such unbalance as develops due to wear during the life of the rifle.

The 57mm rifle, M18 weighs approximately 45 pounds. It is equipped with a telescopic sight and with iron sights, both calibrated in yards. A combination shoulder rest and bipod permits comfortable shoulder firing of the weapon in standing, sitting, or kneeling positions. An extendable front handle provides steadiness in these positions and, with the bipod, provides a 3-point support for prone firing. The trigger is correctly placed for convenient firing in all three positions and safeties prevent accidental discharge of the weapon. One of the safeties is placed at the side of the chamber and must be operated by the loader before the trigger can be used to fire the piece—insuring the loader of an opportunity to avoid the blast zone. On firing, this danger zone spreads rearward from the breech with lethal intensity over a triangular area 50 feet to the rear. Ammunition in complete rounds weighs about 5 pounds per round, and is available in smoke, high explosive, and hollow-head antitank. These shells, matched for trajectory, weigh approximately 2¾ pounds and have a range of over two miles. Accuracy of this rifle is comparable to that of the .30 caliber M1.

The 75mm rifle, M20 is a 110-pound, 82-inch weapon which is normally fired from a standard machine-gun tripod. It is equipped with a telescopic direct fire sight and an artillery type panoramic indirect fire quadrant. Ammunition, in complete rounds, is assembled with standard 75mm artillery shell of weights averaging near 14 pounds. Rounds are loaded to match trajectories over the direct fire range and tables permit artillery type long range fire control. Maximum range for this weapon is over 4 miles and complete rounds average about 21 pounds in weight. Extreme accuracy is a feature of this rifle as well as of the M18, and it likewise produces, on firing, a triangular danger zone to the rear—approximately twice as large as that created by the smaller weapon. One safety prevents accidental firing of the piece—the size and arrangement of the rifle make a separate loader's safety unnecessary.

Both of these rifles were first employed tactically in the 17th Airborne Division's jump across the Rhine. The men who fought with and near these rifles in this operation developed a great affection and respect for them.

One 75mm rifle (with tripod and 8 rounds of ammunition) was hand-carried by a 5-man crew in support of an assault company during one day's advance in this operation.

Seven of the 8 rounds fired on this day were direct hits silencing fire from houses which constituted targets. The eighth round, fired at dusk, went through windows on opposite sides of a house without exploding.

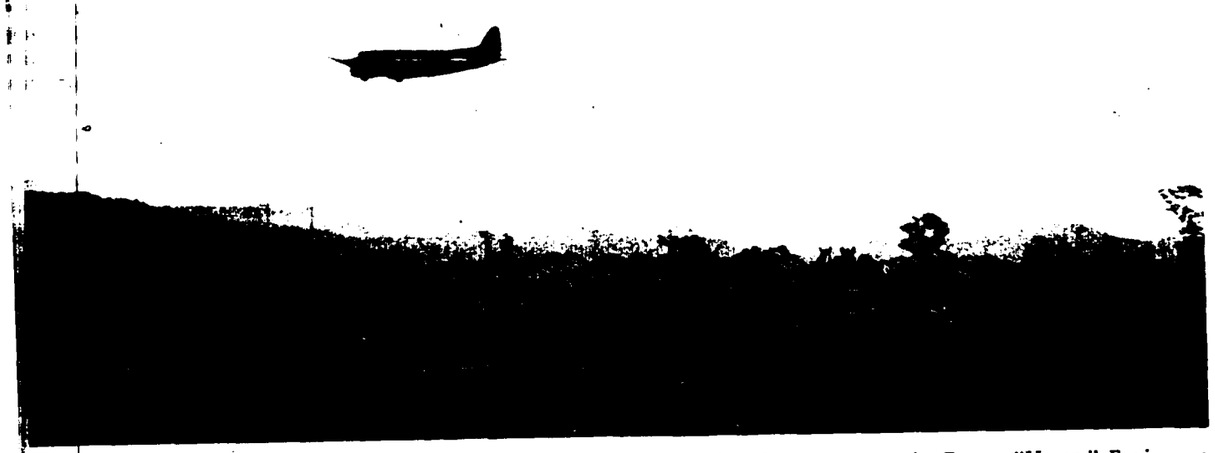
Fifty-seven-millimeter rifles on this airborne operation immobilized three German MK IV Tanks with a total of 8 rounds at an average range of over 450 yards. A machine-gun nest was knocked out at 800 yards with one round and using iron sights on the same operation.

Later use of these rifles on Okinawa showed their value in positions inaccessible to standard artillery. One round from a 57mm rifle killed two Jap snipers in a dugout at 400 yards. At 1200 yards, 11 rounds from another 57mm rifle yielded 2 hits in each of two adjacent caves and effectively silenced artillery fire from these positions. Three direct hits from 7 rounds in a 5-foot x 2-foot cave opening at 1½ miles were chalked up by one 75mm rifle in this operation.

*Chief, Small-Arms Development Office, Chief of Ordnance Division.

Flying Animals Over the Burma "Hump"

*by Colonel Ralph W. Mohri, V.C.**



A truck loading point for operations that saw 2,682 horses and mules flown over the Burma "Hump." Equipment and animals await a C47 which is coming in for a landing. The animals were used in terrain that beat the army jeep.

IT is doubtful whether any theater of operations has had the occasion to utilize aircraft for transporting horses and mules to the extent this type of transportation has been used in the India-Burma Theater. Ordinarily, trucks, railroads, and steamships constitute the usual carriers for these animals in connection with military operations. Not until the present war have military aircraft been employed for this purpose, but it is questionable whether many are aware of the fact.

This article describes the air shipment in the India-Burma Theater of 2,682 animals, that required more than 600 plane flights to accomplish. The shipments were conducted with remarkable success, the more remarkable because none of the personnel assigned to the project had had previous experience with this type of operation. Before proceeding with the details of the subject, however, a brief discussion of the situation that made the air shipments necessary will be presented.

Terrain That Beat the Jeep

Pack horses and mules were used extensively in the Burma campaigns of 1943, '44 and '45 by American, British and Chinese forces. This was not occasioned through lack of motors, but science has yet to produce a motorized surface vehicle capable of traversing the jungly, swampy, and mountainous terrain peculiar to northern and central Burma, where roads are conspicuous by their absence. Even the famous jeep met its match in Burma. Therefore, combat forces were largely dependent upon pack animals for transporting supplies and equipment over the narrow jungle and mountain trails. Tactical authorities were free to admit that without them, the successes which marked the Allied campaigns in Burma would have been materially retarded or almost impossible to achieve. It is premature to disclose the exact number of horses and mules that were used, but these were considerable.

The Chinese forces operating in western and central China also relied on pack animals because of the scarcity of roads, as well as a lack of motor vehicles and fuel. One must refer to a topographical map to appreciate fully the rugged terrain that exists in this part of the world, and was included within the boundaries of the India-Burma and China Theaters.

In the latter part of 1944, Japanese forces in eastern China began a concerted drive to the west, threatening both American and Chinese installations in central China, and promising to nullify the usefulness of a number of air bases from which the USAAF had been operating. Simultaneously, Japanese resistance in Burma was swiftly crumbling before the combined efforts of American, British and Chinese troops, although complete repossession of the Burma road had not been obtained. Nevertheless, the situation in China had reached such a critical stage, that reinforcements were urgently required if the Japanese drive to the west was to be halted.

It was decided to withdraw several well trained and equipped Chinese organizations from the Burma operations to stem this advance, because the situation in Burma was considered to be so well in hand that such a withdrawal would not jeopardize our efforts there. However, the Burma road could not be utilized to effect a transfer of these troops to the China front, and marching them over the mountain trails to their destination was out of the question. The only practical solution was to fly the troops and their equipment to the scene of action.

Pack Animals Essential

Pack animals, suitable for carrying organizational loads and supplies were not available in China, and if the mobility and combat effectiveness of these troops were to be maintained, pack animals were essential. Thus a decision was made to fly the animals, which these organizations had been using in Burma, to the China front.

Up to this time, the India-Burma Theater had not employed aircraft to transport horses and mules, although our Air Force did assist in flying several hundred animals from India to Burma for use of the British Wingate expedition. The Wingate expedition was a long-range penetration project that was flown into central Burma via glider and plane in the spring of 1944; both the USAAF and the RAF participated in transporting the troops and their equipment. Unfortunately little information was available concerning the details of shipping animals, as these were handled entirely by the British. Our air crews merely flew the loaded planes. Consequently, shipping horses and mules by aircraft was something new as far as we were concerned, and there was no time to practice.

We realized that animals could not be dumped unceremoniously into the cargo compartments of the planes like so many sacks of mail. First of all, they would have to be flown hundreds of miles over the Burma "Hump" under the most hazardous flying conditions in the world. The "Hump" needs little introduction, having been widely publicized by the American press, which has vividly described its dangers. It meant that planes would have to fly at altitudes sometimes in excess of 20,000 feet to clear the peaks of the forbidding Himalayas or to get above weather that is almost a constant feature of the "Hump" the year around. It meant that planes would be subjected to frequent up and down drafts, or tossed about in the skies like a shingle in a Kansas cyclone. It meant that emergency landing fields were far apart, often too far for a plane in distress. The horses and mules would not be dead cargo, which could be lashed securely in place to prevent shifting, but chunks of living matter weighing between 700-1,100 pounds, if excited, capable of seriously damaging the planes and endangering the lives of crew members.

Lack of Oxygen a Handicap?

There were other factors, too. What would happen in the event planes were forced to high altitudes where the air was so thin that crews and passengers always donned oxygen masks? Would the animals black out peaceably or thrash wildly about on a reduced oxygen intake? We did not know the answer to that either, although the animals were not expected to die. Would it be better to narcotize them before loading or would loss of coördination work to a disadvantage in rough weather? What was the best method of restraining the animals within the aircraft? All of these and more not mentioned, were factors that had to be considered.

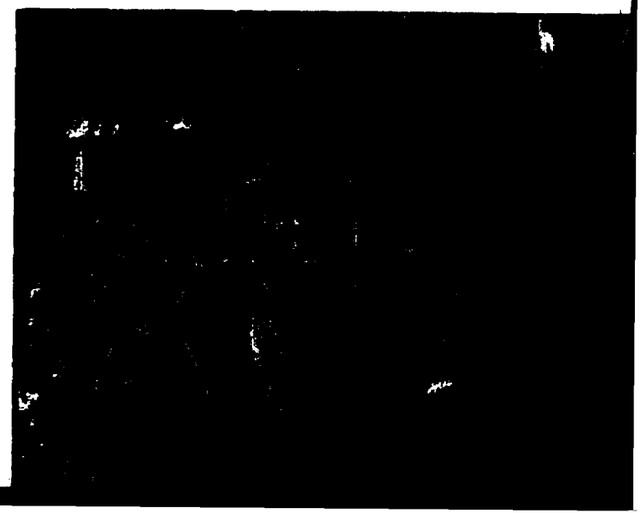
In December 1944, the first of two series of air shipments was begun. The theater veterinary service was called upon to supervise the project and make all arrangements for loading and restraining the animals within the planes. Major Lee T. Railsback, V. C., was the officer directly in charge, assisted by USF veterinary enlisted personnel from several organizations stationed in Burma.

Douglas C-47's were made available to ship horses and mules. It was found that the cargo compartments of these planes were adaptable to carrying 4 to 6 mature animals, together with an attendant for each and his personal equipment. Five days' rations for the attendants and 5 days' grain rations for the animals could also be carried. The number of animals and men loaded on each plane was governed by the weight. Pilots were willing to carry up to 6,500 pounds gross weight, which meant that 4 horses or mules weighing approximately 1,000 pounds each, or 6 weighing 600-700 pounds could be shipped in each plane.

Planes Specially Equipped

After flying the animals of the Wingate expedition, it was discovered that urine had seeped through the flooring of the planes, contacted the control cables

Plane is loaded with 4 animals. Two attendants are stationed between the first and second set of stalls. The animals did not mind the altitude, which was 14,000 feet.



*Hq. U.S.F. I.B.T.

which lie beneath, and corroded them. A complete overhaul of the cables was necessary to eliminate any possibility that the corrosion had affected their tensile strength. The time-consuming overhaul would have been unnecessary had the flooring been properly protected to prevent seepage. To accomplish this, waterproofed tarpaulins were laid the full length of the cargo compartments, and these covered with a heavy coconut matting on which loose hay was scattered to provide secure footing for the animals. A certain amount of damage to the aluminum floors of the planes resulted from the stamping of the shod animals, so that later heavy sheets of plywood were used to reinforce the floors before laying the tarpaulins.

Individual stalls were constructed in the cargo compartments from green bamboo, as illustrated, in the following manner:

1. The bucket seats of the plane were removed, and a pole 30 feet long was placed along each side of the cargo compartment, 17 inches above the level of the floor. The poles were securely fastened in place by wiring them to the rings normally used to fasten safety belts.

2. A 30-foot pole was placed along each side of the plane parallel to those mentioned in paragraph 1, and 20 inches above them. These were wired into the "D" rings immediately above the windows. ("D" rings are standard equipment on C-47's.)

3. Two feet in rear of the plane's radio compartment, the front of the first set of stalls was constructed by wiring cross bars of bamboo to each set of poles as described in paragraphs 1 and 2.

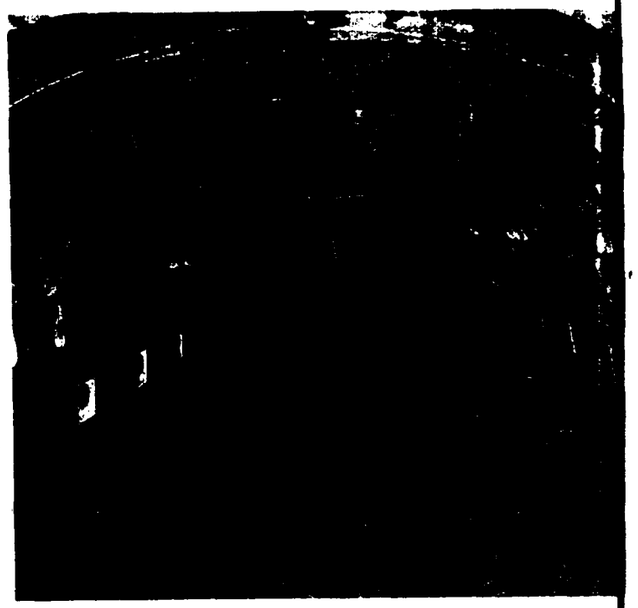
4. To form a partition between the stalls, poles 30 feet long were wired to each of the cross bars mentioned in paragraph 3. Then two animals were placed in the first set of stalls, and the stalls completed by placing cross bars closely behind them. These bars were secured in the same manner as the first set of cross bars described in paragraph 3. As soon as they were in position, the partition poles were wired on.

5. Eighteen inches in the rear of the first set of stalls, a second set was constructed in the same manner as the first. In case 6 animals were to be carried instead of 4, a third set of stalls was placed 18 inches in rear of the second set. The 18-inch spaces between stalls provided head and neck room for the animals, because the forward cross bars were placed close to their chests. It also provided a space for the attendants between the stalls, whose duty was to steady the animals by grasping their halters.

Loading Animals

The animals were loaded with stripped pack or riding saddles. Heavier animals were placed in the forward stalls to keep the center of the load as far forward as possible. They were restrained in their stalls as follows:

1. Halter shanks were passed over the top cross bar in front of the animal and tied with a short shank into a forward safety belt ring on the side of the ship.



Stalls for airborne animals in C47s were constructed, as seen in this photo, from bamboo poles. Two animals have already been loaded. Note hay on floor for secure footing.

2. One end of a 15-foot, ¾-inch manila rope was tied into a safety belt ring equidistant between the animal's head and tail, passed over the middle of the pack or riding saddles of a pair animals, and tied into a safety belt ring on the opposite side of the ship, as in photo on preceding page. These ropes were not drawn taut, but were loose enough to permit a slight movement of the animal, and tight enough to keep the animals from being thrown against the ceiling of the compartment in case of a sudden down draft. To a limited extent, they prevented the animals from being thrown into the side walls of the planes.

Rations and personal equipment was placed closely in rear of the last set of stalls. When hauling more than 4 animals, some pilots preferred to have the animal rations placed in front of the leading stalls to take the weight off the tail of the plane.

The animals were loaded into the planes from ramps and also from trucks. However, coaxing horses and mules up a steep ramp into the darkened plane compartment was too troublesome and the ramp methods were discarded early. Practically all planes were loaded by backing truck loads of animals to the doors of the planes, which permitted them to be led in on the same level.

Only a few 2½-ton 6 x 6 cargo trucks equipped with stock rack bodies were available for loading the planes. These same trucks with standard bodies worked just as

well, although the sides were much lower. In only one instance did an animal attempt to plunge over the side and have to be destroyed because of the incurable injury it sustained. These animals were hauled only a short distance from the point at which they were loaded into the trucks, to the plane.

1,582 Horses Fly "The Hump"

In the first series of air shipments, 1,582 horses and mules were flown across the "Hump" to China. This project required 14 days to complete, an average of 113 animals per day. Major Railsback, who was responsible for making the necessary arrangements, loading of the planes and construction of the stalls, was assisted by 25 veterinary enlisted men who worked in crews of three to load the trucks, and crews of two to load the planes. Eight 2½-ton, 6 x 6 cargo trucks were used in the loading operations. The crews were able to load completely 25 to 28 planes in 1½ to 2 hours.

All animals were subjected to a careful physical examination prior to loading, and those found to be diseased, unserviceably sound, or gave indications of being unmanageable for safe flying were eliminated. Horses and mules were newly shod before shipping, because they had to be used immediately upon arrival at their destination. Plane crews were instructed in the proper method of destroying a horse or mule with a service pistol in case trouble was experienced in flight. In all the shipments only one animal had to be destroyed, because he developed an uncontrollable excitability while a plane was in midair, and threatened to damage it seriously.

In February, 1945, a second series of air shipments were made, in which 1,100 horses and mules were flown from Burma to China. In some of the later shipments, the stalls were constructed of plywood instead of bamboo poles. While these took longer to build, they afforded more protection to the sides of the planes.

Records indicate that only one plane out of all the shipments had to make an emergency landing when one of the animals broke loose from a stall, but no serious damage was done.

Conclusions

The following observations were made by the plane crews who flew the animals across the "Hump."

1. The horses and mules were very quiet after being airborne.

2. Between the altitudes of 14,000 to 20,000 feet, the animals appear sleepy, but do not become excitable as the higher altitudes are reached.

3. When up and down drafts were encountered over the "Hump," which raised or lowered the planes as much as 2,000 feet per minute, the animals rode better than expected.

4. When planes lose altitude, animals push forward in their stalls.

5. Only minor damage to the planes were reported from the entire operations.

The ground crews who loaded the planes, made the following comments:

1. The truck method of loading is much faster than any other, but skilled drivers should be used to prevent damaging the planes when backing up to the doorways.

2. It is very important not to underestimate the weights of animals to be loaded. An error in judgment may mean the loss of lives and equipment.

3. After a little experience, a crew can load a plane in 10-20 minutes.

4. Planes should take off as soon as the loading has been completed, and animals unloaded as soon as the planes have landed. Most planes arrived at their destination 2½ hours after taking off and were unloaded immediately. If animals are left standing in the planes for any appreciable length of time, they have a tendency to become nervous and may cause serious damage through stomping and kicking.

5. Animals can be successfully loaded at night.

The writer is in no position to venture an opinion as to the commercial possibilities of shipping animals by aircraft in the postwar period. It is difficult to conceive that aircraft will ever supplant the railroad as the most common method of moving livestock to market. However, experiences in the India-Burma Theater are believed to have proved satisfactorily that horses and mules can be shipped by plane, even at high altitudes and through inclement weather conditions, without difficulty. In addition, cargo planes may be easily fitted to carry animals without installing highly specialized equipment.

Loading by ramp without sides is not the approved way. Time is lost and damage may occur to near-by wing. Loading from a truck backed close to door is much preferred.

THE BURMA BOAT

General Frank Merrill, who commanded the famous Merrill's Marauders, stated: "I have made many boats from Phillips cargo saddles. This was our standard method of crossing rivers in Burma."

Highly useful in the combat zone of Burma for crossing rivers were boats like the one shown above, which were made from Phillips cargo packsaddles, rigging cover and ropes. The photograph was made at the Cavalry School, Ft. Riley.

A SERVICEABLE boat, which with practice should not take over 15 minutes to construct, can be made from Phillips saddles. Such a boat will support up to 2,500 pounds.

Instructions for making the boat will be found in the new FM 25-7, Pack Transportation, and are as follows:

1. Unload all saddles and cargo as near the water's edge as possible. All animals, at this time, should be swum across the stream.

2. Spread a rigging cover on the ground near the water. Place 5 packsaddles end to end with their footrests on the edge of the cover, and centered so that there will be an equal length of cover at either end. The saddles are lashed firmly together by a lair rope which is looped through the arches, and then are rolled over as one unit to the center of the canvas.

3. The footrests now are tied together with a lair rope, looping together all adjacent footrests.

4. The rigging cover is lifted until it fits snugly around the outside of the saddle, and the ends are folded and placed across the end saddles.

5. The cover is bunched at each footrest and secured in place with a loop in the lair rope. This completes half of the boat; the other half is constructed in the same manner.

6. Both halves are placed side by side in the water and fastened together by looping a rope around their adjacent footrests.

7. A lifting bar, or a strong pole, is placed under the folded canvas on the saddles at each end of the boat. The center bar is lashed securely to the center footrests with one end of a lair rope; the rope now is run to one end of the bar where it is used to secure the bar to the footrest; the rope then is passed under the boat to the opposite end of the bar, which again is secured to the footrest.

8. The excess canvas at each end of the boat now is folded back over the saddle pads to provide protection. This completes the boat.

It will support up to 2,500 pounds. With a load of 2,000 pounds, the freeboard will be 6 inches; with a load of 1,500 pounds it will be 12 inches.

British Official Photo

British tanks and infantry of the 19th Division move through the outskirts of Mandalay for the main attack. In the campaign that cleared central Burma of the Japanese, troops from Britain, India, West and East Africa, China and America were coördinated in warfare which was fought under the utmost difficulty. Mandalay fell in just 12 days.

VICTORY IN BURMA

The Full Story

*by Major Lewis Hastings**

Over razor-edged ridges, 10,000 feet high, through dense tropical forests and pest-ridden jungle, across great rivers, by land and by air, moved the men of Britain's Fourteenth Army to play their part in the first great conquest over the Japanese.

THE importance of the victorious campaign in Burma was to some extent obscured by the huge scale of events in Europe. Yet Burma was itself an operation of great magnitude, with features of outstanding interest to all students of war. As for its results, the utter defeat of the Japanese armies in this part of southeastern Asia, the almost total recovery of Burma, and the conquest of Rangoon, have strategic consequences of weighty significance for the Japanese war as a whole.

The terrain over which the decisive battles were fought affords an astonishing contrast to that in the western theater. The main frontal zone of operations extended from the coast of Arakan in the Bay of Bengal to Northern Assam, a distance of 700 miles. Save only in the narrow coastal belt, the whole country was wretchedly supplied with communications on the British side. Any advance had to be made across country over razor-edged ridges 10,000 feet high, through dense tropical forests and pest-ridden jungle, and over great rivers. In the words of the supreme commander, Lord Louis Mountbatten, the campaign was a logistical nightmare. Moreover, malaria and other tropical diseases were as dangerous as the Jap himself, though it should be borne in mind that British prophylactic measures almost completely negatived the disastrous results ensuing from tropical diseases. Between May and October, the monsoon period, the rainfall is one of the heaviest in the world. This climatic peculiarity as well as the topography naturally influenced the planning and conduct of the campaign.

The ground forces engaged on either side during the final stages of the offensive were approximately equal. The strategical weakness of the Allied position for an offensive in these conditions was balanced by an over-

*Well-known British radio commentator.

whelming superiority in the air. It was Britain's use of air power on a hitherto unprecedented scale for transport and supply as well as for offensive action that gave this campaign its unique character.

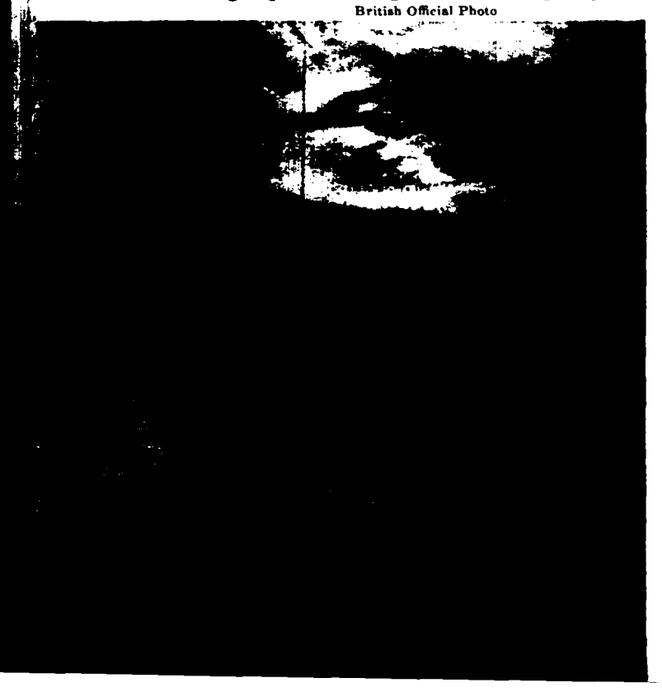
A striking feature on the Allied side was the composition of the forces engaged. It was truly an Allied team. The over-all command was British; and British, Indian, West African, East African and Chinese troops were employed. The American General Stilwell commanded a force of Chinese and Americans on the northern flank; Americans flew alongside their British comrades in the air. A high proportion of the infantry belonged to the magnificent fighting races of India: there were battalions of Gurkhas from Nepal, historic friends and allies of the British, there were African troops, and some formations of Burmese. Perfect integration of this brotherhood of arms was gained under Mountbatten's supreme command.

There is no doubt that the week ending December 7, 1941, will be forever remembered in history. That was the week which saw the Hitlerite hordes routed in front of Moscow, and that was the week also which saw, far away in the Pacific, the Japanese attack on the American fleet at Pearl Harbor.

Whatever furies of retribution the Japanese allies of Hitler evoked by this treacherous onslaught, there is no doubt that the immediate consequences were disastrous to the Allies. Both the Americans and the British were caught lamentably unprepared. The American fleet was crippled for months. The only two British battleships in the Far East were sunk by air attack, the Philippines and the rich Dutch archipelago were overrun, Singapore fell, and through Malaya and Indo-China the Japanese converged on Burma. Before the victoriously advancing Japanese columns there were scarcely more than a couple of brigades of British troops, together with a small Chinese force under Stilwell in the solitudes of Northern Assam.

To provision troops in forward areas, a great highway was hacked from the Chin hills, Imphal-Tiddim area, and along which the picture shown was taken. Supply-lorries are crossing a pontoon bridge in forward fighting area.

British Official Photo



Then came the fall of Rangoon, the great port of the Indian Ocean. That was a heavy blow, for with Rangoon the lifeline to China was lost, the famous Burma Road, only land route for supply to the hard-pressed armies of Chiang Kai-shek. But under the leadership of General Sir Harold Alexander, the great commander who was later to win resounding victories in the Mediterranean, the small Allied forces made a masterly retreat through forest and jungle, inflicting heavy losses on the enemy. The Japanese halted at the mountain barrier across the Chindwin, and the breaking of the monsoon put a temporary end to operations.

In the campaigning season that followed during the late autumn of 1942 and the spring of 1943, operations were on a relatively small scale. The pressure on British resources was growing everywhere on sea and land and in the air—the campaign in the Mediterranean and the preparations for the assault on Europe were making heavy demands on manpower and materials. Yet it was the Allied command that took the offensive in Burma in 1945, and Britain was slowly regaining the initiative. Between December and March, 1943, the British attacked in Arakan. The campaign was, on the whole, inconclusive, but Japanese plans for invading India along the coastal belt were stultified, and many enemy troops were contained and destroyed.

During the same period, another operation of an entirely different character occurred in the central part of the front. A small force of British, Gurkha, Indian and Burmese troops, trained and commanded by the late Major General Wingate, penetrated across the Chindwin river deep into enemy territory. In the course of a few months, this force traversed over 300 miles of jungle in the Japanese rear, blew up bridges and railways and killed many Japanese. In terms of damage done the total accomplishment had perhaps no more than a nuisance value, but as a pattern for the future and as a vindication of Wingate's special technique, this brilliant exploit far more than justified itself. It proved among other things that British and Indian soldiers, given the necessary training and equipment, could easily outclass the Japanese in jungle warfare. But above all it showed that it was possible to keep a force supplied and on the move, even when completely cut off from its base, by the use of air transport alone.

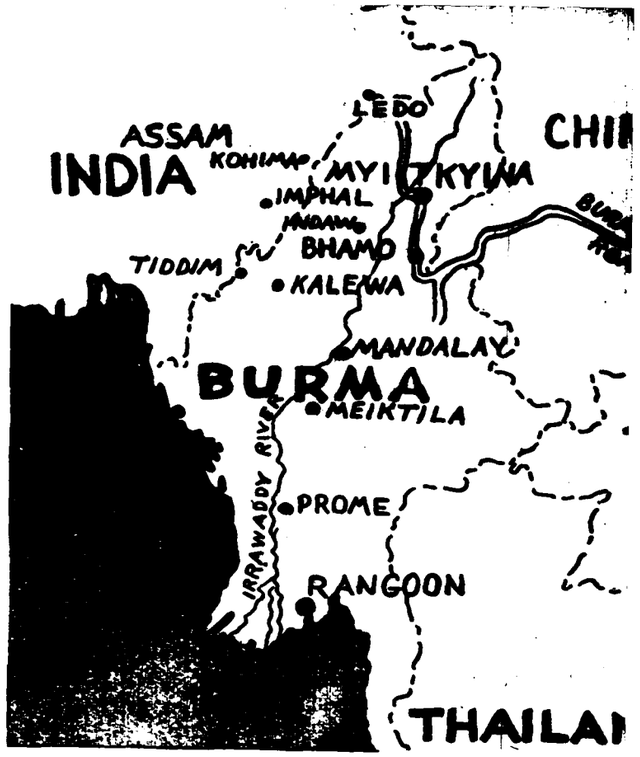
By the summer of 1943, it had at last become possible to contemplate a serious attempt to crush the enemy in Burma. The basic plan of the operation was drawn up at the Quebec Conference in August. It was then decided not only to develop the existing air route from India to China but to break the blockade of China effectively by reestablishing road connections with Rangoon. The supreme command of all the forces engaged by sea, land and air was entrusted to Admiral Lord Louis Mountbatten. The military problem involved was one which clearly called for amphibious operation, in which Mountbatten was expert. But the means were lacking. The necessary technical equipment, assault boats and landing craft had to be concentrated for the grand assault on Europe, first in the Mediterranean and later in the English Channel. In consequence, the weight of the attack in Burma had to be borne by land forces together with the air arm.

On the Allied left flank General Stilwell's Chinese and Americans were to make their way from the Ledo railhead over the mountains to Burma proper. With them went a force of American and British engineers whose task was to drive an all-weather road through the rugged country between Ledo and Myitkyina and so eventually link up with the existing Burma Road into China. On the right or southern part of the line, the XV Corps were to resume a forward march down Arakan, with the object of bringing a concentration of Japanese troops in this area, and to occupy the high ground. More distant objectives were the port of Akyab and, ultimately, the Irrawaddy.

The main forces of the British Fourteenth Army were disposed in the center, west of the Chindwin, covering the widely separated key points of Tiddim, Imphal and Kohima. It will be seen that the land communication of all these forces had a dangerous dependence on the single line of railway from Calcutta through Dimapur to Ledo. In general the supply lines by road and rail also had the strategic disadvantage of being roughly parallel to the front, and in the neighborhood of Kohima, not out of reach of a determined enemy thrust. As events proved, it was clear that the Japanese were fully aware of this position.

At the turn of the year the offensive began with movements on both flanks. Stilwell's troops on the left began to make their way over the mountains. By the end of March they had entered the Mogaung valley on the road to Myitkyina. Down in the south, Indian divisions forced their way from the coastal flank to the eastern side of the Mayu range, the barrier between the maritime plain and the great valley of the Irrawaddy. A strong counteroffensive by the Japanese succeeded in cutting off part of the two divisions on the eastern side, but the isolated group, again entirely supplied from the air, held out stubbornly. Reinforcements attacked, and the Japanese enveloping force was itself surrounded and was almost completely destroyed. By May, the important high ground was in British hands, but with the coming of the monsoon in this most unhealthy tract of country, the southern front became temporarily stabilized.

While this operation was in progress, a more dramatic enterprise was undertaken to hustle the Japanese. Wingate's long-range experiment of the previous year was repeated on a much more ambitious scale. A whole



British division was transported almost entirely by air to the rear of the Japanese Chindwin front, astride their main communications between Myitkyina and Mandalay. By parachute and glider, something like 12,000 men were landed, complete with mules, equipment and even steam rollers, on a site chosen by Wingate in his previous expedition. The landing was a rough experience and a good many gliders were smashed. But the Japanese were taken utterly by surprise, and Wingate's force immediately began a work of competent destruction in the general direction of Myitkyina.

The brilliant General Wingate himself was unfortunately killed in an air accident, but his airborne force continued to operate with increasing success against desperate but uncoördinated resistance. During March and April all the various units engaged in this complicated northern operation pressed harder and harder on the enemy. By the middle of May, Chinese and United States troops captured the important airfield near Myitkyina after an exhausting 20-day march through the jungle. The British airborne troops fought their way to Indaw and Bhamo, and Myitkyina itself was invested in June.

These events in the north and south of the line were soon eclipsed in importance by what happened in the center—on the main Assam front. Hereabouts the British Fourteenth Army, consisting of British and Indian Divisions, had planned to strike forward in the Tiddim area and to divert Japanese attention from General Stilwell's advance on the Myitkyina road.

But early in the spring Lt. General Sir William Slim, the army commander, learned that the Japanese them-

selves were preparing a large-scale offensive against Assam and India. He took an immediate decision to withdrawn his advanced Corps toward Imphal, in order to shorten his communications, and prepared to fight the battle in that area. This decision was justified, as the Japanese counterattack was even more powerful and determined than was at first expected.

On March 16, several divisions of General Mutaguchi's army crossed the Chindwin river and swept forward on a broad front. These enemy troops carried exceptionally light equipment, and their prospects of supply, if the operations were protracted, were meager. Their intention was to capture Imphal and Kohima by a surprise stroke, and provision themselves on British supply dumps. Then they planned to cut the communications to Stilwell's forces, to capture the airfields and bases from which supplies were being flown to China, and to invade India. The plan was risky, but it was a bold and determined one, and the objectives were of the highest strategic importance.

In its early stages the Japanese assault was successful. Kohima was enveloped and the garrison cut off from all land communications. The roads were cut between Kohima and Imphal and between Imphal and Tiddim. The bitterest fighting of the campaign then took place, much of it at close quarters. Once again, however, when the Jap radio was shouting victory in every transmission, air transport proved the key to the situation. Two complete divisions were flown up all the way from Arakan, and aid was brought to the garrisons at Imphal and Kohima. Japanese aircraft were wiped out of the skies, and Allied air squadrons battered the enemy formations and supply lines right back to Rangoon.

General Mataguchi ordered a last Japanese assault on Imphal. In his order of the day he told his troops: "The fate of the Empire depends on this battle. Imphal will be taken at all costs." The Japanese attacked again and again with even more than their customary fanaticism, but their assaults withered against a superb defense. The Kohima hills were stormed, Kohima was relieved, and soon the whole Allied force in Assam passed to the offensive.

By this time the monsoon had begun, but General Slim realized the plight of the Japanese Army, short of supplies and entangled in the mountains. He ordered that the advance was to proceed through all conditions. So the pursuit began, through the monstrous growth of the jungle and over torrents raging with the heavy rains. Daring penetrations were made into the Jap rear, and on the ground and in the air, the Japanese were cornered and harried and remorselessly destroyed right down to the Chindwin valley.

In the north, the same unrelenting pressure was maintained by the converging columns of Stilwell's Chinese and the British Airborne Division. Mogaung was captured, and, in the autumn, Myikyina, the enemy key point, which was situated in northern Burma, fell before an attack by the northern command.

The Fourteenth Army, having smashed the Japanese offensive and finally eliminated the threat to India, now struck eastward across the mountains toward the Burma plain. In January, the elements of a great converging movement on Mandalay became discernible—the Fourteenth Army, consisting of the IV and XXXIII Corps, down the Chindwin, and the northern force southward along the Irrawaddy.

Kalewa, the last Japanese stronghold on the left bank of the Chindwin, was captured by the East African Division. Two days later they crossed the river in the darkness and established a bridgehead. By the middle of February, the XXXIII Corps was over the Chindwin and contact was made with the northern force. Ahead of the Fourteenth Army now was the Irrawaddy, the chosen Japanese barrier line of defense and one of Asia's great rivers, more than 4 times the width of the Rhine. The first bridgehead was made 60 miles north of Mandalay. A few days later, another crossing was forced about 40 miles west of the town.

For 6 days and nights, the Japanese renewed their attempts to drive the British troops back, with nothing to show for it but murderous losses. Still another crossing was made, and soon the whole XXXIII Corps were

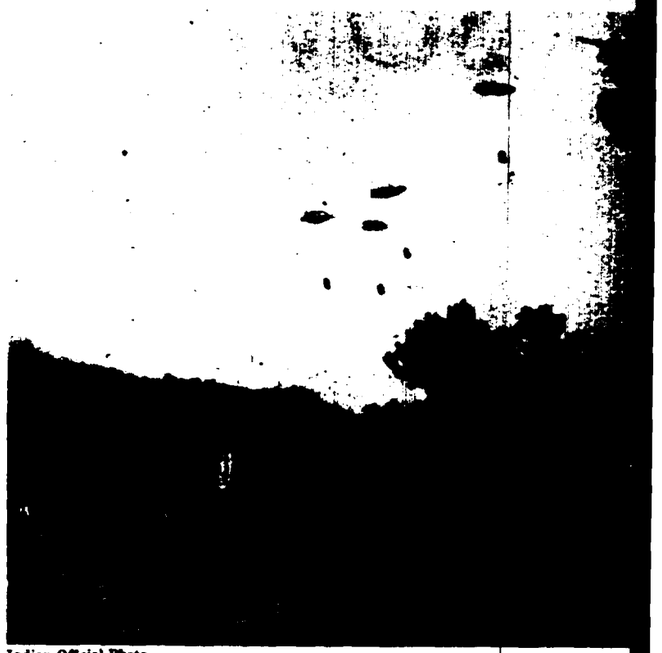
Air supply was highly important to Wingate's raiding column which had penetrated 170 miles behind Jap lines. Supplies are shown being dropped to clearing in jungle.
British Official Photo

firmly on the east bank of the river. Early in March, the assault began. By February 8, the Allies were in the outskirts, but the Japanese still held out desperately in Fort Dufferin, the great walled and moated square in the heart of the city. But on February 20, the end came. Mandalay, the capital of Burma, the great Japanese base in the campaign, was once again British.

In the meantime, General Sir William Slim, looking still farther ahead, had prepared a formidable surprise for the Japanese. Between Mandalay and Rangoon, the essential port of the Indian Ocean, ran the main channel of enemy communication. There was the railway, and a vital stretch of the famous Burma Road, main supply route for China. That was now the objective. The IV Corps of the Fourteenth Army, which in February had been concentrated away to the northwest, was secretly marched down to Pakokku on a bend of the Irrawaddy far south of Mandalay. Once again, a passage was forced and an armored column was immediately rushed to seize Meiktila on the railway, 90 miles away. An airborne column was flown in to their support, Meiktila was held, and all Japanese communications were ruptured between Mandalay and Rangoon. The Japanese retreating from Mandalay, and those still engaged with the northern force, were cut off from the south.

All through March, the decisive battle for central Burma went on inside this trap. The enemy fought furiously to recapture the airstrips seized by the IV Corps and to break through the iron ring at Meiktila. Their struggles were in vain, and the work of extermination went on steadily. Now the time had arrived to strike the blow for Rangoon. The main thrust was allotted to the IV Corps. This Corps had been reorganized for the purpose on the novel basis of one airborne and two motorized brigades to the division. Supplies were by air alone, and, from all points of view, this striking force must have been one of the swiftest and most flexible formations in military history.

There was reason for speed; the monsoon was again due in May. While the weather remained dry, the terrain in the Irrawaddy valley was suitable for mechanized transport; but, once the heavy rains set in, the armored columns would soon be bogged down and the supply situation would change to the advantage of the Japanese. Nothing therefore was left to chance. The XXXIII Corps was switched from its position south of Mandalay across to the right flank of the southward advance to deal with the Japanese forces in the direction of Prome. At the same time, another shock was prepared in the Arakan. Under the direct command of Lord Louis Mountbatten, a combined sea, land and air attack was planned to take the Japanese in the rear at the sea approaches to Rangoon. The whole of the forces thus deployed for the final action were exclusively dependent for all their manifold requirements upon air transport. For the first time in war, a whole army was to be provisioned and munitioned by this means alone.



Indian Official Photo
With chutes open and hanging in trees, an airborne supply "dump" is being assembled in the Burma jungle for troops which out-paced any other means of replenishing needs.

The total weight of supplies discharged from the air during the ensuing weeks reached the unprecedented figure of 2,000 tons a day.

The renewed offensive was started by the IV Corps along the direct southern route. It swept forward at lightning pace. Divisions and brigades leap-frogged over one another and the forward thrusts were greatly accelerated by the use of airborne units. In three weeks, the corps covered 300 miles, scattering the Japs before them, and, by the beginning of May, they had closed in on the northern side of the great port. Then, exactly synchronized, the combined operation was launched from the south on both sides of the Irrawaddy estuary. The timing was perfect, and the jaws closed on the Japanese. Rangoon, the great strategic prize of the whole campaign, was captured on May 3. The monsoon as well as the enemy had been beaten on the post.

There was still some mopping up to do in the less accessible parts of southern Burma, but victory was in effect complete and all the main objectives had been gained. The Japanese had sustained the greatest land defeat in their history. Since the campaign opened in March, over 100,000 Japanese dead had been actually counted by the Allies, and multitudes of others had met their end unseen in the dense jungles of the vast battlefield. Practically the whole of the guns, vehicles, tanks and equipment destined for the ambitious invasion of India had been captured.

SOVIET CAVALRY*

by Captain Sergei N. Kournakoff

OUTSTANDING characteristics of the Soviet conduct of the war are flexibility and freedom from dogma. The dogmas of innovation that would have sent certain military arms to the scrap heap as obsolescent were no more gently treated than the dogmas of tradition that would have hampered full mechanization.

As described earlier the Soviet answer to the question "horse *or* motor" was "horse *and* motor." But the Soviet decision on this military issue was not as some commentators concluded, a concession to the "Cossack cavalry tradition."

It was a decision based on studies which indicated continuing uses and new potentialities for cavalry in modern war. This cavalry was, of course, not like the old *but was rearmed* with modern weapons and *integrated into the pattern of operations of mechanized war.*

The present organizational structure of the Soviet cavalry division is probably not radically different from that outlined in the latest Soviet cavalry manual available here, that of 1933. The 1933 division consisted of 4 horse regiments, 20 squadrons, and 4 batteries of small guns; one artillery regiment made up of 6 batteries of field guns; a mechanized unit made up of three squadrons and operating small tank and tractor-drawn equipment; a signal unit made up of two squadrons; and a squadron of engineers. The division was further equipped with 48 *tachankas* or horse-drawn, heavy machine guns, and other auxiliary units. The total complement was 3,701 men, 3,533 horses, and 42 tanks and armored cars.

Allowing for a large part of the total mounted strength being held for eventualities in the Far East we may assume that about 30 divisions, or up to 100,000 mounted troopers, have been operating against the Germans. As has already been made clear the cavalry's arms are not confined to the traditional saber and carbine. They include light tanks, armored cars, and artillery; and a liberal supply of automatic weapons. Every 8 men of a cavalry squadron have either a light machine gun or a grenade thrower. The cavalry are trained, of course, to dismount and operate as infantry.

Germans themselves testified to Russian cavalry superiority in the First World War. For example the German World War cavalry officer von Poseck, in his book, *The German Cavalry in Lithuania and Kurland in 1915*, wrote:

"In about three-quarters of an hour Cossacks appeared, reconnoitering carefully, taking advantage of every fold of the ground. I must admit that I clearly saw how much our cavalry could learn from these sons of the steppes. Three squadrons of them had already accumulated when I opened fire. In less than three minutes they had vanished behind some kind of cover which I could not even see."

The Soviet cavalry superiority however is not due to any race factor. It is due to environmental condition of which the Soviet High Command has made shrewd use. Germany lacks the wide plains needed to evolve a nation of horsemen. Good as German horse-show teams have been they have been men of exceptional training, whereas the Cossacks, the Kalmyks, the Kirghiz, and other nationalities are full-time horsemen, herdsmen, born to the saddle and with centuries of experience and horse lore behind them. Much of the Civil War experience on which the Red Army founded and tested itself was a series of cavalry engagements. It further developed Soviet cavalry experience.

All this Soviet cavalry was put brilliantly to the service of their country in the present war. It is clear that where the motor cannot forage for itself the horse can, on grass; that while the motor announces itself with blast and rumble the horseman can make as silent an approach as required; that as long as there is terrain which at all times, or under certain conditions, a horse can traverse, but a motorized vehicle cannot, the cavalry maintains its value.

Especially in the winter campaigns the cavalry has maintained its traditional rôle of a maneuvering shock force, in which, it has been assumed, the moto-mechanized force had superseded it. For this function it is very well equipped with modern arms, including even antitank and antiaircraft artillery. Launched against foot soldiers, these modern centaurs, galloping, shouting, slashing and with terrifying advantages of height, mass, and speed, have again and again scattered infantry formations.

In the First World War a Siberian Cossack Brigade, in December, 1914, operating on the Turkish front, made a 70-mile march through snow in 30 hours, capping off this exhausting march with such a difficult accomplishment as the storming of the fortified city of Ardahan. On the same front, operating before Erzerum in the winter of 1915-16, through mountain snow over three-feet deep, and in temperatures of 40 below, the Russian cavalry won brilliant successes. In 1919 Budyonny deliberately led his cavalry, in a blizzard, against two White cavalry corps, surprised them

*From *Russia's Fighting Forces* by Captain Sergei N. Kournakoff, International Pub.

and routed them. In March, 1921, the Eighteenth Red Cavalry Division driving through the Caucasus, forced the Godher Pass, hitherto considered impassable except in full summer, by a stratagem of great ingenuity. The *burkhas* (felt capes) of the entire division were laid out on the trail like a carpet. The horses were led over them. And the passage of the horses so solidly packed down the snow that it was possible to move artillery over it.

In the Timoshenko offensive north of the Sea of Azov we heard of Soviet cavalry divisions leading the advance with tanks and attack planes.

Two examples, albeit of a negative character, will show how cavalry and tanks can supplement each other and neutralize each other's shortcomings. On November 18, 1931, meeting the attack of the Second Japanese Infantry Division on Tsitsihar, in Manchuria, the 54th Chinese Cavalry Regiment covertly turned the Japanese flank and reached the enemy's rear. But this action of the Chinese cavalry took place at a slow tempo, because of the uninterrupted though weak fire-resistance of the Japanese rear establishments. The suddenness of cavalry action was neutralized and the Japanese command had sufficient time to take countermeasures and use its last reserve—aviation, which saved the situation for them. Supporting tank action would have given the Chinese the victory.

On October 29, 1936, the tanks of the Spanish Republican Army crossed the Rebel trenches, attacked the enemy reserves at Seseni and, having penetrated the enemy lines to a depth of 6 to 7 miles, scattered one and a half battalions of Rebel infantry. But the crews of the tanks were not able to take a single prisoner. They could have secured what they had won had they had cavalry support.

The large Soviet cavalry formations, utilizing both horse and motor, are proving a decisive factor in the successful development and conclusion of an operation. Their best use is deployment on the flanks or in rapid operations where the enemy front has been breached, as was done by Timoshenko's cavalry in the Rostov offensive. Cavalry can also be used to screen one's own concentrations and regroupings, and as a mobile reserve for closing up a break-through of one's own front.

To be successful the cavalry must be invisible, fast, highly active, and determined. The numerical and qualitative growth of military aviation forces cavalry to move mostly at night, especially in winter when leafless trees do not conceal, and snow exposes everything moving on it. In daytime cavalry marches off the roads in broken formation, squadron by squadron, or even troop by troop. Nevertheless it must also preserve its unity or face destruction piecemeal by enemy attack, and it must be constantly on the alert against enemy mobile formations, and aviation. For that reason the major part of its mechanized weapons must be kept with the main body. It is clear that the tank forces and squadrons of armored cars which form a part of a Soviet cavalry formation must be especially trained.

A meeting-engagement of a cavalry division may assume many forms. For example, where the division meets a mobile enemy—cavalry, moto-mechanized troops, or even a mixed detachment—the commander must avoid complicated plans and wide maneuvers, but must try, through the energetic action of his covering troops (in this case his vanguard), to freeze the enemy maneuver and to assure advantageous conditions for the entry of his main body of troops into battle. Having picked the direction of the main blow, he will send the tanks and the mounted regiments of his main striking force there, supported, of course, by a great part of his artillery. The main thing at this juncture is to act quickly in deploying and seizing the initiative: Therefore, a tank maneuver, when the battle wagons are first rushed to support the vanguard and then called back to act with the main striking force, would be disadvantageous. The same would be the case if the tanks were sent out on their own to attack the flanks of the enemy on the march.

In meeting enemy infantry the commander will try to prevent the deployment of the enemy by attacking him on the march, if possible from several directions simultaneously. In an attack against an enemy put on the defensive, such as Timoshenko's cavalry attack against von Kleist, the cavalry commander first of all tries to find an open enemy flank. If successful he dispatches all available tanks, two or three mounted regiments, and most of his artillery to turn the enemy's open flank, *i.e.*, for a blow at the enemy flank and rear. In such a case a small force of mounted troops with some artillery is left in front of the enemy as a holding force, or a "pivot of maneuver." If the enemy's flanks are not open or accessible and a break-through is attempted, the tanks have to open the way for the cavalry. Depending on circumstances, the tanks will be either under the direct orders of the commander of the cavalry division, although in close coöperation with the regiments of the first attacking echelon, or will be subordinated to the regimental commander who will allot them their objectives. But the divisional commander will not fail to give all his tanks the time and place of assembly in order to have them all at hand.

Larger cavalry formations, cavalry corps, and even cavalry armies, may, and most probably will, have special tank units distributed, not among the cavalry divisions of the formation, but at the direct command of the senior cavalry general officer. Such special tank formations usually act in the vanguard of the cavalry divisions, delivering the main blow, along the main operative direction.

Such were the broad tactical outlines which governed the combined action of Soviet cavalry and tanks against the right wing of Field Marshal von Rundstedt's armies near the Sea of Azov, where Timoshenko apparently sent a whole cavalry army, 6 or more divisions, against the Germans.

Mongolian Cavalry*

by Major V. Petrov

Once again in this war, horse cavalry has proven its worth. This time the Mongolian Cavalry attacked Japanese communications in Inner Manchuria over terrain impassable for vehicles, and intercepted the retreat of the Japanese forces.

THE operations of Marshal Choibalsan's Mongolian Army in the Far East deserve special attention as some of the most extensive operative maneuvers carried out by large cavalry and mechanized units during the war. These operations are all the more interesting since they show the superior quality of the Mongolian Army, which includes cavalry units.

While one body of Soviet troops struck from the direction of Great Khingan, stormed the enemy's mountain strongholds and then descended to the central Manchurian valley, another body consisting of Mongolian cavalry and mechanized units dealt a sudden blow from the south in the general direction of Kalgan with the aim of emerging on Lyaodun Bay. The purpose of this blow is clear. Japanese communications linking Manchuria with the northern province of China were being severed.

The enemy had not anticipated a serious blow from the direction of the barren Chahar steppes. The Mongolian cavalry, however, struck precisely from here, from the north, after having surmounted the endless sands, salt marshes and roadless terrain of Inner Mongolia. This maneuver over the steppes and the blows which then descended upon the enemy's strongholds, mainly on the Dolon Nor, upset the plans of the Japanese command, preventing them from establishing stable defenses. Their attempts to check the advance of the cavalry by counterattacks north of Kalgan availed them nothing.

In this phase of the operations the Mongolian cavalry displayed great skill of maneuver under difficult meteorological conditions, and on terrain decidedly unfavorable for the movement of large bodies of troops. The wastelands traveled by the Mongolian cavalry are nearly devoid of inhabited places. Orientation, too, is extremely difficult here. Since the maneuver encompassed large territories, units advanced in separate directions. Great skill, orientation and the guidance of troops as a whole were required to maintain correct directions and emerge accurately at respective destinations. This skill was fully displayed by the Mongolian troops.

One must emphasize that the cavalry of Marshal Choibalsan showed remarkable ability to adjust themselves to the widely varied battle conditions. Unfolding operations, they entered the hilly terrain where much depended on the flexible tactics of small units, the struggle for various roads, maneuvers for by-passing the enemy's strongholds, etc. The cavalry squadrons of the Mongolian Army, *together with light tanks and armored cars*, coped very well with their tasks on new terrain. They intercepted the enemy's retreat, and moving swiftly through the hinterland, seized important junctions and command posts. Such were the developments at the approaches to the large town of Jhehe. Having stormed this city, Marshal Choibalsan's units pressed on toward Lyaodun Bay without checking their stride.

The Mongolians are natural riders and are in their element in the vast steppes. This adaptability unquestionably facilitated the success of the large-scale cavalry maneuvers. The fondness for horses has passed from generation to generation of Mongolians. Accustomed to the saddle from early childhood, they are invariably excellent cavalrymen, and their endurance on the march is beyond compare.

The necessary qualities for the prolonged and forced marches are acquired by the Mongolian youths before they join the Army. The following is characteristic: a *tsirik* (a soldier of the Mongolian Army) was ordered to deliver a parcel from Kobdo to Ulan Bator quickly, and he made the trip both ways in nine days. In that period he traveled 2,600 kilometers. A ride of 600 to 700 kilometers in a single week is nothing extraordinary for the Mongolian cavalryman. Changing horses en route, he is nearly always mounted on a relatively fresh animal. As a rule each *tsirik* possesses two horses; he rides on one and the other follows. He is thus able to change horses at will.

*Information Bulletin, Embassy of USSR

A Remount Depot in Italy

*by Lieutenant Colonel Kenneth F. Lafayette**

DURING the four and a half months from October 1, 1944, to February 15, 1945, the 6742d QM Remount Depot (Ovhd) was charged with the function of supplying the Fifth Army in Italy with horse and mule units capable of performing the heavy task of packing supplies quickly and regularly.

As it began its assignment, half of the original strength of the unit was sent to France and redesignated, leaving this unit with an approximate strength of 50 enlisted men and 10 officers.

It was the functional mission of this unit to furnish original T/O strength of horses and mules to the 15 pack troops and miscellaneous mounted units with the Fifth Army, in addition to maintaining a replacement stock of 10 per cent a month and a 30 per cent reserve. Circumstances, however, greatly changed that.

Difficulties were many. All functions were performed in adverse weather, and in the face of irregular movement schedules for animals. The operation also was conducted without the normal guidance of a War Department T/O and E, or the benefit of experiences of predecessors. It was necessary for the unit to develop its own organization, system and solutions for the problems encountered.

On one occasion it processed 1,300 mules and 45 horses for 5 new pack troops in less than a month, and then successfully held the animals for an unanticipated extra 45 days because of a delay in the activation of units of the Fifth Army.

During the four and a half months, the unit procured, processed and maintained a daily average of 1,304 animals, with an average of more than 1,600 animals during the last month and a half of the period.

For the assignment, the depot operated two remount stations, at which were employed both Italian military and civilian personnel.

An idea of what a unit under similar circumstances is up against may be obtained from the following list of tasks that were performed and services that were furnished by the 6742d QM Remount Depot (Ovhd):

One of the functional operations included remount and veterinary care of animals—such as branding, feeding, watering, shoeing, conditioning, malleining, worming and hospitalization of sick and wounded.

The depot performed post maintenance of utilities, providing water supply lines, fences, feeding troughs and racks, sheds, stables, and roads.

It loaded and unloaded animals awaiting shipment, and those to be shipped between the rear and forward stations by truck and rail; unloaded animals from ships from the Unied States and France, and then shipped these animals from the port areas to the nearest remount station.

The unit provided a system of chutes, pens, and ramps to facilitate loading and unloading of animals transported by truck, and made the necessary segregation of the stock. It furnished an escort for animals shipped between the stations.

It accepted and cared for animals from Fifth Army veterinary hospitals and evacuated them to a general veterinary hospital. Duties also included keeping horse and mule service records, and records of all animals received and issued; and also the performance of the normal administrative details which are inherent to a headquarters of battalion level, with organizations of the company echelon.

In addition, personnel of the 6742d QM Depot furnished escorts for animals from France when horses were procured for the 10th Mountain Division, and for all animals procured from the British.

Another big function was to furnish both officers and enlisted men to the Fifth Army to organize, work, and supervise remount activities, and to assist the quartermaster in the procurement of hay when it was hard to find.

New personnel was trained in remount functions for the 2610th QM Remount Depot (Ovhd), and regular instruction classes held while the organic operations of the unit were continued. This latter performance was an example of many of the non-routine duties performed.

Following is a statistical breakdown of daily average animal strength, Morning Report strength of the unit, and Italian military and civilian strengths for the period:

Month	*Animal Strength*	*M/R Strength*	*US-ITI*	*Italian Civilian*
October	763	56	191	24
November ..	933	60	231	42
December ..	1,494	59	258	51
January	1,605	60	254	52
February 1 to 15 ...	1,726	57	254	78

Because the highest traditions of the service were reflected in the performance of such duties, the 6742d QM Remount Depot was awarded the Meritorious Service Unit Plaque.

*Hqs. Peninsular Base Section, Office of the QM, APO 782, NY.

SERGEANT MIYOSHI!*

Any similarity between the character depicted in this story and a living Japanese soldier is *purely intentional*. Sergeant Miyoshi Toshio was a little guy whose big aim in life was to kill you. He spent the better part of the past 10 years learning how. He is a facsimile of the Japanese GI. He is no superman, but he is no dumb ape either. It will be worth your while to know him, how he thinks and acts, and what he was taught to do in battle. Our struggle with Japan is not finished until all former Japanese soldiers have been re-educated to the American way of life just as thoroughly as they were once indoctrinated by their leaders who thirsted for world conquest.

Early Training

MIYOSHI TOSHIO could hardly remember a time when he was not preparing to be a soldier. At the age of 6 he was sent to school to start the education that practically every Japanese kid gets. It was not school as we know it, but more like a juvenile OCS. His teachers always talked about the "divine mission" of the Japanese boy to die for his country and emperor, and that Nippon was destined to rule the world. He was indoctrinated with the belief that the Japanese army was invincible and that the Japanese soldier would never surrender. Miyoshi learned the virtue of *Chugi* (loyalty) and the slogan, *Nippon Seishin* (Japanese spirit).

His formal military training started when he was 8, in his third year of school. The teacher put the class through dismounted drill a couple of hours a day. Later on he was given an undersized rifle so that he could practice the manual of arms.

When Miyoshi finished primary school, at the age of 12, he got a chance to go to middle school. At 14 he was on his way toward being a tough, fanatical soldier boy, and his whole life was regimented and centered on unquestioning obedience. His mind was as rigidly trained as his body.

He never read anything but the carefully designed school texts, strictly censored books, and an occasional tightly controlled newspaper.

He never heard or read a single word of criticism of his emperor, his government, or his army.

When Miyoshi was 20 years old he appeared before an army examining board and his card was stamped *Genekihei* (active service).

Arriving in a training camp of the Kanazawa Divisional District, Miyoshi was handed a uniform with collar tab bearing the single star of the *Nitohei*, or private, and assigned to infantry.

The first important formation was the presentation of rifles. The band played, flags flew and the regimental commander made a speech telling the recruits that the rifles they were receiving were symbolically the same as the samurai sword of the ancient Japanese warrior.

From January to May, Miyoshi trained with a squad in bayonet drill and target practice. Sometimes they went out on a 5-day march, bivouacking every night in temperature close to zero.

In June and July Miyoshi, now wearing the two stars of an *Ittohei*, or Pfc., was training in platoon and company formation. They were marching 20 miles a day and the going was rough, but no one dared complain or show weakness.

From August to November his group was employed in battalion and regimental training. They were in the field most of the time doing combat firing, marching 25 miles a day, practicing swimming with packs, and finally going out on fall maneuvers. Here Miyoshi did very well.

One of the lessons he learned in maneuvers was that "Soldiers of Nippon never retreat. Whatever the cost, we attack."

His squad was artful at camouflage. They knew how to use foliage and mud to blend into the surroundings, and learned how to be snipers by sitting in trees for hours at a time, almost motionless. They were complimented on clever infiltration, made a good record on reconnaissance, and sketched everything that they saw, from mountains to cows.

In firing problems Miyoshi's squad moved with speed and excellent discipline. Tight control was maintained. Miyoshi had little trouble understanding the orders he received; attack plans were usually simple, involving frontal assaults or envelopments.

They marched as much as 75 miles with full pack and went without food for two and three days at a time to get used to hunger and fatigue. A considerable amount of their work was done at night.

Much emphasis was given to morale during the first year's training. Miyoshi was lectured almost daily on the duties of a soldier. Every few months he listened to a reading of the Emperor Meiji's "Imperial Rescript to Soldiers," stressing the 5 principles of military ethics —loyalty, courtesy, courage, truthfulness and frugality.

Combat

After graduating from NCO school, Miyoshi was promoted to *Gochō* (corporal) and was sent to China to join his division. It was a standard triangular division with an authorized strength of 20,000, comprising three infantry regiments, one regiment each of artillery,

*Prepared under direction of Asst. Chief of Staff, G-2, Hq. Fourth Army, Fort Sam Houston, Texas.

cavalry, engineers, a transport regiment and the usual service troops.

Miyoshi learned after a few months of combat that this business of the soldier being a gentleman was all right back home, but once you got away from Japan, it was different. You lived off the population and grabbed whatever you could.

If Japanese soldiers were brutal in their dealings with the population, they were tough on each other, too. Corporal Miyoshi was told that he would be considered weak by fellow NCOs if he did not beat his men. He could order his inferior to do such menial work as washing his laundry, making his bed, and polishing his shoes.

A short time after he joined his division, it left China and landed at Rabaul, New Britain. Here the men were issued additional supplies of jungle equipment, including camouflage clothing, tree saws, lightweight uniforms, and mosquito headnets.

Jungle Fighting

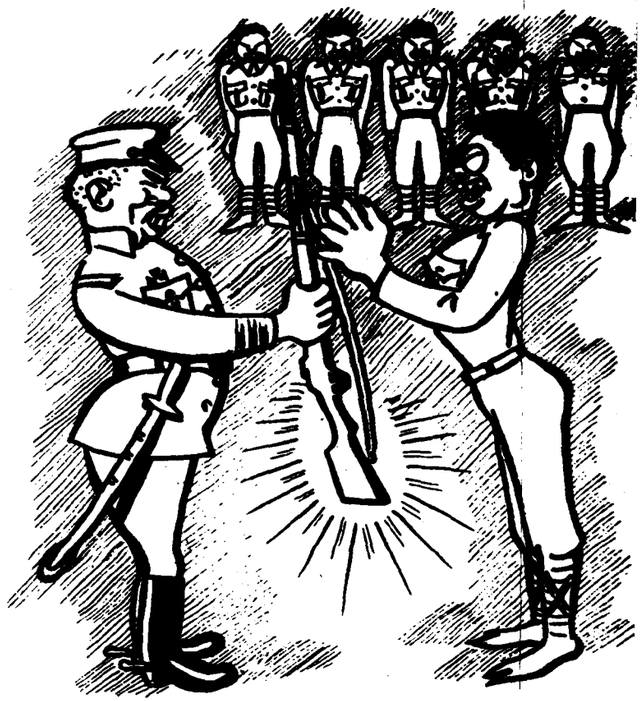
Miyoshi's regiment then headed north into the jungle. Australians were the enemy in this area, and for the first time he was going to fight against white troops.

Miyoshi's baptism of fire on New Britain came when he led his squad in a night attack. He checked his men for camouflage. Their faces were daubed with mud, foliage was twined in the camouflage nets on their helmets, and all wore sneaker-like *tabi*.

Their plan was to approach through the jungle at a point where the Australians would not expect them because of the difficult terrain. The squad left at dusk and moved silently through the heavy underbrush. It was heavy going, but there were no complaints, for the men had been trained for it. When they approached the enemy position, the squad slowed down and redoubled precautions to get through undetected.

Miyoshi's squad was on the right flank of the Australian bivouac. By hand signals the corporal directed the men to advance individually. They moved slowly around the Australian outguards, and waited until midnight. Then the attack was opened by a small force in the center which charged headlong, screaming and yelling. The Australians were taken by surprise, but nevertheless quickly organized and began laying down a curtain of fire. The flanking squads, including Miyoshi's then went into action. They succeeded in almost encircling the Australians, inflicted heavy casualties and finally forced them to withdraw.

During the next three months the regiment continued advancing steadily through the jungle. Miyoshi's tactics became almost second nature. His squad was part of the advance guard. When it made contact with the enemy, it immediately deployed, then tried to infiltrate the enemy position. If this was impossible, it held its positions and engaged the enemy, knowing that help would soon come up from the rear.



Miyoshi lost more than half his squad during the first three months of fighting. His captain, however, only complimented him on the bravery of his men, assured the survivors that the dead were destined for a cozy place in heaven and arranged ceremonious cremations of the honored corpses.

As the troops penetrated further into the jungle, the supply situation became more difficult. They had to subsist on what could be found in the jungle, supplemented by dehydrated and canned rations. They were able to get along, because they had been well-schooled in how to live off the country. When they came upon a native village, all the cattle were seized, and if there were any objections the natives were shot and their huts set afire.

An Australian, captured by Miyoshi's squad, was taken to the platoon leader, who knew some English. The prisoner was uncoöperative; he even refused to bow, and declined to answer questions, even though menaced with a pistol. So Miyoshi was given the honor of slapping the prisoner, and then cutting him to pieces with a bayonet.

New Guinea

In March, 1943, the division sailed for New Guinea —closer to the prized goal of Australia and control of the entire South Pacific. Miyoshi's excitement was enhanced by a promotion to *Gunsō* (sergeant). He

was told he had earned it because he had never flinched in battle. Not one man of his original squad was left.

His captain contrasted his bravery with the cowardice of another corporal who had withdrawn his squad when faced by a murderous cross fire. This corporal, at the captain's "suggestion," later went into the jungle and set off a hand grenade against his belly.

The division landed at Lae, on New Guinea's eastern coast, and went into action against Australian and American forces. It was tough fighting, the enemy was stronger, and more battle-wise, and had artillery with an apparently limitless supply of ammunition. (Miyoshi's officers did not seem quite so confident.)

Attacks were becoming increasingly expensive, but there still were plenty of tricks to use. The infantry would creep close to the American artillery barrage to avoid getting hit, and then slip back when the firing stopped. The mortar platoon behind Miyoshi's unit would often fire beyond an American barrage into their advancing troops, then stop firing when the American fire had ceased. The object was to deceive the American infantry into thinking that it was being fired upon by its own artillery. Greater emphasis was put on night infiltration and flank attacks.

Banzai!

There was still expensive frontal attacks, and suicidal *banzai* charges. Miyoshi and his men sometimes would drink a lot of *sake* before a charge because, despite the knowledge that there was no greater glory than to die for the emperor, they were a bit nervous. Many a Jap never lived to suffer a hangover.

Finally Miyoshi's platoon had to dig in. Snipers were placed at bends in jungle trails, along ridges and in ravines, and booby traps were set to hold up the advancing Allied units. Once Miyoshi had his men drag a dead American soldier close to the Japanese lines and prop him up. When some Americans came to "rescue" their buddy, Miyoshi mowed them down with machine guns.

One of Miyoshi's squads was assigned to booby-trap everything possible, including swords, dead bodies, and even tree stumps.

One night the customary counterattack was ordered on the Americans. It started in the usual manner with the shooting of fireworks, tracer bullets, and much screaming and yelling. The company then charged against the same position it had unsuccessfully attacked for three days.

It now had become a matter of "face" to take this position. The charge went in with no variation in the tactics that so far had been ineffectual. With blood-curdling yells of "*Banzai*" Miyoshi led his bayonet-armed squad across the field.

Suddenly Miyoshi felt a sharp, burning pain in his stomach, and he fell to the ground. He laid there debating whether to take his life or risk the dishonor of capture. Finally he decided that he was too weak from loss of blood to take his life now. . . . Maybe later. . . .

After a half-hour he was dragged back into the Japanese lines and given first aid.

His division had been virtually destroyed, and the remnants were withdrawn to Wewak, where Miyoshi was put on a hospital ship bound for Palau.

Miyoshi G-2's The Americans

In the Palau hospital, he was quizzed by an intelligence officer who was interested in American combat tactics.

"In the first place," Miyoshi answered, "they always have a tremendous amount of machinery and artillery, and they know how to use it. They construct roads and communication networks rapidly.

"Their artillery is extremely accurate. They move fast, and have a great deal of fire power. They are daring on the offensive, but they don't waste men."

"What are some of their weaknesses?" the officer asked.

"I would say their greatest weakness is carelessness." Miyoshi answered. "They talk loudly and even smoke during an engagement. Once we attacked an American bivouac and found their rifles stacked.

"They are suckers for some of our ruses. Since they always hunt souvenirs, we booby-trap swords, pistols, and other objects and scatter them around on the ground.

"Infiltration of their positions is usually easy because of the gaps between their positions.

"The American soldier likes comfort, and it is easy to approach his position during a rainstorm, when he will lie low in a foxhole and seek the cover of his poncho.

"They are trigger-happy, and fire at the least noise. We often locate their positions by making noises which tempt them into shooting."

After 6 months in the hospital, Miyoshi was assigned to a replacement outfit going to the Philippines.

He arrived on Leyte in September, 1944, for duty with a veteran infantry division. Tactics seemed to have changed. His unit was digging-in like mad, building bunkers, pillboxes and trenches. Such defensive preparations were new to the sergeant, who had been indoctrinated with the concept of an invading and marauding Japanese army.

Defense of Leyte

At an NCO meeting the colonel gave an idea of what lay ahead.

"The Americans undoubtedly will try to land in the Philippines. Some of you come from fighting in the southern regions, but here you will not throw away manpower needlessly. We can't afford it any more.

"We will take the offensive wherever possible, but only when there is a chance of success. Concentrate all your energies upon preparing defenses. Camouflage will be inspected, and leaders deficient in concealing their positions will be heavily punished."

The division constructed defenses in the Ormoc Valley. Foxholes were shaped like inverted boots, with a firing position in the "toe," and a shelter from artillery fire in the "heel." Many artillery pieces were emplaced in front of deep caves in order to protect the gunners. Firing positions were mutually supporting and well camouflaged.

"No Withdrawal"

One day a formation of Unites States carrier-based bombers gave the island a going over. Miyoshi heard that the main target had been an airfield. After that air raids came with increasing frequency.

The Americans obviously were preparing to attack Leyte and, with customary Yankee disregard of material cost, were expending tons of explosive on the softening-up prelude.

This phase reached its climax when a naval task force appeared off the coast and shook Leyte for days with explosions. Fuel stores burned, and the air was constantly full of the roar of bombing and strafing planes.

Miyoshi and his men spent a lot of time in their caves.

One day word came that the Americans had established a beachhead and were pushing north toward the valley.

"There will be no withdrawal from Leyte," the colonel said. "Everything depends on how you defend your positions. We will await their arrival here in Ormoc Valley."

Miyoshi's unit went into positions on high ground south of the village of Pinapoan. The machine-gun

squad was moved to an emplacement on the forward slope of the first of a series of ridges in the valley. Smoking was not allowed, and talking or moving around was held to a minimum.

Night came without a sign of the Americans. Perhaps they had been held up and wiped out before they could reach Ormoc Valley. Perhaps, but Miyoshi did not sleep that night.

Early the next day an observer reported movement ahead. Soon the foliage moved and an American scout appeared. Miyoshi raised a warning finger to hold fire.

The scout passed within 30 yards of the bunker without seeing it. Other advance American elements passed, and still the machine guns held their fire.

Soon a larger formation began coming up. This was what the defenders had been waiting for. When the main body came within range, Miyoshi's squad opened fire. Almost simultaneously dozens of other machine guns began to stutter, and mortars in the rear opened up.

Many Americans fell and the rest sought cover. The two forward companies were isolated and pinned down for two hours, unable to receive supplies or evacuate their wounded. Sergeant Miyoshi hoped the entire enemy battalion would be wiped out, but near nightfall the remainder of the American regiment pushed through, and extricated the remnants of the two companies.

In the ensuing days the Americans brought up reserves. Miyoshi's squad clung tenaciously to its position. When artillery or mortar fire fell they left their

weapons and moved back by a previously prepared trail to a protected reverse slope. When the American fire ceased they returned to their original positions.

Instead of the hysterical counterattacks or *banzai* charges that Miyoshi had known in New Guinea, his company would wait until dusk, and then launch counterattacks. They were supported by automatic weapons and mortars to prevent the Americans from consolidating their positions.

Busy Nights

These were busy nights. One night Sergeant Miyoshi would cut telephone wires behind the American lines, then wait to ambush linesmen who came to repair them. Another night he would be out with a party of snipers, who, instead of operating singly from trees, now worked on the ground in groups of threes or fours. They had instructions to shoot at foot troops, especially litter bearers and aid men. Vehicles were not to be fired on.

One day, as Miyoshi and his squad manned their machine-gun nest, an American squad stole close to their position, and before they knew what had hit them, the Japs were enveloped in a fiery inferno.

Miyoshi recognized what it was—the dreaded Yankee flame thrower. He clambered out of his hole, his clothes aflame, and ran screaming for cover. He had not run 25 feet when a submachine gun rattled. The bullets kicked up the leaves around his feet, and he felt a sharp pain in his thigh as he stumbled and fell. He rolled over and over to smother the flames, and tried to drag himself away. But the effort was too much, so he had to lay still and feign death.

He heard the footsteps of three or 4 men coming toward him. He twisted his head to look and slowly reached for his pistol. Suddenly he lost consciousness.

Capture

When Miyoshi came to he was on a litter in an American first-aid tent. He was naked, except for a bandage around his thigh, dressings on his burns, and a cardboard tag around his neck. He was surprised that his wounds had been dressed, but concluded that his captors were trying to keep him alive so they could torture him.

One of the American soldiers, noticing that his eyes were open, called a lieutenant, who questioned him in Japanese. At first he did not answer, because no one had ever told him how to act if captured. He had been taught *not* to be captured, and he was afraid.

The lieutenant repeated the question several times, *"Anatano nama-aiwa nandeska?"* "What is your name?" But Miyoshi refused to answer.

The lieutenant kept on talking quietly. "You know that you can never return to your country because you are disgraced. Your only chance is to cooperate with us."

It seemed to make sense. His family and friends would consider him dishonored.

"My name is Miyoshi Toshio," he said slowly.

After he had spoken, it was easier. The lieutenant looked pleased. Perhaps, Miyoshi thought, he could save himself from torture. He gave his rank, and the number of his unit.

He was given food and water, and even a cigarette. He talked more freely now, telling what he knew of his unit's positions and arms.

Later he and 4 other prisoners were sent to the rear to a prisoner inclosure. One night one of the prisoners who understood English whispered to Miyoshi: "The guards are saying that we are to be sent to America."

Miyoshi's eyes widened with dread as everything he had been taught about American barbarity flooded through his mind.

He lay awake thinking of nothing but escape. A sudden hysteria seized him. He tossed aside his mosquito net, wriggled to the barbed-wire fence, and worked his way under it. He then got up and started running. Suddenly there was a shout, a light flashed on his back, then a spurt of bullets, and Miyoshi folded up.

So died Sergeant Miyoshi Toshio, a victim of his own fanatical fear and hatred of Americans. He is the symbol of millions whose lives were dedicated to the cause of Japanese imperialism. This is the enemy whom we have defeated in battle. But our task is not finished! We must now devote unceasing and untiring effort to reforming the millions of Japanese symbolized by Sergeant Miyoshi Toshio. Equally important, we must insure that in the future the Japanese people never again are controlled and sacrificed by leaders dreaming of world domination.

The Slant-Eyed Viewpoint

(Editor's Note: *The following expressions of opinion by a Japanese soldier represent only the thoughts of an individual. However, it can well be assumed to be identical with the ideas held by many other Japs. The facts are authentic but for obvious reasons the source of this article must remain undisclosed. The subject is of absorbing interest at this time.*)

It was interesting to note that during the initial phase of the conversation with this Jap soldier, he resorted to stock textbook phrases. This was particularly true when talking on subjects on Japanese ideology. He used the stock phrases, not because he believed them, but because these were the things he was expected to say.

After he had taken part in a certain amount of discussion, he spoke more freely and became quite realistic. It is felt that his statements were sincere and were the result of his own thinking rather than an attempt to please the person to whom the statements were made.

Because of his family background, his education and training, he was questioned in detail by an American to determine what his reactions were.

Asked first about the U. S. propaganda leaflets and the *Parachute News*, he expressed his admiration for their usage of the Japanese language and the timely quality of the subject matter. He had not actually had any occasion to read the *Parachute News* at all thoroughly since, as he put it, he had been about to, but had been interrupted and had disposed of the paper in such a way that it would give a definite impression to his observers as to what he thought of it. He did state that he had discussed the paper with enlisted men, and had noticed that their reaction had been favorable—though he himself had told his juniors from time to time that propaganda leaflets were false.

As the discussion of Japan's present position continued, he was brought up to date on the actual conditions in Okinawa and Saipan. He believed that both islands had been lost, but only after all of the inhabitants had been killed.

He had been convinced for some time, he stated, not that Japan had lost the war, but that the United States had won it; he said his phraseology was based on the extreme reluctance of the average Japanese to use the word "defeat" when speaking of themselves.

He accepted the fact that U. S. landings would be made on the homeland of Japan as they had been on the other islands, and stated that the problems encountered during landing operations in the South and Southwest Pacific would not be met on the Japanese islands because there was too much to defend. He did not think that the people would actively resist American operations there, but that they would take to the hills, because they had been taught to fear the Americans. Final victory would be America's primarily because the U. S. knew how to fight a modern war and the Japanese did not.

The initial reaction of the Japanese people to Allied occupation would depend entirely, he said, on how soon the people would be allowed to return to their farms, and when jobs would be available for others. The above statement was made only after he had asked how things had worked out on Saipan and Okinawa; he stated that civilian reaction there would, without any doubt, be indicative of what it would be in the islands of Japan. He said that, though these islands were not actually a part of Japan itself, the people were basically Japanese with the same sort of education and the same ideals.

His statements regarding the postwar period and the reëstablishment of some sort of government in Japan were nothing less than radical, particularly when viewed in the light of his earlier statements.

His terminology when speaking of the Emperor was informal. There was none of the traditional bowing and scraping when his name was mentioned.

He stressed the fact that he had not had much of a classical education, knew little of the theory of govern-

men either in Japan or in other countries. That, he said, was a subject only the surface of which he had touched.

He claimed to have developed his present conclusions while in the army, and stated that his thoughts had really not crystallized until he had finally had a chance to present them to someone else; and that the first occasion to so present them was this conversation with an American. There was more thinking to be done on the subject, he concluded, more for him to learn about other people—and there was always the necessity of determining in what way his theories could be put into practical form. He expressed his intense desire to help in some way in making the sort of Japan he felt should exist.

Japan, he continued, had been wrong in entering any sort of a war with the rest of the world, but, contrary to what other opinions might be, the basic causes of the war and those on whom the blame should rest should not be charged against the army or the navy; they ranked only in second and third place. Japan's ideology, her concepts of religion and her relation with the rest of the world with respect to her contention that the Japanese were the chosen race—all of these, represented by the position the Emperor occupied in the minds of the Japanese—were the basic flaw in the make-up of the Japanese people. They themselves were to blame, for they had never permitted themselves to emerge from the ideology of ancient days. Japan's concepts of deity represented by her numerous gods, and ultimately, the Emperor himself, were founded in myths, none of which had any practical basis for actuality at all. He explained carefully that the Japanese gods and her innumerable spirits were the mark of an uncivilized mind, the substitution of superstition for a civilized, and rational thinking.

What had made him first realize that Japan has no place in the world of today was the extreme emphasis placed on *seishin*, (spirit as opposed to materialism).

Being of a more practical nature, and having been trained to know and understand the power of machinery, he claimed he had detected the fallacy in the sort of reasoning which put the strength of a man's spirit above the potential power of machinery. This realization had naturally led to a close scrutiny of Japan's mythology and those concepts which were based on it. He regarded the Emperor ideology in the same light as he had come to regard *seishin*, and the people of Japan as the machinery whose power might some day be used.

There was only one conclusion which satisfied him; the power of the army and the navy had to go, but, even before this could be done, the Emperor and all he stood for would have to be wiped out completely. His death would mean the end of Japan's feudal thinking; the people would come to the realization that something had been wrong with their beliefs and, with a great deal of direction and careful education, they could be taught the ways of the modern world. No person who had ever been identified with the government of prewar Japan, no matter how liberal his ideas may have been, could be permitted to hold any position, for that would provide some connection with the old Japan. The break would have to be complete and clean.

He was asked how one would go about getting rid of the Emperor. The answer was that he would have to die. This, he admitted, would lead to certain complications as the Japanese could never assassinate him, and a deliberate attempt on our part after occupation might rouse the Japanese people to complete madness. His only solution was that "it would certainly be convenient if he were to be killed by a bomb."

He placed the thought groups of Japan into three general categories:

1. The relatively uneducated farmers.
2. The semi-educated skilled workers.
3. The technical men, and those who could be classed as scholars.

Businessmen he placed in the middle group, excepting, of course, heads of such families as Mitsubishi, Mitsui and the like. Present-day diplomats and other statesmen he placed in the third group.

The hope of Japan, he thought, rested with the skilled workers who had more in common with the people of other nations than had any other class of people in Japan. The farmers he relegated to the position of an unthinking group which could only be led, and he charged the highly educated with the crime of leading them for their own advantage. He felt strongly that those of the middle group would share his views, giving as his basis for opinion the fact that the majority of them had backgrounds similar to his own, and that almost all of them had experienced the same shock on their initial contact with reality. These, he said, were the practical men, used only to achieve results through the application of natural laws. Their minds were not involved in the dreamy, poetic fallacies represented by "cherry-blossoms and tears"; they would welcome a "materialistic" land and would be the first to cast off the "spiritualistic fantasy of outmoded Japanese thought."

Japanese reaction to a new government—if completely handled for the initial period of adjustment by the Americans without the assistance of any Japanese—would be favorable, since all they desired was a chance to live and to forget that there ever had been a war. Control should not be difficult during the initial period of readjustment if it were handled by the Americans alone, without the interference of any Japanese. It would be necessary to keep them entirely out of the government until the people themselves all knew, and were strongly behind their new government, their new ideals and their new way of life.

He concluded his discussion with the words, "The country of Japan is a thing of the past and must go, but the people of Japan are not lost, they are only on the verge of maturity."

SPITFIRE TANKS

by 1st Lieutenant Charles H. Hainfeld, CWS

MECHANIZED flame throwers are the close combat weapons of tanks that are effective in destroying or neutralizing enemy personnel in field fortifications, pillboxes, bunkers, dug-in positions, and in buildings where ordinary tank weapons cannot be used effectively. The flame either destroys enemy troops within its range or, because of its awesome demoralizing effect, drives them out into the field of small-arms fire. The flame thrower primarily is an offensive weapon. Its tactical mission is limited by its brief duration of fire, limited range and length of time required for preparaton.

Mechanized flame throwers have several times the fuel capacity of portable flame throwers, and are capable of engaging several successive targets with a single filling of their fuel and pressure containers. They can be used on more distant missions, have somewhat longer range and can move close into the target because the tank armor affords protection.

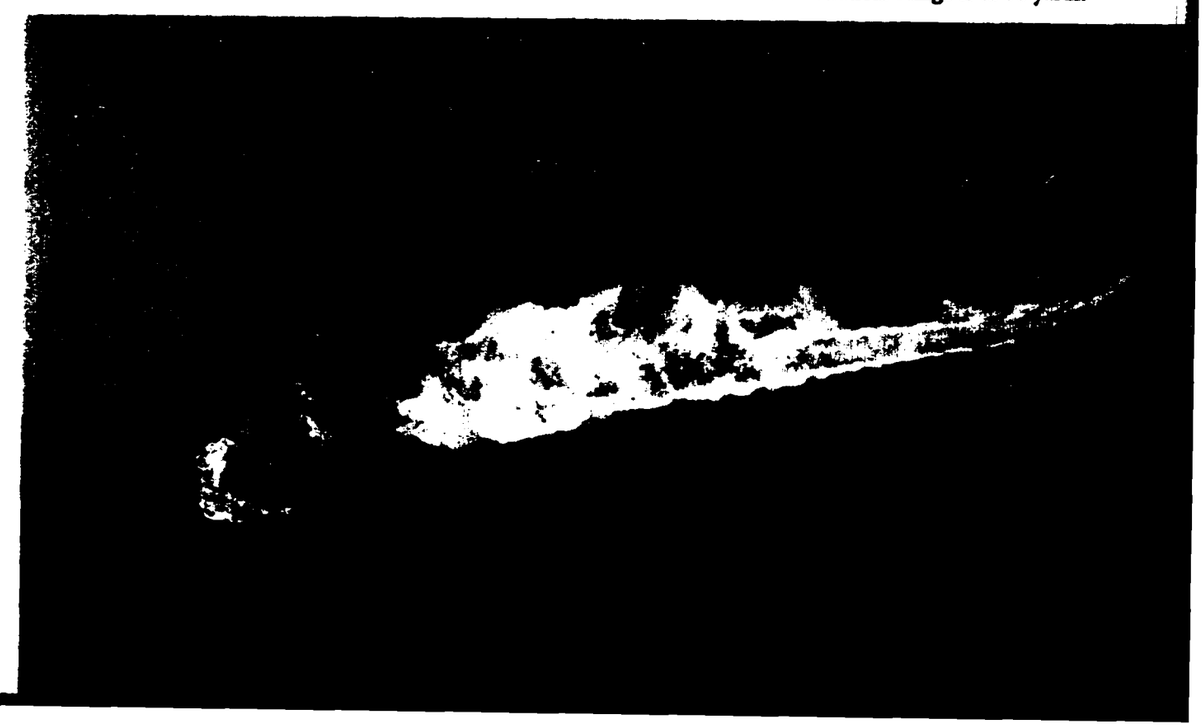
Flame-Thrower Ranges

The effective range of thickened fuel is 50 to 70 yards while liquid fuel (oils and blends) has an effective range of from 25 to 30 yards. These distances are approximate and are affected by the wind velocity and direction, the nozzle diameter of the flame gun, and the viscosity of the fuel.

The searching character of the flame results from the fact that flame and radiant heat will envelop a target. This gives the flame thrower an effectiveness even when fired at targets which are around the corners of buildings or emplacements. Against closed targets such as buildings and fortifications, the flame thrower produces casualties by materially reducing the oxygen content of the air, by producing carbon monoxide, and rapidly increasing the temperature. The enemy thus is forced at the same instant to protect himself from suffocation and burning.

When the flame thrower is substituted for the bow machine gun, its traverse is limited to that of the gun. This restricts the operation of the flame thrower to a small angle of traverse, and if targets are to engage outside the limits of the traverse, the tank must be moved. The substitution of the flame gun also reduces the fire power of the tank by one machine gun. The flame gun, however, is not a permanent replacement for the bow machine gun, and the two can be interchanged in approximately one minute.

The main armament of a flame thrower fires thickened fuel with rod effect in a demonstration. Range is to 70 yards.



Maximum Results

To achieve maximum results, the flame thrower should be fired at point-blank range or as close as possible to the target. Accuracy is achieved in this way and almost all the fuel is effective, since little is burned in the air. Conservation of fuel is an important factor which must be considered constantly by the flame-thrower operator The type of target will determine the length and number of bursts necessary for its destruction or neutralization. The short duration of fire makes it imperative that only the minimum amount of fuel be used when firing on a target.

Use Against Foxholes

Against troops in foxholes that cannot be directly engaged, the greatest effect will be obtained by firing a burst a few yards in front of the hole. This allows the flame to roll and billow in. Another effective method is to fire with maximum elevation so that burning particles will drop down *into* the foxhole. Against pillboxes, fire should be directed *against* embrasures, because the flame will seek it way into the interior. The dispersion of the flame is great enough to destroy or neutralize any personnel within a considerable distance of the burst. Fear of being burned alive will cause personnel to run from emplacements rather than dig into them. Regular tank weapons and small-arms fire, rather than flame throwers, should then be used for their destruction.

The flame thrower should not be fired into a strong head wind or across a strong cross wind, especially when liquid fuel is used. Direction and velocity of the wind must be taken into consideration when firing because at or near maximum range, cross winds will deflect, break up, and disperse the flame.

Mission

The mission of the flame thrower mounted in tanks is the destruction of enemy personnel who cannot be attacked effectively with other weapons. The flame-throwing tank is part of the mutually supporting infantry-tank team Because of its limited fuel supply it is not used promiscuously against suspected enemy positions. It should be used against targets that have definitely been located. The mechanized flame thrower augments and supplements the flat trajectory fire of the tanks. It is an anti-personnel weapon of limited range particularly adapted to clear the way for friendly foot troops, and for use in mopping-up operations. It serves as an auxiliary weapon in the tank and does not alter the tactical employment of tanks as prescribed by War Department doctrine.

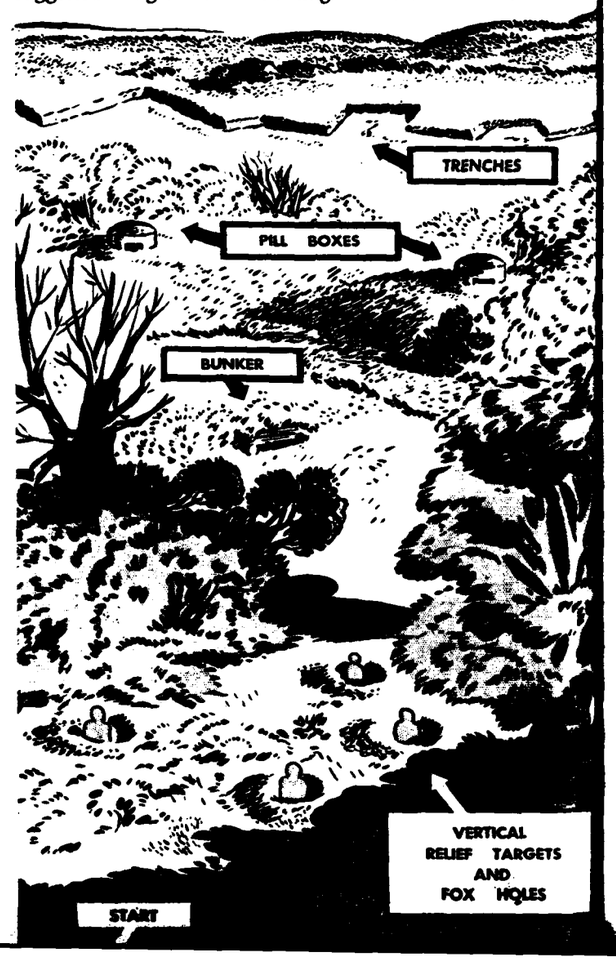
For effective use against fortifications without antitank guns, the flame thrower must maneuver to within close range. To achieve this, all antitank weapons *supporting* the fortification must be destroyed. This operation requires close coördination with the infantry which makes the reconnaissance and guides the tank to the target. The flame is then directed against the openings of pillboxes and bunkers to destroy the personnel within and allow the infantry or engineers to advance on the fortification.

When fortifications are defended with large caliber flat trajectory weapons, and are mutually supporting, it is impossible for a tank to close within the effective range of its flame thrower. The weapons of such fortifications are first destroyed by tank and artillery fire, after which the flame thrower closes in and destroys the enemy personnel.

Training Operators

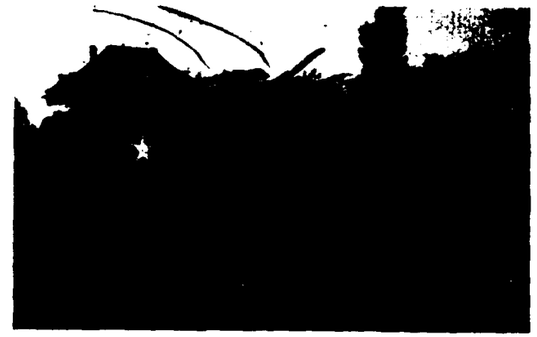
One member of the tank crew, usually the assistant driver, is assigned as the flame-thrower operator. In the bow replacement model the gunner operates the flame thrower in the main armament unit, but all members of the tank crew are thoroughly trained in the functioning, maintenance and use of the flame thrower. In addition, each member should be able to mount and dismount the flame thrower, prepare the fuel, and refill the fuel and pressure containers. Training in the flame-thrower crew is undertaken after completion of combat practice firing of the other tank weapons

Suggested firing course for training flame-thrower crews.



Armored Command Post

*by Captain Charles Gillett**



Upper left: **The re-designed M3 as it appeared after fitted to combat needs, in which it served efficiently. Features are an armor-plated top, and electric lights. *Upper right:* Chains and tools were carried in bumper. *Lower left:* Seated in the mobile CP, a crewman follows action on one of the two radios. Note ducts overhead of air-conditioning unit with which it was equipped. It controlled 70 tanks.**

AFTER many months of combat it was conclusively proven that the M3 half-track, as issued, was not an ideal command post car in fast-moving operations. The 2d Tank Battalion maintenance crew, under command of Captain Nicholas Hayden, went to work on suggestions for re-designing the M3, which were made by our battalion S-3, Major Philip J. Baird.

To a conventional M3, the tankmen added an armor-plated top and many other gadgets which evolved a half-track that permitted ultra-smooth operations during the 2d Battalion's drive into central Germany.

Skeptics were astonished by the half-track's operation in combat. Whether it was at a halt or on the march, the re-designed battalion command post—jokingly called "The Monster"—was ready for action at all times.

Compactness was stressed. Seats for the CP workers were made from mortar ammunition boxes and were cushioned on top. Supplies and papers were kept inside the boxes, thus utilizing all available space. Operations were charted on an adjustable table.

An important feature of the "rolling CP" was a separate power-driven generator that charged the batteries and overcame the excessive drain by the two radios, which kept communications functioning efficiently. On the move, the steel-girded half-track maintained its rôle as the nerve center for more than 70 roaming tanks. When "The Monster" was halted, lines were run to the companies and a telephone hooked up promptly inside the vehicle.

The air inside the half-track was kept fresh by the use of two motor-driven blowers. Maximum illumination was provided by 4 adjustable light globes against a white-painted interior. A canvas partition separated the driver from the glare of lights in the operations section and enabled him to operate efficiently. No light escaped to the outside to endanger blackout security.

The exterior of "The Monster" also came in for modifications. Records and supplies were carried in waterproofed boxes on the rear. Above these boxes, racks were built to hold the crewmen's bedrolls. A vise for emergency use was welded on the front bumper, and inside the bumper a place was provided for chains and tools.

*9th Armored Division.

Fiery Calling Cards

*by Lieutenant Colonel George O. Gillingham**

M47 100-pound jellied gasoline bombs fall from bomb bay doors on enemy target at Bremen, Germany, 1944. The M47 is 45½ inches long and 8 inches in diameter. Dropped singly, it breaks upon impact and throws chunks of fire 40 feet, which adhere to and burn all objects.

FIRE is a menace as well as a boon. According to mythology, Prometheus, thumbing a lift from Minerva, obtained a light from the sun chariot and brought the gift of fire down to man. But whatever the manner in which it was first obtained, mankind since has put fire to wartime as well as peacetime pursuits.

Ancient Use

The incendiary arrow is one of man's oldest weapons. Alexander the Great, in a letter to Aristotle, reported "terrific flashes of flame" showered on his army in India. Xtessias recounted how the Hindus used a particular oil to ignite enemy targets. About 360 B.C. the Trojan king, Aeneas, resorted to fire bombs made from pitch, sulfur, tow, resinous wood, or other highly inflammable substances which were placed in pots and hurled from the walls of besieged cities upon attackers below. The Romans later catapulted iron-latticework bombs, which were about two feet in diameter, and were filled with blazing materials. Catapults also fired huge incendiary arrows, the heads of which consisted of a perforated tube containing tow, resin and petroleum that was ignited just before release.

Impetus to the use of incendiaries came with the introduction of "Greek Fire," said to have been invented by the Syrian, Callinicus, about 600 A.D., although there is evidence that like compositions were used in the fourth century A.D. The exact formula for Greek Fire has never been satisfactorily established, although it is known to have contained pitch, resin and petroleum, as well as quick-lime and sulfur. The material composing it ignited when the quick-lime, upon contact with water, generated sufficient heat to ignite the oil which fired the other combustibles. The resultant vapors caused explosions which spread the flames. Troops of the Byzantine Empire made such effective use of Greek Fire against the Saracens that it saved that empire from foreign domination for nearly a thousand years.

In early times animals, and even birds, were used to carry fire to the enemy. The Bible says that Samson caught 300 foxes, tied firebands on them, and caused the burning of fields and vineyards of the Philistines. In medieval days covered wooden rams were augmented by projecting containers of blazing matter, and floating fire balls were launched against shipping and water battlements. Cavalrymen sometimes fashioned torch-like gadgets to their lances to burn fields and buildings. An embryo "Molotov cocktail" was the chief weapon of a special troop of soldiers called "Napthyns" (naptha pot flingers) in the armies of the Caliph of Bagdad in the 12th century.

Use in Later Wars

The effectiveness of early incendiaries was lessened by the development of firearms, which caused armies to engage at greater distances, and by the substitution of earthworks for battlements. This invited attention to incendiaries fired by artillery. During the War Between the States, 30 especially made incendiary cannon balls were dropped into Charleston under cover of darkness, causing General Beauregard to protest to General Gilmore, the Federal assault commander.

Although the French in 1878 and the Germans early developed an incendiary artillery shell, such shells were not used to any extent until World War I. The first incendiary munitions employed in that conflict were directed against observation balloons. At the close of 1915, however, improved types of incendiary shells were used by both sides. These soon were followed by incendiary grenades, mortar shells and projector bombs.

The first use of incendiaries by aircraft occurred during the Zeppelin raid on London in 1915 during which one airship dropped 90 such bombs. Subsequent development of the long-range bomber spurred interest in the aerial incendiary. German planes rained many fire bombs in their "blitz" on London in 1940. The world knows how the United Nations retaliated.

Use Against Japan

Because of the different nature of targets, however, the fire that rained from the sky on Europe was insignificant as compared with that which fell on Japan. In fact, it can be said that this—one of man's oldest weapons—was highly instrumental in putting the Rising Sun into reverse.

The Japanese have a traditional dread of flame. Their flimsy construction has suffered much from conflagrations started by volcanic, earthquake and other causes. In consequence, fire weapons such as incendiary bombs, flame throwers, and white phosphorus shell and grenades were "naturals" in our Pacific offensive.

Aerial missiles not only helped to overcome resistance along the road to Tokyo but were markedly terrifying as well as destructive when used on the homeland. It remained for the atomic bomb to clinch what the fiery calling cards had prepared.

If Nippon had prolonged the inevitable, the fire-drenching it had received would have taken on astronomical proportions. In the current fiscal year, for example, the Chemical Warfare Service was scheduled to furnish fire missiles equivalent to the total tonnage of all kinds of air bombs (high explosive included) which were dropped by the Army Air Forces in all theaters last year. CWS to date has produced some 250,000,000 incendiary bombs, of which 66,000,000 were supplied to the British.

Since 1941 the CWS has had the responsibility of providing all types of incendiary material used by the armed forces, to the inclusion of the Navy and Marine Corps as well as the Army air and ground forces. Such production in the closing days of the conflict became the major class activity of CWS as measured by dollar volume.

During the early days of the war, aerial fire bombs accounted for less than 5 per cent of AAF bomb loads. When the war ended in Europe, this figure had jumped to 9 per cent. This ratio did not take a tremendous jump until the offensive concentrated on the Pacific. It remained for the all-incendiary raids on the Japanese homeland to underscore the effect of fire from the sky on native construction. In June, the proportion of incendiaries to high explosive dropped by the air forces had reached nearly 50 per cent.

Incendiary Bomb Types

Thanks to planning and industrialization, fire bombs were being produced in quantity within a few weeks after the sneak attack on Pearl Harbor. The initial fire bombs used by American airmen were of the magnesium variety, adapted from British and German types. For the first air raid on Tokyo, in April, 1942, however, the CWS produced a special 4-pound thermate bomb.

But styles in bombs also change, and most of the incendiaries subsequently used were wholly developed by the CWS technical staff in coöperation with American scientists and research groups under the auspices of the National Defense Research Committee of the Office of Scientific Research and Development. These include bombs of magnesium, thermate, phosphorus and oil compositions. They range in size from 4-pound "firesticks" to 1100-pound "factory-burners." Those in use in the last stages of the war in order of their size were:

The M50—a 4-pound hexagonal magnesium body, 21 inches long, filled with thermate and first fire mix. It is dropped in clusters, and burns from 5 to 10 minutes. Chunks of molten magnesium from its casing may be hurled as far as 50 feet. The uninitiated have a tendency to confuse "thermate" with "thermit." The two terms are not synonymous. "Thermit," consisting of aluminum granular and iron oxide scale, is commonly used in welding steel rails. "Thermate," on the other hand, is a mixture of thermit, powdered aluminum, barium nitrate and petroleum oil.

The M69—a 6-pound hexagonal steel pipe, 19 inches long, which works like a miniature flame thrower, expelling flame 75 yards from its tail. It is dropped in clusters. It contains a cheesecloth sock filled with about three pounds of jellied gas of the same type used in flame throwers. It looks like gelatin and is obtained by mixing a special thickening compound known as "fire roe" with 80-octane motor vehicle gasoline. Gobs of flaming jelly are thrown against walls and under eaves, where they stick and burn up to 10 minutes. Folded in the tail of each bomb are streamers which break free to slow its descent and prevent it from smashing to pieces when it lands, yet providing sufficient force to enable it to pierce tile, slate, wood, composition shingle or galvanized iron roofs.

The M74—a 10-pound tubular affair, 19 inches long which regurgitates Pyrogel, or synthetic lava. Also known as "Goop," this mixture includes jellied gasoline made with "Compound X," another thickener, consisting of magnesium powder, liquid asphalt and oil ingredients. The resulting jelly is whitish in color and vaguely resembles stringy cold cream. It thus combines the good features of thickened gasoline which can reach into corners, and of magnesium, which concentrates a white-hot flame on the target. A piston-like operation hurls gobs of this blazing goo a distance of 25 yards. At one end of the bomb is a collapsible metal tail which helps to hold the bomb on its course. It is dropped in clusters.

The M47—is a 100-pound jellied gas bomb with the same filling as the M69 bomb. Resembling a huge panatella cigar, it is 45 inches long and 8 inches in diameter. It is dropped singly. Thin walled, it breaks open upon impact and scatters chunks of fire as far as 40 feet, which adhere to and burn objects upon contact.

---

*CWS, Chief, Information Branch.

The M76—is a 500-pound bomb filled with "Goop," the same mixture used in the M74 bomb, which spatters over the target like volcanic lava. This bomb preceded the M74. The term "Goop" was applied to it in the development process. "Goop" is a slang word used in laboratory work to denote a sticky mess. The rubbery-like mixture used in both the M74 and M76 has a sticky, pasty consistency. The bomb is dropped singly, and was used by British Mosquitoes in 1944 to get a building at The Hague where the Nazis had stored records about to be used against the Dutch underground.

Tank-Size Incendiaries

In addition, there are fuel tanks which are dropped from planes to spew large quantities of blazing thickened gasoline. These streamlined containers, in effect, are airplane fuel tanks put to an incendiary purpose. The idea is said to have originated in late 1942 when an Army airman, having released all his bombs, followed up with his fuel tank, which exploded on the deck of an enemy warship in the Mediterranean. The 500-pound tank holds 75 gallons of the fire gel; the 725-pound tank, 110 gallons; the 1100-pound tank (10 feet long and 28 inches in diameter), 165 gallons. The latter can splash fire over an area the size of a football field. Naturally, because of their size, these jettisonable tanks are dropped separately.

Fire bombs can be aimed with the precision of demolition bombs. The smaller bombs are dropped in clusters which break open at a designated altitude, usually 2,000 to 5,000 feet, and release the individual "fire-sticks" to pin-point the target. Improved "aimable" clusters are equipped with a nose and a tail to insure greater accuracy in their initial release from the bomb bay.

CWS INCENDIARY BOMBS AT A GLANCE

BOMB, type	WEIGHT, pounds	FILLING, incendiary	CLUSTER, type	NUMBER, bombs in cluster
M50	4	Magnesium, thermate	M6	34
			*M17	110
			M7	128
M69	6	Jellied gasoline	M12	14
			*M19-M21	38
			M13	60
M74	10	Goop	*E48	38
M47	100	Jellied gasoline	Dropped singly	
M76	500	Goop	Dropped singly	
Jettisonable tanks	500	Jellied gasoline (75 gal.)	Dropped singly	
	725	Jellied gasoline (110 gal.)		
	1110	Jellied gasoline (165 gal.)		

*Aimable clusters

Incendiaries on Tokyo*

MORE than 100,000 Japanese were burned to death in a single Superfortress incendiary-bomb attack on Tokyo last March 10, former Danish Minister to Tokyo, Dr. Lars P. Tillitse, reported.

Tillitse's account of the raid—the first such neutral account of the devastating bombings of the Japanese capital—was given in a radio address.

"I shall never forget the attack," Tillitse said. "Incendiaries were scattered all over the city and a gale swept the fire from house to house.

"From my window I looked into the roaring, flickering flames that devoured houses and trees and everything in their way. That night more than 100,000 Japanese were burned to death."

The raid described by the former Danish Minister was the twelfth Superfortress attack of the war against Tokyo. It was made by 300 B29s which dropped 2,300 tons of incendiary bombs, the biggest raid launched against the Japanese capital up to that time.

The bombs were dropped over a 10-square-mile area of the city shortly after midnight, but a gale then sweeping the Japanese capital fanned the flames through the center of the city until 17 square miles were burned out. A report from the Twentieth Bomber Command said that two B29s were lost.

Tillitse lived in Tokyo up to last May 25. His country broke off diplomatic relations with Japan on May 23 and on the 25th he left the city to join his family and await repatriation. That night the Superfortresses struck again.

Tillitse described the May 25 attack as "one of the most terrific on Tokyo." His house was burned to the ground by the flames, set off by 700,000 incendiary bombs included in the bomb total of 4,500 tons unleashed by 550 planes.

"When, later on, I stood on the place where my house had been, I could not see a single undamaged house," he said. "There were hardly any ruins—only ashes."

The May 25 attack lasted 105 minutes and burned out an additional 3.2 square miles for a total of 35.9 square miles destroyed in the city.

Later raids destroyed 110.8 miles in the Tokyo area and 56.3 square miles in the capital proper.

Tillitse said that intelligent Japanese knew after the American conquest of Saipan that they had lost the war.

*The Washington Post.

Armo

by Colonel

Official Photo, U. S. Army Ordnance Depot

The latest American heavy tank, bearing the revered name, General Pershing, was used in the final battles in Germany.

IN 1939, the German armored troops in Poland were a material factor in the success of that short war. Based on the lessons of that campaign, the employment of armored forces by the Germans in France during 1940, was a turning point in the use of armor. German armor penetrated the Allied front in masses and kept driving forward, either turning or piercing all resistance encountered.

The necessity of having armored troops to operate as independent combat units is now established. The number of armored troops has steadily increased. Exact figures are not yet available, but by 1945, armored divisions on the east and west German fronts amounted to perhaps 30 per cent of the total divisions in line. This percentage would undoubtedly have been greater if sufficient time and means had been available.

Employment of Armored Troops

Armor's greatest success in the current war was in open country, on the great plains of Russia, north of the central mountain masses in Europe; and in north Africa, where a contributing factor was the absence of fences, walls and ditches. Close and rugged country, such as the forests and swamps of north Russia, and the mountains and hills of Italy and the Balkans, limited the use of armor.

With the development of amphibious vehicles, water is no longer a serious obstacle, and can be easily crossed in open country provided the banks are negotiable. Weather, however, may affect the use of armor when continuous rains turn dry terrain into deep mud, as in the Philippines and Burma.

The German victories of 1940 in France, and of 1941 and 1942 in Russia, could not have been secured without the presence and the successful employment of armor. The alternate German and Allied victories in North Africa between 1941 and 1943 were dependent on armor. The victories of the Russians from 1942 to 1945, and of the western Allies in 1944 and 1945, could not have been won without the large armored forces at their disposal.

Conversely, the German victory in the Balkans in 1941, and the Allied victories in Sicily and Italy during 1943, 1944 and 1945 were not due to armor. Those campaigns could have been won without armor, and in fact only limited armored forces were utilized.

Combat

The major combat rôles for armored forces are: the penetration; the turning movement; tanks *versus* tanks.

The Penetration. Penetration is habitually preceded by artillery preparation—with or without an air strike. Armor alone has not as yet been able to fight its way through an appropriately defended position. Since the Spanish war, and throughout World War II, a path completely through the hostile position has had to be blasted by the artillery for the armor to pass through.

The width of the front to be blasted varies, but is usually from one to two miles. Depth is limited by the nature of the defenses, the artillery range, and the mission. The time required depends on the number and kinds of targets within or close to the area, and the gun range.

The Russians have been particularly successful in

artillery preparations designed to blast out gaps. As many as 400 pieces of 4-inch caliber, or over, per kilometer front have been used, and every target was plotted. This kind of artillery preparation requires coordination, fire control, strong artillery and plenty of ammunition.

In 1945, in the January break-through in Poland, the Russians were confronted with a series of enemy positions at such distances from one another that their artillery had to displace forward on successive days.

The mission of armored forces in breaking through may be to turn to right and/or left and roll up the enemy's lines, as at El Alamein. It may be to separate an enemy front and envelop one wing, as in Belgium in 1940, or it may advance deep into the enemy's rear areas, as the American break-through in Normandy in 1944.

As long as the artillery can furnish supporting fire without changing position, it covers the flanks and front of the armor passing through the gap. When the armor arrives beyond the range of artillery, it depends upon its own batteries and the air force for fire support.

It is customary, but not absolutely essential, to closely follow up the break-through with armored or motorized infantry to hold the gap open and protect the route to the forward armor. This infantry is equipped with medium and heavy artillery for rapidly reducing enemy road blocks and centers of resistance which interfere with the line of supply.

The most effective maneuver of the break-through has been to gain ground to envelop what had been the enemy's front. This may involve an attack from the enemy's rear, or holding a defensive position or a combination of both.

Such maneuvers have caused a revival of the ancient rules of contravallation and circumvallation. At Stalingrad in late 1942, Russian armor penetrating the German lines isolated the German spearhead. Lines of contravallation were then formed to prevent the besieged from breaking out, and lines of circumvallation to prevent relief forces from breaking in. At Dunkerque in June, 1940, a similar situation had been brought about by the previous German armored penetration.

In early April, 1945, American armor, which had broken through the German front north and south of the Ruhr, encircled an enemy force which exceeded 300,000 men.

The next most effective mission is to destroy the hostile supplies and communications. North Africa saw raids of this nature, as did France in August, 1945.

Penetrations at night by armored forces appeared late in this war and their success appears to rest upon mass employment. On the night of 15/16 April, 1945, the 1st White Russian Group attacked westward from its Oder River bridgehead toward Berlin on a front of about 30 miles. The artillery preparation was fired by a number of guns, equivalent to over one gun to every 2½ yards' front. The accompanying air strike employed about 4,500 planes. Four thousand tanks were used in the attack, and the front was illuminated by massed searchlights. There were about 5 times as many guns as tanks.

Turning Movements. Turning movements by armor are practicable where the enemy does not have a continuous front, as occurred from time to time in north Africa. It may follow a penetration, when an enemy wing has been isolated; or against reserves in enemy rear areas.

Where fronts are continuous, as was the rule in Europe, turning movements take place only after a front has been pierced and open country in rear of the enemy's main positions has been reached. The American campaigns of 1944 in France and April, 1945, in Germany were illustrative of this. Here armored troops were able to exert a decisive effect on the progress of the campaign by destroying supplies, interrupting communications and capturing isolated and detached organizations.

Tanks vs. Tanks. In north Africa, and also in Russia during 1941 and 1942, extensive tank battles occurred, but by 1945, tank vs. tank battles had all but disappeared. By this time, when tanks met tanks, both sides took cover, either in prepared pits or behind ridges or other available shelter.

Tanks fighting from fixed positions, natural or artificial, are really advanced armored artillery in direct or indirect firing positions. Tanks so engaged reproduce in technique the ancient artillery duel which was standard practice as a necessary precedent to an infantry assault. Neutralizing the hostile artillery was the classic commencement to a battle.

The Advance

After a penetration or turning movement by armored forces, an advance in hostile territory is required. Terrain is the major factor. In mountains or dense forests, armor is limited to narrow lines of advance where constant attack may be required. In open country armor has its greatest possibilities, because it can advance by either road or across country.

Armored troops require air reconnaissance and air cover. In the open country of north Europe, reconnaissance in clear weather was no problem. It ascertained whether enemy forces were posted between towns and woods, and sometimes could determine if the latter were held or not. Positive information of the absence of the enemy enabled armor to move speedily and without undue fatigue.

Armored vehicles on the advance are vulnerable to air attack, and here air cover is a necessity. The mission is not only to fight off hostile planes and to conduct reconnaissance, but particularly to locate, attack, and delay enemy intercepting forces.

Defended towns, woods, or other localities are at times detached centers of resistance operating as road blocks. If possible, road blocks are not attacked by armor. Following supporting troops are charged with opening and maintaining lines of communication to the forward armor. Detached enemy field troops are dealt with according to their tactical importance. They can seldom be ignored but may temporarily be by-passed.

Armored force commanders may have a choice as to whether to attack or avoid intercepting enemy forces. This will depend upon the mission and the probability of success, based upon air reports as to apparent enemy strengths. Fixed defenses can be by-passed at will, but intercept troops cannot ordinarily be by-passed. When a battle is evidently approaching, regardless of whether it is brought on voluntarily or involuntarily, armored troops usually have some choice of terrain. But advance notice of the size, course and speed of enemy intercept troops is needed to make a decision whether to advance and encounter, stand and receive, or retire and defend.

Armored troops operating in enemy rear areas may be supplied with gasoline, oil, ammunition, food and essential supplies, either by capture or by air. In the early stages of the current war, capture was the usual method, but as the war progressed, dumps in rear areas were more strongly defended. Therefore hostile troops breaking in could not take them without attacking. This caused delay and often interfered with the mission.

With improvement of air transportation the capturing of supplies for forward troops should usually not be necessary. Forward armor can be relieved from seeking and securing supplies in a hostile land. Air supply presupposes air superiority, or air operation ability. If the enemy has air superiority, air supply cannot be counted upon. In December, 1942, Russian local air superiority near Stalingrad prevented air supply not only to the besieged, but to armored forces seeking to relieve them.

Defense vs. Armored Forces

It is impracticable to prevent occasional penetrations of a front by hostile armor, and turning movements by enemy armor must be considered as a possibility. Two methods have been tried to oppose penetrating armor.

The defensive method is to hold and defend critical points in rear areas with an all around defense. Dumps, depots, bridges and important railroad and road junctions thus defended prevent hostile armor that might break through from obtaining any supplies outside of the defended dumps.

The offensive method is to meet armor with armor by holding the armor in readiness to attack and intercept the hostile troops.

A combination of the two methods may be practicable and advantageous. The defensive method alone has failed to work. It was tried by the Germans in the later phases of the Stalingrad campaign. Russian armor by-passed defended places and left them to be dealt with by the troops which followed. Employing particularly large forces of artillery, Russian troops rapidly isolated and reduced enemy centers, and kept their forward armor supplied by ground transportation supplementing captured supplies.

Armored forces to head off hostile armor penetrating a front was tried by the Russians in 1941 without much success. They did better in 1942, and improved as the war went on. In principle, intercept armor is held far enough back to be independent of the fate of front-line battles. If hostile armor should break through, the intercept armor is advised by air reconnaissance or other means. It then proceeds to intercept and bring the enemy to a halt, while other available troops close around the intruders and endeavor to encircle them.

This maneuver requires high tactical efficiency but if properly executed may lead to annihilation of the enemy.

Intercept armor replaces the old *reserve* that was held in rear of the front to reinforce threatened sectors. The speed with which modern warfare now moves prevents the use of local reserves in time to be effective against troops dashing through a gap, unless it happens to be near the penetrated positions.

A combination of defensive and offensive protection affords the best defensive. Centers of resistance should deny access to gasoline, oil and supplies to an enemy breaking in.

Types of Armored Vehicles

Experience has indicated that the size and type of traction of armored vehicles should vary with the theater of operation. Tanks suitable for debarking from landing craft over sand beaches and dunes may not be the best type for open terrain. Climate too must be considered—excessive cold as in Russian winters, or heat as in the Sahara desert, require special modifications of armored vehicles.

Mountain areas do not preclude the use of armor, but the quantity and types that can be employed is limited. The Italians developed special types of tanks and armored vehicles appropriate to their country. Such tanks were small and could travel along steep slopes. They worked well in Spain and in Ethiopia where the enemy had no effective antitank weapons, but the tank capable of operating in mountains was not very effective for maneuvering under fire against antitank guns.

While speed is an important factor in tanks, and may enable armor to avoid action in desert country, alone it is insufficient to avoid or force an engagement where movement is restricted by defiles under enemy fire or control.

The tendency of the current war has been to increase not only the number of armored troops, but also the size of tanks, and the caliber and quantity of the armored artillery. The end in this direction is not in sight. It seems probable that larger tanks and armored guns will soon be available.

Bridge Laying by Armor

*by Major John North**

The "Avre," a new British engine of war, is the most versatile fighting vehicle to be found among the armies of the world. It performed a spectacular rôle on the Western Front.

KNOWN as The Armored Vehicle, Royal Engineers, or Avre, the British armored assault vehicle is a multi-purpose weapon which attunes itself perfectly to the rôle of both the sapper and the Royal Engineers, whose duty is to breach fortifications.

Its specialized equipment makes it possible for engineers to build bridges under a protection of armor, and for sappers to get close to a strongly defended position with the greatest possible weight of explosives.

Part of such a unique accomplishment is possible because of the highly accurate, and specialized bomb-throwing mortar mounted in the turret called a "petard," which also is a British invention. When it was realized that several rounds from the petard could breach 10-foot concrete walls, the possibilities of the Avre in "fluid" warfare were recognized. This was demonstrated on D Day and for some time afterwards, when it fulfilled its original function by breaching the German defenses along the Normandy coast line, and at La Havre, Boulogne and Calais. Here it was found that even though the Avre's only antipersonnel weapon was a Bren gun, its crew could destroy, sometimes single-handed, enemy 88mm guns, lock gates, and village strong points. The sapper in the Avre, however, did not depend entirely on the use of the petard for such work, but carried explosive charges known as "beehives," which could be placed in the old-fashioned way.

Further versatility was given the vehicle through its basic design. Although built from a Churchill tank, it carries no tank armament. This space is used for additional specialized equipment which made possible the performance of its many battlefield functions. Although the crew of an Avre is thus in the position of a golfer who selects a particular club for a particular shot, it is as a bridge-layer that it excels and is able to speed up the advance of the infantry and armor.

In addition to its armor and weight-carrying capacity, it has mechanical power, which is of no less importance. It can push and it can pull; and it is itself mobile.

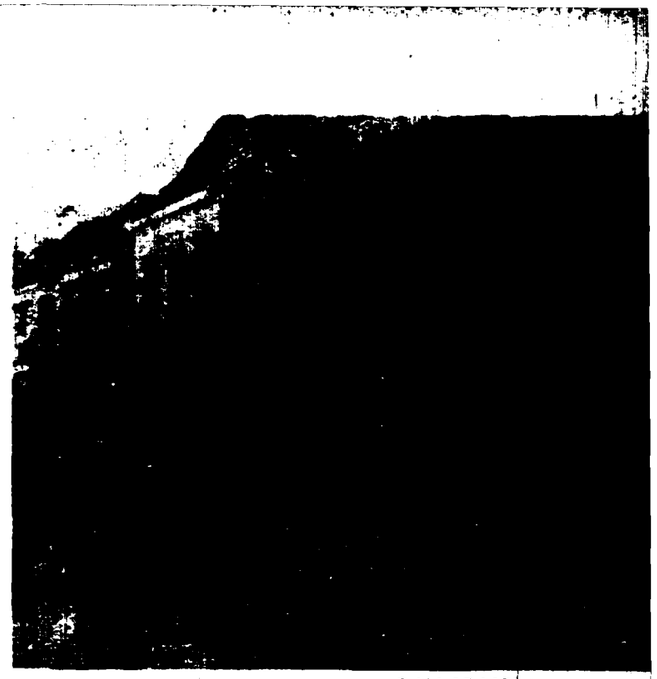
As examples of its mechanical performance it can carry a 30-foot box girder bridge on its nose and drop it over an antitank ditch, or, to make itself less conspicuous to the enemy, it can tow the bridge to the site; it can push across a river a 60-foot "Skid Bailey" bridge; and can also tow to any site an 80-foot "Mobile Bailey."

The tank bridge of the Avre must not be considered a substitute for the conventional Bailey, however, but rather as a device for use in critical situations during which a few moments' halt in an assault's momentum may well delay success by days.

A typical picture of the Avre bridge-layer in action is provided by the story of the launching of a tank bridge during the British drive on the Maas. During the attack on Venraij, a meandering stream was found to be far wider than had been anticipated. This made a crossing with fascines impossible. While supporting guns fired smoke and high explosives, an Avre carrying a tank bridge trundled forward to the stream through 500 yards of heavy fire. At the stream a large crater was found which made it necessary to bridge a combined distance of 40 feet. Mines prevented the sergeant in the Avre from moving to either side, but he successfully placed the bridge across both crater and stream. The apparatus that fixed the near end of the bridge then jammed, and the sergeant dismounted and lifted one of his crew on his shoulders to release it. This bridge furnished the division's only crossing for the first 24 hours, and remained in use for two days.

A bright future awaits the development of the idea behind this armored vehicle, for it gives the British Royal Engineers mobility, which is only another word for ubiquity. Despite the intensity of modern fire power, it takes them to the forefront of the battle, and thereby foreshadows the sappers of the future.

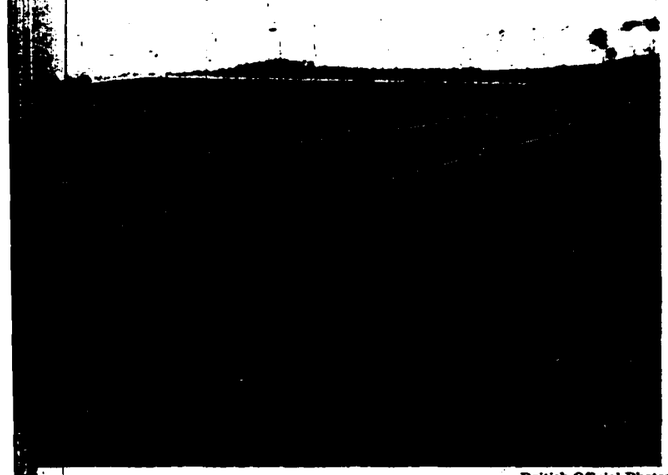
*British Staff Officer.



British Official Photos

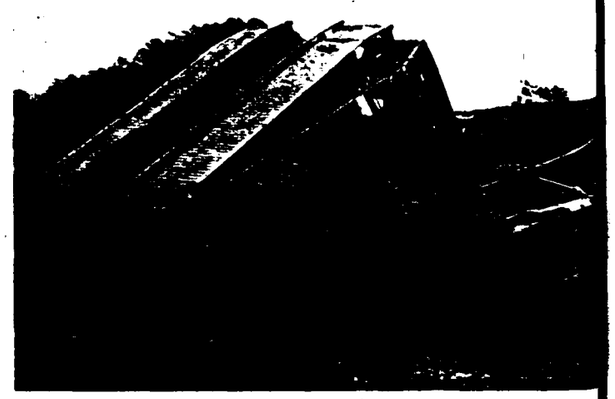
Above, a "Churchill" bridge-layer has in 10 minutes completed the bridging of an antitank ditch in Holland. Over the bridge goes a combat tank while others wait in rear.

British tanks which could carry and lay their own bridges played an important part in France's liberation. Below is shown a "Scissors" bridge as mounted on a Valentine tank.



British Official Photos

The method of unfolding the "Scissors" bridge as carried by tank in the photo to left, and laying it across a hole to form a bridge is shown below. Four types were in use.



An "Ark" bridging tank has formed a ramp against a sea wall, which is successfully scaled by another tank.

THE "CHALLENGER"—— HEAVY CRUISER TANK

*by Major R. W. Murland**

THROUGHOUT the Allied war with Germany, the conflict between gun and armor has been the dominating factor in tank design on both sides. The progress of this conflict was rarely reported in the day-to-day news bulletins and communiques, but it is no longer a secret that the German Army had a lead in gun development, of which they took every advantage. British guns improved steadily, however, and their superiority was established when the 17-pounder made its successful and timely appearance in the Tunisian campaign.

British operational plans had always envisaged the fast cruiser-tank as one of the most important weapons, and by 1942 the Cromwell tank was already a reality as part of Britain's long-term preparations for the invasion of Western Europe. The Tunisian campaign showed that a cruiser-tank with the new 17-pounder gun would be of the greatest value, and steps were accordingly taken to adapt the existing Cromwell design as quickly as possible to accommodate the new gun.

Stated baldly, it sounds simple to "adapt the Cromwell design to the new gun." In fact, the adaptation presented innumerable problems to the designers; it is only necessary to recall the very considerable differences in length, weight, and size of ammunition between the 75mm gun of the Cromwell and the 17-pounder, to realize the magnitude of the problems involved. The Challenger represents the practical solution of these problems.

The installation of a bigger gun must, in general, mean a bigger turret and, most important of all, a bigger turret ring. The ease with which the crew can load the gun and handle its ammunition inside the turret is dependent mainly on the available space; this space in turn depends largely on that key dimension the diameter of the turret ring. An increase in the turret ring diameter must itself mean increasing the over-all dimensions of the tank, and it will therefore be realized that "adapting the Cromwell design to the new gun" involved fundamental departures from that design.

The over-all dimensions of the Challenger are: 23 feet 8½ inches long (excluding the gun), 10 feet wide, and 9 feet 4 inches high. The total weight is 32 tons, or 4 tons heavier than the Cromwell. This increase in weight has not involved any reduction in speed, which is slightly in excess of 30 miles per hour. The power unit is the 600-horsepower Rolls-Royce "Meteor" engine.

*5th Royal Inniskilling Dragoons.

The armament consists of a 17-pounder gun and a .30 inch Browning machine gun mounted co-axially with it in the turret which has all-around traverse and is power driven. Forty-eight rounds of ammunition for the 17-pounder are carried together with 3,750 rounds for the Browning machine gun, and there is a crew of 5: driver, commander, gunner, loader, and wireless-operator, the 4 last being accommodated in the turret.

In appearance, the Challenger shows obvious signs of its Cromwell parentage, though there is no likelihood of their being confused. The three characteristic recognition features of the Challenger are the long 17-pounder gun, 6 large road wheels on each side, and the distinctive high turret.

The Christie type of high-speed suspension, for long a noticeable feature of British cruiser tanks, has been retained with the addition of one suspension unit on each side. These additional suspension units not only increase the over-all length of the tank, but they also increase the "steering ratio" (i.e. the ratio of track length on the ground to width between track centers). From purely theoretical considerations this might seem to involve some greater difficulty in steering the tank; in practice, however, the same Merritt-Brown controlled differential steering system as is used on the Cromwell has proved entirely satisfactory, and no difficulties have been experienced in steering.

In the design or adaptation of any tank, it is axiomatic that new advantages can only be obtained at a price. Briefly, it may be said that the price paid for the 17-pounder gun in the Challenger has been an increase of 14 inches in the over-all height, and the sacrifice of a machine gun which might otherwise have been mounted in the front of the hull. It may be noted, incidentally, that the space necessary for this hull machine gun and its gunner has been employed for ammunition stowage. The over-all length and width have also been slightly increased, but these increases are of minor significance from the tactical or "user" standpoint.

The Challenger was first used in action in 1944 in the operations for the Allied liberation of Europe, and it is standard equipment in British Armored Regiments where it is used in conjunction with its elder brother, the Cromwell. The excellent armor-piercing performance of the 17-pounder gun makes the Challenger an ideal weapon for dealing with enemy armored vehicles, and it may well be described as the "tank destroying" element in the armored regiments.

Chronology of World War II*

1939

Sept. 1—Germany invades Poland, annexes Danzig.
Sept. 3—Britain and France declare war on Germany.
Sept. 4—Fighting begins in front of Maginot Line.
Sept. 17—Russian troops strike into Eastern Poland.

1940

Apr. 9—Germany invades Norway and Denmark.
May 28—Belgium surrenders.
May 29—400,000 British escape at Dunkerque.
June 3—Germans bomb Paris.
June 10—Italy declares war on Britain and France.
June 14—Germans enter Paris.
June 17—France surrenders.
Aug. 4—German air force begins heavy attack on Britain.
Aug. 31—RAF bombs heart of Berlin for first time.

1941

Jan. 10—Germany and Russia sign friendship pact.
May 20—Germans attack Crete in first airborne action.
June 22—Germany, Italy and Romania declare war on Russia.
July 24—Japs enter French Indo-China.
Dec. 7—Japanese attack Pearl Harbor.
Dec. 8—U. S. declares war. Japs attack Midway.
Dec. 10—Japanese land in Philippines.
Dec. 11—Germany and Italy declare war on U. S.
Dec. 12—Guam occupied.
Dec. 24—Wake falls after 14-day defense.

1942

Jan. 2—Japanese occupy Manila.
Jan. 14—First ship is torpedoed off Atlantic coast.
Jan. 26—First American troops arrive in Ireland.
Mar. 9—Japs overrun Java. Rangoon falls.
Apr. 9—Fighting ends on Bataan.
Apr. 18—Doolittle bombers raid Tokyo.
May 4-8—Japs lose Coral Sea battle.
May 6—Corregidor falls.
June 12—Japanese land in Aleutians.
July 4—U. S. flyers first bomb Western Europe.
Aug. 7—Americans land on Guadalcanal.
Nov. 8—Americans and British invade North Africa.

1943

Jan. 18—Reds break siege of Stalingrad.
Mar. 1-4—Japs defeated in Battle of Bismarck Sea.
May 30—Japs on Attu wiped out.
July 10—Allies invade Sicily.
July 25—Mussolini resigns; Badoglio become Prime Minister.
Aug. 17—Conquest of Sicily completed.
Sept. 8—Italy surrenders unconditionally.
Oct. 13—Italy declares war on Germany.
Nov. 1—Americans land on Bougainville.
Nov. 21—U. S. forces land on Tarawa.

1944

Jan. 2—Allies land behind Nazi lines at Anzio.
Feb. 17—Americans land on Eniwetok.
Apr. 21—Yanks establish New Guinea beachhead.
May 14—Gigantic Allies aerial offensive against Europe completes 29 consecutive days before interrupted by bad weather.
May 18—Cassino falls.
June 4—Allies take Rome.
June 6—Allies invade Normandy.
June 11—Yanks smash third of way across Norman Peninsula on 50-mile front.
June 14—Yanks land on Saipan.
June 16—First robot bombs strike Britain.
June 18—Russians crack Mannerheim line.
June 27—Americans capture Cherbourg.
July 7—B-29s bomb Japan.
July 18—Americans take St. Lô, France.
Aug. 15—Allies invade South France.
Aug. 23—Romania ends war against Allies; fights Germany.
Sept. 11—U. S. forces invade Germany.
Oct. 6—Yanks crush Siegfried defenses.
Oct. 19—MacArthur invades Philippines.
Oct. 29—Second battle of Philippine Sea, a crushing defeat for Japanese.
Nov. 16—Eisenhower opens mass drive on Germany.
Nov. 24—Super Forts bomb Tokyo.
Dec. 20—Von Rundstedt breaches Allied lines with 13 Nazi divisions, smashes toward Liege.
Dec. 22—Patton strikes at southern flank of "Bulge."

1945

Jan. 15—Germans in full retreat from the "Bulge."
Feb. 19—Yanks invade Iwo Jima.
Feb. 24—Manila liberated.
Mar. 8—Yanks smash across Rhine on captured bridge at Remagen.
Apr. 2—New U. S. 10th Army lands on Okinawa.
Apr. 12—President Roosevelt dies; Harry S. Truman becomes 33d President of the United States.
Apr. 21—Russians enter Berlin.
Apr. 26—U. S. First Army and Ukrainian First Army meet at Torgau, cutting Germany in half.
Apr. 28—Mussolini shot to death by Italian Partisans.
May 4—Germany surrenders Denmark, Holland and all Northern Germany.
Aug. 5—First atomic bomb dropped on Hiroshima.
Aug. 8—Russia declares war on Japan.
Aug. 9—Second atomic bomb dropped on Nagasaki.
Aug. 14—Japan accepts Potsdam peace terms.
Aug. 30—General MacArthur and 400,000 troops land in Japan.

**The Washington Evening Star.*

OLD LEATHERFACE OF THE FLYING TIGERS. By Keith Ayling. Bobbs, Merrill. $2.50.

Keith Ayling, pilot and veteran of World War I, as well as an eminent writer on aviation, is well suited to the job of presenting to the world the unusual personality of General Claire Chennault. It is, however, possible to regret that Mr. Ayling did not hold his biography up for a few months. In the light of recent events the reader must inevitably feel that much more might, and probably should, be told.

Known to the Chinese people as "Old Leatherface," friend, benefactor and protector, Major General Chennault stands in this country as the man responsible for the success and fame of the Flying Tigers. His early life as farm boy, woodsman, schoolteacher would not appear to be the usual beginning for an adventurer in the Orient. However, his job as YMCA physical education instructor led to the army in the last war where he received his commission and flight training. He developed into more than a stunt and test pilot—he wrote about aviation with vision, a believer in the future of fighters and bombers, a planner for the future of military aviation. The reader is tempted to seek for the shadow of Billy Mitchell, and sure enough, it is there.

The story of General Chennault's opportunity to put his theory of combat tactics into practice is particularly interesting. He realized that he must explore and exhaust the possibilities of each pilot and each plane in order to accomplish the impossible.

A gifted leader, he earned the respect of his men, a respect which could not have been commanded. This is a remarkable story of an extraordinary man who did a phenomenal job, and it will not be the only such story to come out of this war.

PSYCHOLOGY FOR THE ARMED SERVICES. By The National Research Council. The Infantry Journal. $3.00.

It undoubtedly is true that the more men understand of the reasons for behavior, the more readily they can master their emotions and control their reactions. *Psychology for the Armed Services* is one of the most reasonable treatises on the subject that has been published in some time.

For too many years psychology has been used as an excuse for man's derelictions instead of being made to fulfill its purpose of so explaining normal reactions that man could understand and master himself and have no need for vindications.

While this book is primarily written for the armed services, it has much of interest to any sane, thinking man who wishes to master his life rather than allow it to master him.

AN INTERNATIONAL BILL OF THE RIGHTS OF MAN. By H. Lauterpacht. Columbia University Press. $3.00.

At a time when a great portion of the world is desperately seeking an equitable way of life for all men, it is well to review history's past efforts to codify and insure the rights of man. It is also essential that definite proposals of a practical nature be outlined, in order that man may read and judge their workability.

Mr. Lauterpacht, Whewell Professor of International Law at Cambridge, has detailed a proposal for the formulation and enforcement of an international bill of rights. He leaves no stone unturned in stating the case for establishing an instrument creating legal rights and obligations among states as regards fundamental human rights. He surveys the written expression of these rights from the time of the Greeks to the present, argues the legal and philosophical bases for codifying them, and finally, presents a proposed *International Bill of the Rights of Man*, article by article. His discussion of the practicality of such a bill, and possible modifications, concludes the study.

There are inevitably many points that will cause debate, and some portions of the bill demand further clarification. This is as it should be, for a book that does not provoke healthy discussion is hardly worth the writing, and Mr. Lauterpacht is to be thanked for presenting such a well-formulated study to instigate thoughtful consideration of the points involved.

FIRST ENCOUNTER. By John Dos Passos. Philosophical Library. $2.00.

This narrative deals with the lives of front-line soldiers of 1918, as seen through the eyes of an ambulance driver. Short snatches of days, experiences simply stated, combine to produce an experience rather than a consecutive story.

More truly than many of the more profound studies comparing conditions of the two wars, this little book will impress the reader with the futility of nations' present methods of solving problems, and the unquenchable hope that keeps mankind struggling against the perennial injustices of the world, from generation to generation.

Unlike his previous books, this narrative is definitely philosophical and in several paragraphs his characters speak profoundly in simple language the thoughts that men are thinking today as they did in 1918: "We must stop the economic war, the war for existence of man against man. That will be the first step in the long climb to civilization. They must coöperate, they must learn that it is saner and more advantageous to help one another than to hinder one another in the great war against nature."

ATOMIC ENERGY FOR MILITARY PURPOSES. By H. D. Smyth. Princeton University Press. Cloth $2.50; Paper $1.25.

Received too late for review in this issue.

THE MERCHANT MARINE AND WORLD FRONTIERS. By Robert Earle Anderson. Cornell Maritime Press. $3.00.

"The by-products of war are sometimes of greater importance in their effect upon the welfare of a country or of the world than are the direct objectives for which a war is fought."

One of the by-products of this war is our greatly increased Merchant Marine. The exigencies of this war necessarily drove us to create a large shipbuilding industry and resulted in an enormous production not only of warships, but merchant ships for transporting the essentials of war to our own troops and our Allies.

We are now faced with the serious problem as to whether our Merchant Marine is to be a national asset—opening a new objective and wider field to American trade—or just an expensive surplus of the war to be discarded as unsalvageable.

Too few citizens are aware of the important factors involved in this problem. With a great portion of our country land-bound with the exception of rivers, we are not entirely conscious of the advantages to be gained by maintaining our Merchant Marine at its built-up strength.

Mr. Anderson has written a thoroughly comprehensible book, covering the background and problems of American shipping, and pointing out the future advantages, if our opportunities are not allowed to slip through our fingers.

It would be well at this time for Americans interested in their nation's advancement to read this volume, and remember the lessons of history—in which every powerful nation has been judged in accordance with the number of its ships that sailed the 7 seas.

TIME BOMB. By E. A. Piller. Arco Publishing Co. $2.00.

One of several books published in recent months to expose the fascist elements in this country, *Time Bomb* adds little to the already open records of race hating groups in America. It is important only in that it reiterates the records of those who are sowing dissentious seeds in our nation, in the hope that each reiteration will waken more of the indifferent among us whose weak hands hold the balance between democracy and fascism.

One notable addition to this book is a list of organizations throughout the nation that are fighting to uphold the traditions of democracy in the United States—the right of *all* men to "life, liberty, and the pursuit of happiness."

CARTOONS FOR FIGHTERS. Edited by Sgt. Frank Brandt. Fighting Forces Series. Infantry Journal. 25¢.

This is a collection of over 350 cartoons and gags used by the Armed Forces to ease the task of learning the tactics of modern warfare. They are not only amusing now, but in future years will serve as an entertaining reminder of days past. Readers of The CAVALRY JOURNAL will find some familiar cartoons among those selected for publication from the military magazines.

An Official Report to the American People

Atomic Energy for Military Purposes

By

H. D. SMYTH

Consultant, Manhattan Engineer District

(Prepared at the Request of Major General L. R. Groves, U. S. Army)

From the Foreword by General Groves . . .

"The story of the development of the atomic bomb by the combined effort of many groups in the United States is a fascinating but highly technical account of an enormous enterprise. Obviously military security prevents this story from being told in full at this time. However, there is no reason why the administrative history of the Atomic Bomb project and the basic scientific knowledge on which the several developments were based should not be available now to the general public. To this end Professor Smyth's account is presented.

"All pertinent scientific information which can be released to the public at this time without violating the needs of national security is contained in this volume. . . ."

PUBLISHED BY PRINCETON UNIVERSITY PRESS

Paper $1.25 Cloth $2.50

Order direct from

THE CAVALRY JOURNAL

Military Classics

The Art of War
By
Sun Tzu

Written about 500 B.C. this is the oldest military work in existence and among the finest ever written.

* * *

Military Institutions of the Romans
By
Flavius Vegetius Renatus

Vegetius' compilation of the military wisdom and customs of the Romans has been the most influential military work written in the western world. To Vegetius can be attributed the organization of the modern division, and many of the disciplinary practices of our own army.

* * *

Reveries Upon the Art of War
By
Field Marshal Maurice de Saxe

De Saxe is one of the great links in military development between Vegetius and Napoleon. The modern soldier still can learn from him and no one can understand the evolution of armies who has not read the famous *Reveries*.

* * *

Napoleon and Modern War
Annotated by
Colonel Conrad H. Lanza

Colonel Lanza has appositively and illuminatingly annotated the famous Maxims of "the greatest of European soldiers."

* * *

Principles of War
By
General Karl von Clausewitz

For more than 130 years German military plans and conquests have been based on the principles laid down in this book.

* * *

Order from
THE CAVALRY JOURNAL
$1.00 each

SELECTED SPEECHES AND STATEMENTS OF GENERAL OF THE ARMY GEORGE C. MARSHALL. Edited by Major H. A. DeWeerd. Infantry Journal. $2.75.

A compilation of selected speeches and statements made by General Marshall, including statements made before Congressional committees, this book contains much interesting material. Any such book should be, at least partially, an indication of the thoughts and character of the man, as well as an indication of the comparative importance of trends and events as visualized by the speaker.

PERSIAN GULF COMMAND. By Joel Sayre. Random House. $2.00.

The job of the Persian Gulf Command was to deliver American supplies across Iran to the hard-pressed Russians. It is a story of men who worked without fanfare—steadily, heartbreakingly, and backbreakingly. It is to Mr. Sayre's credit that he has recognized the magnificent and all-important job that was done by this command. For the sake of these men, however, it is regretted that the author became so fascinated with the country, customs and habits of Iran that too much of his book is taken up with delightful stories of a strange and Arabian-Nights sort of people rather than the men of the Persian Gulf Command.

The book is extremely interesting, and until another is written giving in more detail the job done and the stories of the men who did it, should be read at least as an introduction to a command little known and not sufficiently appreciated.

500 POSTWAR JOBS FOR MEN. Vocational Guidance Research. Doubleday, Doran. $2.50.

To men leaving the service and seeking new employment this is one of the most valuable books on the market. The introduction details the best methods of taking both job-inventory and self-inventory, which, if honestly done, will do much to insure the placing of the individual in the job best suited to his talents and personality. Advice is given as to organizations disseminating inexpensive occupational material, suggested approaches and sources of job selection.

The body of the book is a dictionary, alphabetically arranged, of 500 postwar jobs. Each description gives the Present Outlook, Job Description, Requirements, Advantages, Disadvantages, Earnings, Advancement Opportunities, and Where to Apply.

THE GASHOUSE GANG. By J. Roy Stockton. A. S. Barnes. $2.75.

Perhaps Ring Lardner could have done an excellent job of this history of the St. Louis Cardinals—but most readers will agree that he would have had a hard time bettering Mr. Stockton's stimulating record.

To all lovers of baseball *The Gashouse Gang*, with its tall tales of the Deans, Pepper Martin, "Good field no hit" Gonzalez, and the untamed Joe Medwick, is unhesitatingly recommended. It will tide over the long winter evenings until baseball season is here again.

DILEMMA IN JAPAN. By Lt. Andrew Roth, U.S.N.R. Little, Brown & Co. $2.50.

Lieutenant Roth, a youthful American specialist on Japanese affairs, believes that there is a minority in Japan capable of fathering democratic ideals, provided they are assisted by the Allies. It is his conviction that this group consists largely of agrarian workers and those who resent the poverty and lack of opportunity under the past regime. He is deeply fearful that the Zaibatsu, or moneyed interests, will pose as truly democratic and thus succeed in retaining power, which ultimately will result in a revitalization of the military caste necessary to substantiate the power of the Zaibatsu.

It is extremely interesting to note that all of the books written by students of Japanese psychology and social and economic conditions tend to draw much the same conclusions, and advocate the same general treatment of the conquered peoples.

A STAR DANCED. By Gertrude Lawrence. Doubleday, Doran. $2.50.

The eternal desire of mankind to play more than one rôle in this world keeps the lure of the stage perennially alive. Gertrude Lawrence, one of the shining comediennes of our era, has contributed a lively and vivacious biography to theatrical literature.

It is no small thing to dance from the drab sidewalks of London and barrel organ music to the boards of The Prince of Wales Theater. The courage and verve that carried her through this triumphant career to become the toast of two continents is everywhere evident in the pages of this delightful and thoughtful account of Gertrude Lawrence's life.

By no means a shallow book, the amusing anecdotes of brilliant and amusing people intersperse a sensitive comparison of human values in poverty and wealth, problems and peace, and two world wars.

Ernie Pyle's "BRAVE MEN"

Now in stock

$3.00

Order your copy at once
FROM
THE CAVALRY JOURNAL

Military Classics

Instructions To His Generals
By
Frederick the Great

Next to Clausewitz this small volume is the most influential work in founding the German military system of today. Understanding of German military success and the development of German methods is impossible without this book.

* * *

Defense
By
Marshal General Wilhelm von Leeb

In *Defense*, published in 1938, Von Leeb, as a military thinker and scientist, comparable to any of the outstanding authorities of the old German army, offered his government a plan for the next war in which Germany might engage.

* * *

Surprise
By
Lieutenant General Waldemar Erfurth

Erfurth opportunely and authoritatively has revived and elaborated for contemporaneous study and enlightenment the principles and expositions of a host of preceding military writers.

* * *

Armored Warfare
By
Major General J. F. C. Fuller
C.B., C.B.E., D.S.O.

An annotated edition of General Fuller's famous *FSR III*. Three months prior to the German attack upon Russia, Timoshenko ordered *FSR III* to be used as a "table book" by every officer and constantly used for reference.

* * *

Order from
THE CAVALRY JOURNAL
$1.00 each

Books — Manuals — Texts

As a result of inquiries received in our Book Department THE CAVALRY JOURNAL *is starting a new service. Readers of the* JOURNAL *are invited to write to the Book Department and give subjects on which they would like lists of authoritative books. Lists containing recognized and new publications, with brief summaries of the text, will be sent at once. Lists of fiction will also be compiled. Books may be selected from these lists for immediate shipment, or at stated intervals.*

Any order amounting to $10.00 or more; regardless of when or where shipped, will be given the 10% discount deduction.

INDIVIDUAL ORDER FORM

THE CAVALRY JOURNAL,
1719 K Street, N.W.
WASHINGTON 6, D. C.

Please send me the following checked items:

A — 1 2 3 4 5 6 7 8 9
B — 3 5 7 8
C — 1 2 3 4 5 6 7 9 10 11 12 14 15 16 18 19 21 22 23 24 26 27 28 29 30 31 32 33 34 35 36 37 38 39
D — 2 3 4 5 9 10 11 12 13 15 16 19 20 26 27 28 29 30 31 32
E — 1 6 8 12 13 14 15 16
H — 1 2 3 4 5 6 7 8 9
J — 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Z — 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

OTHER BOOKS

$ _____

☐ I inclose remittance in the amount of $ _____

☐ Send bill to { Co. / Troop Fund _____ (For unit orders only)

_____
Name (Please Print)

_____
Street address or box number)

_____
Town Post City and State

G. P. O. MANUALS

CAVALRY:

A- 1 (2- 5) Cav. Drill Reg., Horse .30
A- 2 (2- 7) Cav. Drill Reg., Mecz. .15
A- 3 (2- 15) Employment of cavalry .30
A- 4 (2-220) The Horseshoer .25

BASIC AND TECHNICAL:

A- 5 (25- 5) Animal Transport .25
A- 6 (25- 10) Motor Transport .20
A- 7 (100-5) FSR, Operations .35
A- 8 (100-10) FSR, Administration .25
A- 9 A Manual for Courts-Martial, U. S. Army 1.00

THE CAVALRY SCHOOL DEPARTMENTAL TEXTS

B- 3 Horsemanship and Horsemastership 1.25
B- 5 Seats, Gaits, Reactions (Translated from the French) .80
B- 7 The Gaits—The Horseman (Translated from the French) .80
B- 8 Horseshoeing, *Churchill*, 1933 1.20

STANDARD GUIDES

C- 1 R.O.T.C. Manual, Basic, CS & MS. (2 vols.)
Paper, each vol. 2.25
Cloth, each vol. 2.75
C- 2 R.O.T.C. Manual, Adv., MS.
Paper 2.50
Cloth 3.00
C- 3 Officer's Guide, 1943 edition 2.50
C- 4 Officers' Manual, *Moss* 2.50
C- 5 Company Administration and Personnel Records, *Virtue* (Paper), 14th edition 1.50
C- 6 Company Administration and Personnel Records, *Virtue* (Cloth), 14th edition 2.00
C- 7 Modern Military Dictionary (Cloth) 2.50
C- 9 Combat Communications, *Allen* .35
C-10 Reconnaissance, *Allen* .35
C-11 Combat Intelligence, *Schwein* 2.00
C-12 S-2 in Action, *Thomas* 1.50
C-14 Courts-Martial Practical Guide 1.00
C-15 Machine Gunner's Handbook .50
C-16 The Soldier and the Law (1944 edition) 2.00
C-18 Mass Physical Training, *Roycroft* 3.00
C-19 Medical Soldier's Handbook 1.00
C-21 Army Food and Messing 2.50
C-22 Practical Manual of Martial Law 2.00
C-23 Map and Aerial Photos Simplified 1.00
C-24 State Defense Manual 1.00
C-26 The Fourth Horseman, *Doherty* 1.00
C-27 U.S.A. Second Lieutenant's Handbook, *Craf* 1.00
C-28 Going to O.C.S. 1.00
C-29 Heavy Weapons Manual 2.50
C-30 Basic Manual of Military Small Arms 2.00
C-31 Modern Reconnaissance 1.50
C-32 Handbook to Army Regulations, *Sczudlo* 2.50
C-33 Military Law for the Company Commander, Appleton 2.50
C-34 Articles of War Annotated, *Tillotson* 2.50
C-35 Map and Aerial Photos, Complete 1.00
C-36 Chemical Warfare, *Wachtel* 4.00
C-37 Gas Warfare, *Waitt* (1944 Edition) 2.75
C-38 Get Tough, *Fairbairn* 1.00
C-39 Veteran's Rights and Benefits, *Eraña and Symons* 1.00

STANDARD BOOKS ON WAR

D- 2 Leadership for American Army Leaders, *Munson* 1.00
D- 3 Infantry in Battle 3.00
D- 4 American Campaigns, *Steele* (2 vols., Texts and Maps) 8.00
D- 5 World's Military History, *Mitchell* 3.00
D- 9 Maneuver in War, *Willoughby* 3.00
D-10 Allenby, by *General Wavell* 3.00
D-11 America in Arms, *Palmer* 2.00
D-12 Generals and Generalship, *Wavell* 1.00
D-13 U. S. Army in War and Peace, *Spaulding* 6.00
D-15 Roots of Strategy, *Phillips* 3.00
D-16 Technique of Modern Arms, *Muller* 2.50
D-19 Engineers in Battle, *Thompson* 1.50
D-20 History of the United States Army, *Ganoe* 5.00
D-26 The Axis Grand Strategy 3.50
D-27 Story of the Little Big Horn, *Graham* 2.00
D-28 Mechanized Might, *Raborg* 2.50
D-29 Lee's Lieutenants, *Freeman*, Vols. 1, 2, and 3, *each* 5.00
D-30 The Red Army, *Berchin and Ben-Horin* 3.00
D-31 Great Soldiers of Two World Wars, *DelWeerd* 3.50
D-32 War of 1812, *Adams* 3.00
D-33 Allenby in Egypt, *Wavell* 2.50

BOOKS FOR THE HORSEMAN

E- 1 A Horseman's Handbook on Practical Breeding, by *Colonel John F. Wall*, U.S.A., Retired (3d Edition) 4.00
E- 6 More About Riding Forward, by *Littauer* 3.00
E- 8 Position and Team Play, *Devereaux* 1.50
E-12 Be a Better Horseman, by *Littauer* 10.00
E-13 Horses, *Self* 3.00
E-14 The Western Horse, *Gorman* 2.00
E-15 Training and Gaiting, *Schaff*, 2 volumes 4.00
E-16 Heads Up—Heels Down, by *Anderson* 2.50

MILITARY CLASSICS

H- 1 Principles of Warfare, *Clausewitz* 1.00
H- 2 Defense, *von Leeb* 1.00
H- 3 Surprise, *Erfurth* 1.00
H- 4 Armored Warfare, *Fuller* 1.00
H- 5 Napoleon and Modern War, *Lanza* 1.00
H- 6 The Art of War, *Sun Tzu* 1.00
H- 7 Frederick the Great—Instructions to His Generals 1.00
H- 8 Reveries on the Art of War, *de Saxe* 1.00
H- 9 Military Institutions of the Romans, *Vegetius* 1.00

WORLD WAR II

J- 1 How Japan Plans to Win, *Matsuo* 2.50
J- 2 Report From Tokyo, *Grew* 1.00
J- 3 The Dyess Story, *Dyess* 2.00
J- 4 They Call It Pacific, *Lee* 3.00
J- 5 Guadalcanal Diary, *Tregaskis* 2.50
J- 6 Wingate's Raiders, *Rolo* 2.50
J- 7 Tarawa, *Sherrod* 2.00
J- 8 The Island, *Merillat* 3.00
J- 9 War Below Zero, *Balchen, Ford, and La Farge* 2.00
J-10 Gravediggers of France, *Pertinax* 6.00
J-11 American Guerrilla, *Smith and Carnes* 3.00
J-12 Battle Is the Pay-Off, *Ingersoll* 2.00
J-13 Here Is Your War, *Pyle* 3.00
J-14 Invasion Diary, *Tregaskis* 2.75
J-15 Brave Men, *Pyle* 3.00
J-16 Invasion!, *Wertenbaker* 2.50
J-17 Journey Among Warriors, *Curie* 3.50
J-18 Our Army at War, Official photographic record 3.00
J-19 I Never Left Home, *Hope* 2.00
J-20 The Navy's War, *Pratt* 2.75
J-21 Combined Operations, *Saunders* 2.00
J-22 Airborne Invasion, *Herbertington* 2.50
J-23 They Fly to Fight, *Ayling* 2.50
J-24 We Jumped to Fight, *Raff* 2.50
J-25 Selected Speeches, *General Marshall* 2.75

CURRENT LIST OF NEW BOOKS

Z- 1 Conspiracy in Algiers, by *Renee Gosset*. Before the American landings in Africa.
Z- 2 Dilemma In Japan, by *Andreu Roth* 2.50
Fear of a temporary truce and rearmament.
Z- 3 First Americans In North Africa, by *Louis B. Wright and Julia H. Macleod* 3.00
William Eaton and the Barbary pirates.
Z- 4 500 Post-War Jobs for Men, *Vocational Guidance Research* 2.50
Z- 5 Government Jobs and How To Get Them, edited by *Sterling P. Speer* 2.95
Five hundred careers available.
Z- 6 The Home Mechanics Handbook 5.95
Materials, tools, methods, for doing things about the house, etc.
Z- 7 The Killing of the Peace, by *Alan Cranston* 2.50
Wilson, Lodge, and the League of Nations.
Z- 8 The Merchant Marine and World Frontiers, by *Robert Earle Anderson* 3.00
What the Merchant Marine means today.
Z- 9 Persian Gulf Command, by *Joel Sayre* 2.00
The record of the men who delivered the American supplies across Iran to Russia.
Z-10 Pistol and Revolver Shooting, by *Walter F. Roper*. 2.49
The art of marksmanship.
Z-11 Psychology for the Armed Services, edited by *Edwin G. Boring* 3.00
Personal adjustments, morale, etc.
Z-12 The Russian Story, by *Nicholas Mikhailov* 2.75
General history of Russia.
Z-13 Smouldering Freedom, by *Isabel de Palencia* 3.00
Spanish political exiles.
Z-14 Soldier to Civilian, by *George K. Pratt* 2.50
Problems of readjustment.
Z-15 A Star Danced, by *Gertrude Laurence* 2.50
Life story of a distinguished actress.
Z-16 The Story of the Dutch East Indies, by *Bernard H. M. Vlekke* 3.00
From the earliest times to the present.
Z-17 The Story of the Springfield Plan, by *Clara I. Chatto and Alice L. Halligan* 2.75
School "war against prejudice."
Z-18 The Story of War Weapons, by *Marshall McClintock* 1.50
From the primitive to the present.
Z-19 This Is Where I Came In, by *Robert J. Casey* 3.00
War correspondent on various fronts.
Z-20 Time Bomb, by *E. A. Piller* 2.00
Factional movements in the United States.
Z-21 World War, Its Cause and Cure, by *Lionel Curtis* 3.25
Z-22 Your Legal Rights, by *Samuel G. Kling* .69
A layman's handbook of law.
Z-23 Your Personal Plane, by *John Paul Andrews* 2.50
Possibilities, estimates of costs, etc.

Books not listed can be supplied upon request.

10% discount on orders of $10.00 or more.

Order Through

The Cavalry Journal

1719 K Street, N.W. WASHINGTON 6, D. C.

Books — Manuals — Texts

As a result of inquiries received in our Book Department THE CAVALRY JOURNAL *is starting a new service. Readers of the* JOURNAL *are invited to write to the Book Department and give subjects on which they would like lists of authoritative books. Lists containing recognized and new publications, with brief summaries of the text, will be sent at once. Lists of fiction will also be compiled. Books may be selected from these lists for immediate shipment, or at stated intervals.*

Any order amounting to $10.00 or more; regardless of when or where shipped, will be given the 10% discount deduction.

INDIVIDUAL ORDER FORM

THE CAVALRY JOURNAL,
1719 K Street, N.W.
WASHINGTON 6, D. C.

Please send me the following checked items:

A — 1 2 3 4 5 6 7 8 9
B — 3 5 7 8
C — 1 2 3 4 5 6 7 9 10 11 12 14 15 16 18 19 21 22 23 24 26 27 28 29 30 31 32 33 34 35 36 37 38 39
D — 2 3 4 5 9 10 11 12 13 15 16 19 20 26 27 28 29 30 31 32
E — 1 6 8 12 13 14 15 16
H — 1 2 3 4 5 6 7 8 9
J — 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Z — 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

OTHER BOOKS

$_____

☐ I inclose remittance in the amount of $_____

☐ Send bill to { Co. / Troop Fund _____ (For unit orders only)

_____
Name (Please Print)

_____
(Street address or box number)

_____
(Town — Post) (City and State)

G. P. O. MANUALS

CAVALRY:

A- 1 (2- 5) Cav. Drill Reg., Horse ..... .30
A- 2 (2- 7) Cav. Drill Reg., Mecz. ..... .15
A- 3 (2- 15) Employment of cavalry ..... .30
A- 4 (2-220) The Horseshoer ..... .25

BASIC AND TECHNICAL:

A- 5 (25- 5) Animal Transport ..... .25
A- 6 (25- 10) Motor Transport ..... .20
A- 7 (100-5) FSR, Operations ..... .35
A- 8 (100-10) FSR, Administration ..... .25
A- 9 A Manual for Courts-Martial, U. S. Army 1.00

THE CAVALRY SCHOOL DEPARTMENTAL TEXTS

B- 3 Horsemanship and Horsemastership 1.25
B- 5 Seats, Gaits, Reactions (Translated from the French) .80
B- 7 The Gaits—The Horseman (Translated from the French) ..... .80
B- 8 Horseshoeing, *Churchill*, 1933 ..... 1.20

STANDARD GUIDES

C- 1 R.O.T.C. Manual, Basic, CS & MS. (2 vols.)
Paper, each vol. 2.25
Cloth, each vol. 2.75
C- 2 R.O.T.C. Manual, Adv., MS.
Paper 2.50
Cloth 3.00
C- 3 Officer's Guide, 1943 edition 2.50
C- 4 Officers' Manual, *Moss* 2.50
C- 5 Company Administration and Personnel Records, *Virtue* (Paper), 14th edition 1.50
C- 6 Company Administration and Personnel Records, *Virtue* (Cloth), 14th edition 2.00
C- 7 Modern Military Dictionary (Cloth) 2.50
C- 9 Combat Communications, *Allen* ..... .35
C-10 Reconnaissance, *Allen* ..... .35
C-11 Combat Intelligence, *Schwein* 2.00
C-12 S-2 in Action, *Thomas* 1.50
C-14 Courts-Martial Practical Guide 1.00
C-15 Machine Gunner's Handbook ..... .50
C-16 The Soldier and the Law (1944 edition) 2.00
C-18 Mass Physical Training, *Royscroft* 3.00
C-19 Medical Soldier's Handbook 1.00
C-21 Army Food and Messing 2.50
C-22 Practical Manual of Martial Law 2.00
C-23 Map and Aerial Photos Simplified 1.00
C-24 State Defense Manual 1.00
C-26 The Fourth Horseman, *Doherty* 1.00
C-27 U.S.A. Second Lieutenant's Handbook, *Craf* 1.00
C-28 Going to O.C.S. 1.00
C-29 Heavy Weapons Manual 2.50
C-30 Basic Manual of Military Small Arms 2.00
C-31 Modern Reconnaissance 1.50
C-32 Handbook to Army Regulations, *Szudlo* 2.50
C-33 Military Law for the Company Commander, Appleton 2.50
C-34 Articles of War Annotated, *Tillotson* 2.50
C-35 Map and Aerial Photos, Complete 1.00
C-36 Chemical Warfare, *Wachtel* 4.00
C-37 Gas Warfare, *Waitt* (1944 Edition) 2.75
C-38 Get Tough, *Fairbairn* 1.00
C-39 Veteran's Rights and Benefits, *Esaña and Symons* .. 1.00

STANDARD BOOKS ON WAR

D- 2 Leadership for American Army Leaders, *Munson* .. 1.00
D- 3 Infantry in Battle 3.00
D- 4 American Campaigns, *Steele* (2 vols., Texts and Maps) 8.00
D- 5 World's Military History, *Mitchell* 3.00
D- 9 Maneuver in War, *Willoughby* 3.00
D-10 Allenby, by *General Wavell* 3.00
D-11 America in Arms, *Palmer* 2.00
D-12 Generals and Generalship, *Wavell* 1.00
D-13 U. S. Army in War and Peace, *Spaulding* 6.00
D-15 Roots of Strategy, *Phillips* 3.00
D-16 Technique of Modern Arms, *Muller* 2.50
D-19 Engineers in Battle, *Thompson* 1.50
D-20 History of the United States Army, *Ganoe* 5.00
D-26 The Axis Grand Strategy 3.50
D-27 Story of the Little Big Horn, *Graham* 2.00
D-28 Mechanized Might, *Raborg* 2.50
D-29 Lee's Lieutenants, *Freeman*, Vols. 1, 2, and 3, *each* 5.00
D-30 The Red Army, *Berchin and Ben-Horin* 3.00
D-31 Great Soldiers of Two World Wars, *DeWeerd* ... 3.50
D-32 War of 1812, *Adams* 3.00
D-33 Allenby in Egypt, *Wavell* 2.50

BOOKS FOR THE HORSEMAN

E- 1 A Horseman's Handbook on Practical Breeding, by *Colonel John F. Wall*, U.S.A., Retired (3d Edition) 4.00
E- 6 More About Riding Forward, by *Littauer* 3.00
E- 8 Position and Team Play, *Devereaux* 1.50
E-12 Be a Better Horseman, by *Littauer* 10.00
E-13 Horses, *Self* 3.00
E-14 The Western Horse, *Gorman* 2.00
E-15 Training and Gaiting, *Scharf*, 2 volumes 4.00
E-16 Heads Up—Heels Down, by *Anderson* 2.50

MILITARY CLASSICS

H- 1 Principles of Warfare, *Clausewitz* 1.00
H- 2 Defense, *von Leeb* 1.00
H- 3 Surprise, *Erfurth* 1.00
H- 4 Armored Warfare, *Fuller* 1.00
H- 5 Napoleon and Modern War, *Lanza* 1.00
H- 6 The Art of War, *Sun Tzu* 1.00
H- 7 Frederick the Great—Instructions to His Generals 1.00
H- 8 Reveries on the Art of War, *de Saxe* 1.00
H- 9 Military Institutions of the Romans, *Vegetius* .. 1.00

WORLD WAR II

J- 1 How Japan Plans to Win, *Matsuo* 2.50
J- 2 Report From Tokyo, *Grew* 1.00
J- 3 The Dyess Story, *Dyess* 2.00
J- 4 They Call It Pacific, *Lee* 3.00
J- 5 Guadalcanal Diary, *Tregaskis* 2.50
J- 6 Wingate's Raiders, *Rolo* 2.50
J- 7 Tarawa, *Sherrod* 2.00
J- 8 The Island, *Merillat* 3.00
J- 9 War Below Zero, *Balchen, Ford, and La Farge* 2.00
J-10 Gravediggers of France, *Pertinax* 6.00
J-11 American Guerrilla, *Smith and Carnes* 3.00
J-12 Battle Is the Pay-Off, *Ingersoll* 2.00
J-13 Here Is Your War, *Pyle* 3.00
J-14 Invasion Diary, *Tregaskis* 2.75
J-15 Brave Men, *Pyle* 3.00
J-16 Invasion! *Wertenbaker* 2.50
J-17 Journey Among Warriors, *Curie* 3.50
J-18 Our Army at War, Official photographic record... 3.00
J-19 I Never Left Home, *Hope* 2.00
J-20 The Navy's War, *Pratt* 2.75
J-21 Combined Operations, *Saunders* 2.00
J-22 Airborne Invasion, *Hetherington* 2.50
J-23 They Fly to Fight, *Ayling* 2.50
J-24 We Jumped to Fight, *Raff* 2.50
J-25 Selected Speeches, *General Marshall* 2.75

CURRENT LIST OF NEW BOOKS

Z- 1 Conspiracy in Algiers, by *Renee Gasset* .....
Before the American landings in Africa.
Z- 2 Dilemma In Japan, by *Andrew Roth* 2.50
Fear of a temporary truce and rearmament.
Z- 3 First Americans In North Africa, by *Louis B. Wright and Julia H. Macleod* 3.00
William Eaton and the Barbary pirates.
Z- 4 500 Post-War Jobs for Men, *Vocational Guidance Research* 2.50
Z- 5 Government Jobs and How To Get Them, edited by *Sterling P. Spero* 2.95
Five hundred careers available.
Z- 6 The Home Mechanics Handbook 5.95
Materials, tools, methods, for doing things about the house, etc.
Z- 7 The Killing of the Peace, by *Alan Cranston* 2.50
Wilson, Lodge, and the League of Nations.
Z- 8 The Merchant Marine and World Frontiers, by *Robert Earle Anderson* 3.00
What the Merchant Marine means today.
Z- 9 Persian Gulf Command, by *Joel Sayre* 2.00
The record of the men who delivered the American supplies across Iran to Russia.
Z-10 Pistol and Revolver Shooting, by *Walter F. Roper*. 2.49
The art of marksmanship.
Z-11 Psychology for the Armed Services, edited by *Edwin G. Boring* 3.00
Personal adjustments, morale, etc.
Z-12 The Russian Story, by *Nicholas Mikhailov* 2.75
General history of Russia.
Z-13 Smouldering Freedom, by *Isabel de Palencia* 3.00
Spanish political exiles.
Z-14 Soldier to Civilian, by *George K. Pratt* 2.50
Problems of readjustment.
Z-15 A Star Danced, by *Gertrude Lawrence* 2.50
Life story of a distinguished actress.
Z-16 The Story of the Dutch East Indies, by *Bernard H. M. Vlekke* 3.00
From the earliest times to the present.
Z-17 The Story of the Springfield Plan, by *Clara I. Chatto and Alice L. Halligan* 2.75
School "war against prejudice."
Z-18 The Story of War Weapons, by *Marshall McClintock* 1.50
From the primitive to the present.
Z-19 This Is Where I Came In, by *Robert J. Casey* 3.00
War correspondent on various fronts.
Z-20 Time Bomb, by *E. A. Piller* 2.00
Factional movements in the United States.
Z-21 World War, Its Cause and Cure, by *Lionel Curtis* .. 3.25
Z-22 Your Legal Rights, by *Samuel G. Kling* ..... .69
A layman's handbook of law.
Z-23 Your Personal Plane, by *John Paul Andrews* 2.50
Possibilities, estimates of costs, etc.

Books not listed can be supplied upon request.

10% discount on orders of $10.00 or more.

Order Through

The Cavalry Journal

1719 K Street, N.W. WASHINGTON 6, D. C.

7. 05
9
p. 1

THE CAVALRY JOURNAL

THE LIBRARY OF THE
DEC 11 1944

Troops of the 1st Cavalry Division, which landed with U. S. invasion forces in the Philippines, advance on a Japanese machine-gun nest on Leyte Island.

NOVEMBER-DECEMBER, 1944

What the Service Journals say of

MODERN RECONNAISSANCE

"This should be a valuable volume for every officer or enlisted man who goes out on reconnaissance or acts on information acquired by reconnaissance—which includes every person within sound of the enemy guns."

—Coast Artillery Journal.

"The book is not in any way limited in interest to cavalry or reconnaissance units. It is of definite interest to all ground and air combat officers and men, and to members of all combat staffs."

—Infantry Journal.

". . . a valuable book for study or reference, containing a wealth of diversified military experience."

—Marine Corps Gazette.

Fill out the blank on page 77 and order your copy today!!

The United States Cavalry Association

Organized November 9, 1885

The aim and purpose of the Association shall be to disseminate knowledge of the military art and science, to promote the professional improvement of its members, and to preserve and foster the spirit, the traditions, and solidarity of the Cavalry of the Army of the United States.—Article III, Constitution.

OFFICERS

MAJ. GEN. JOHN K. HERR
U. S. ARMY RETIRED
President

BRIG. GEN. H. S. HAWKINS
U. S. ARMY RETIRED
Vice-President

COL. EDWIN M. SUMNER, Cav.
Secretary-Treasurer

☆

EXECUTIVE COUNCIL

Maj. Gen. Guy V. Henry
Brig. Gen. Karl Bradford
Brig. Gen. Paul McD. Robinett
Brig. Gen. Walter Braxton Pyron
Col. Albert Stovall
Col. C. H. Bryan
Col. E. H. Carns
Col. Dana McBride
Col. Gordon B. Rogers

THE CAVALRY JOURNAL, published under the auspices of the United States Cavalry Association, is not an official publication. Contributions appearing herein do not necessarily reflect official thought or indorsement. Articles appearing in this Journal represent the personal views of the author and are published to stimulate interest in, provoke thought on, and provide a free forum for the decorous discussion of cavalry affairs.

The Cavalry Journal

Published Bimonthly by The United States Cavalry Association

Colonel Edwin M. Sumner, *Cavalry, Editor*
Christine Harbour, *Associate Editor*
Evelyn S. Drayton, *Book Editor*
M/Sgt. Howard M. Collier, *Circulation Manager*
Corporal John J. Connery, *Asst. Circulation Mgr.*

Volume LIII NOVEMBER-DECEMBER, 1944 Number 6

CONTENTS

1ST CAVALRY DIVISION IN PHILIPPINES. (Picture Layout) 2
1ST CAVALRY DIVISION IN THE ADMIRALTY ISLANDS 3
EMPLOYMENT OF CAVALRY ASSAULT GUNS 8
By Lieutenant Colonel Paul L. Burke
RECONNAISSANCE IN NORMANDY 12
COMMENTS FROM COMBAT 16
THE "BUFFALO" PLAN—1st Armored Division on the Road to Rome 20
By 1st Lieutenant Richard K. Gottschall
MIRACLE OF THE NORMANDY BEACHES 24
CONQUEST AND LIBERATION OF FRANCE 29
BLITZ THROUGH FRANCE—4th Armored Division Spearheads Third Army 30
AIRBORNE INVASION 32
By Brigadier E. C. Ansley
GREECE—A Resume, October, 1940-October, 1944 34
By George Hamlotis
CHRISTMAS MESSAGE 36
By Lieutenant General Ben Lear
EDITORIAL COMMENT 37
GENERAL HAWKINS' NOTES: Cavalrymen—Mounted, Dismounted, and Mechanized 39
RED ARMY COSSACKS: Part II—Equipment, Arms, and Armament 40
By Major Robert B. Rigg
CAVALRY ACTION NEAR WARSAW 45
By Major I. Polinkov
CAVALRY OFFENSIVES IN WINTER 46
By Major General M. Smirnov
MOUNTED ATTACK 50
By Major V. Donskoi
RAID OF A CAVALRY SQUADRON 52
By Lieutenant Colonel F. Voloshin
BASIC MILITARY FACTS CONFIRMED ON BATTLEFIELDS 54
MUSTS FOR RECONNAISSANCE LEADERS 58
By Lieutenant Colonel Leo W. Mortenson
REALISTIC RECONNAISSANCE TRAINING 60
By Captain H. V. Douglas
THE TANK COVERING DETACHMENT 62
By Captain William M. Delaney
"TELL THEM WHY" 64
"SMOKE GETS IN THEIR EYES" 68
By Major George O. Gillingham
SOMETHING NEW IN TANK SMOKE 71
By Captain Arthur L. Paddock, Jr.
DO'S AND DON'TS ON TIRE CHANGING 72
CENTRALIZED TRAINING—For the Cavalry Reconnaissance Troop 73
By 2d Lieutenant Ross S. Hadfield
BOOK REVIEWS 76
ANNUAL INDEX 78

Publication date November 30, 1944. Deadline date, next issue: December 10, 1944.

THE CAVALRY JOURNAL IS NOT RESPONSIBLE FOR OPINIONS EXPRESSED IN PUBLISHED CONTRIBUTIONS

Editorial offices: 1719 K Street, Northwest, Washington 6, D. C. Copyright, 1944, by the U. S. Cavalry Association. Publication offices: 1406 East Franklin Street, Richmond, Virginia. Entered as second class matter at Richmond, Virginia, under the act of March 3, 1879, for mailing at special rate of postage in Section 412, Act of October 3, 1917. Terms: Domestic subscription, individual and organization, $3.00 per year. Foreign, $3.50 per year. Canada: including War Exchange Tax, $3.50. All subscriptions payable in advance. Single copies, 75c. Extra copies to subscribers, 50c. The Cavalry Journal does not carry paid advertisements.

What the Service Journals say of

MODERN RECONNAISSANCE

"This should be a valuable volume for every officer or enlisted man who goes out on reconnaissance or acts on information acquired by reconnaissance—which includes every person within sound of the enemy guns."

—COAST ARTILLERY JOURNAL.

"The book is not in any way limited in interest to cavalry or reconnaissance units. It is of definite interest to all ground and air combat officers and men, and to members of all combat staffs."

—INFANTRY JOURNAL.

". . . a valuable book for study or reference, containing a wealth of diversified military experience."

—MARINE CORPS GAZETTE.

Fill out the blank on page 77 and order your copy today!!

The United States Cavalry Association

Organized November 9, 1885

The aim and purpose of the Association shall be to disseminate knowledge of the military art and science, to promote the professional improvement of its members, and to preserve and foster the spirit, the traditions, and solidarity of the Cavalry of the Army of the United States.—Article III, Constitution.

OFFICERS

MAJ. GEN. JOHN K. HERR
U. S. ARMY RETIRED
President

BRIG. GEN. H. S. HAWKINS
U. S. ARMY RETIRED
Vice-President

COL. EDWIN M. SUMNER, Cav.
Secretary-Treasurer

☆

EXECUTIVE COUNCIL

MAJ. GEN. GUY V. HENRY
BRIG. GEN. KARL BRADFORD
BRIG. GEN. PAUL McD. ROBINETT
BRIG. GEN. WALTER BRAXTON PYRON
COL. ALBERT STOVALL
COL. C. H. BRYAN
COL. E. H. CARNS
COL. DANA McBRIDE
COL. GORDON B. ROGERS

THE CAVALRY JOURNAL, published under the auspices of the United States Cavalry Association, is not an official publication. Contributions appearing herein do not necessarily reflect official thought or indorsement. Articles appearing in this Journal represent the personal views of the author and are published to stimulate interest in, provoke thought on, and provide a free forum for the decorous discussion of cavalry affairs.

The Cavalry Journal

Published Bimonthly by The United States Cavalry Association

COLONEL EDWIN M. SUMNER, *Cavalry, Editor*
CHRISTINE HARBOUR, *Associate Editor*
EVELYN S. DRAYTON, *Book Editor*
M/SGT. HOWARD M. COLLINS, *Circulation Manager*
CORPORAL JOHN J. CORNETT, *Asst. Circulation Mgr.*

Volume LIII NOVEMBER-DECEMBER, 1944 Number 6

CONTENTS

1ST CAVALRY DIVISION IN PHILIPPINES. (Picture Layout) 2
1ST CAVALRY DIVISION IN THE ADMIRALTY ISLANDS 3
EMPLOYMENT OF CAVALRY ASSAULT GUNS 8
By Lieutenant Colonel Paul L. Burke
RECONNAISSANCE IN NORMANDY 12
COMMENTS FROM COMBAT 16
THE "BUFFALO" PLAN—1st Armored Division on the Road to Rome 20
By 1st Lieutenant Richard K. Gottschall
MIRACLE OF THE NORMANDY BEACHES 24
CONQUEST AND LIBERATION OF FRANCE 29
BLITZ THROUGH FRANCE—4th Armored Division Spearheads Third Army 30
AIRBORNE INVASION 32
By Brigadier E. C. Anstey
GREECE—A Resume, October, 1940-October, 1944 34
By George Haniotis
CHRISTMAS MESSAGE 36
By Lieutenant General Ben Lear
EDITORIAL COMMENT 37
GENERAL HAWKINS' NOTES: Cavalrymen—Mounted, Dismounted, and Mechanized 39
RED ARMY COSSACKS: Part II—Equipment, Arms, and Armament 40
By Major Robert B. Rigg
CAVALRY ACTION NEAR WARSAW 45
By Major I. Poliakov
CAVALRY OFFENSIVES IN WINTER 46
By Major General M. Smirnov
MOUNTED ATTACK 50
By Major V. Donskoi
RAID OF A CAVALRY SQUADRON 51
By Lieutenant Colonel F. Veloshin
BASIC MILITARY FACTS CONFIRMED ON BATTLEFIELDS 54
MUSTS FOR RECONNAISSANCE LEADERS 56
By Lieutenant Colonel Leo W. Mortenson
REALISTIC RECONNAISSANCE TRAINING 60
By Captain H. V. Douglas
THE TANK COVERING DETACHMENT 62
By Captain William M. Delaney
"TELL THEM WHY" 64
"SMOKE GETS IN THEIR EYES" 66
By Major George O. Gillingham
SOMETHING NEW IN TANK SMOKE 71
By Captain Arthur L. Paddock, Jr.
DO'S AND DON'TS ON TIRE CHANGING 72
CENTRALIZED TRAINING—For the Cavalry Reconnaissance Troop 73
By 2d Lieutenant Ross S. Hadfield
BOOK REVIEWS 74
ANNUAL INDEX 78

Publication date November 20, 1944. Deadline date, next issue: December 10, 1944.

THE CAVALRY JOURNAL IS NOT RESPONSIBLE FOR OPINIONS EXPRESSED IN PUBLISHED CONTRIBUTIONS

Editorial offices: 1719 K Street, Northwest, Washington 6, D. C. Copyright, 1944, by the U. S. Cavalry Association. Publication offices: 1406 East Franklin Street, Richmond, Virginia. Entered as second class matter at Richmond, Virginia, under the act of March 3, 1879, for mailing at special rate of postage in Section 412, Act of October 3, 1917. Terms: Domestic subscriptions, individual and organization, $3.00 per year. Foreign, $3.50 per year. Canada: including War Exchange Tax, $3.50. All subscriptions payable in advance. Single copies, 75c. Extra copies to subscribers, 50c. THE CAVALRY JOURNAL *does not* carry paid advertisements.

1st CAVALRY DIVISION IN PHILIPPINES

Among the troops participating in Uncle Sam's return to the Philippines are units of the 1st Cavalry Division, recent conquerors of the Admiralty Islands. *Above:* Cavalrymen, advancing along a thoroughfare in the village of Pawing, clean out the last of the enemy from the area. *Below:* Cavalrymen cross a water tank trap, one of the many futile barriers erected by the retreating Japanese on Leyte Island to retard the onslaught of American invaders.

1st Cavalry Divison

In the Admiralty Islands

The same troops, whose guidons fluttered westward over the vast reaches between the Little Big Horn and the Rio Grande, now blaze a trail through islands and jungles far across the Pacific

Preparation

DURING early January 1944 the staff of the 1st Cavalry Division convened at Alamo Headquarters to participate in the planning of the invasion of the Admiralty Islands. The first elements of the division which arrived prepared new camp sites, furnished labor at the docks, and underwent meager but intensive jungle training.

Instructions were issued by the commanding general for the staff sections to make a terrain study of the Admiralty Islands, to formulate from all available data an enemy order of battle, to compile logistical data, and to make an estimate of the situation. The commanding officer, 7th Amphibious Fleet was advised and assisted in preparing amphibious training schedules contemplated to begin early in March.

After the GHQ directive was issued for the campaign to take place early in April, planning began in earnest. Frequent conferences were held with the representatives of the fleet and air forces assigned to support the operations. Training became progressively more comprehensive; tempo of the air action became more extensive. The very air seemed to be filled with an effort to outrace time.

Late in February, reconnaissance indicated that areas of the islands were being evacuated, and a radio message implied that the division must be prepared to strike *immediately*. Plans were prepared to make a reconnaissance in force of the Admiralties and to support the reconnaissance force with as many combat elements of the division as available shipping permitted.

Landings

The stage was set and, on the morning of February 29 the curtain was rent asunder by a devastating naval and aerial bombardment of Los Negros Island. The invasion force which landed immediately following the heavy bombardment was comprised of elements of the 5th Cavalry supported by detachments of 1st Cavalry Division artillery, engineer, AA, medical, signal, and quartermaster units. (See Maps 1 and 2, Page 4.)

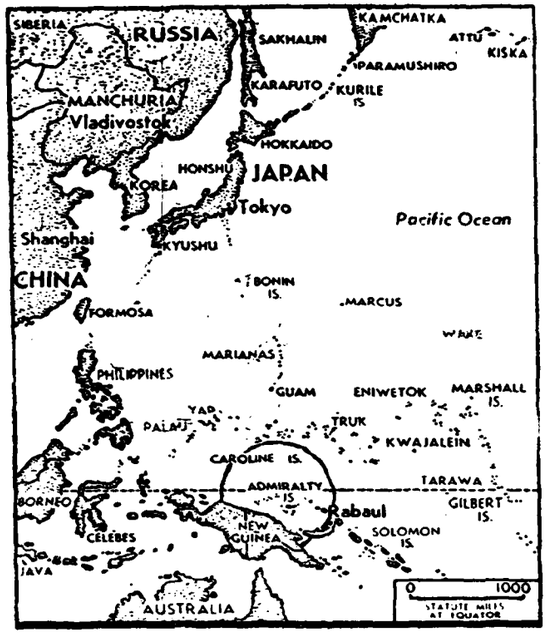
The troops quickly secured a beachhead within Hyane Harbor, easternmost harbor of Los Negros Island, near the end of the valuable Momote airstrip, and received their baptism of fire in what the United Press called "one of the most brilliant maneuvers of the war." Only 750 miles from Truk and 1,300 miles from the Philippines, the Admiralties comprise the one remaining link to be closed in the Allies' ever-tightening chain around the Bismarck Sea. The severance of the only remaining line of supply to Rabaul and Kavieng, those two much-heralded, impenetrable bastions of the enemy's defensive system, left 50,000 "Sons of Heaven" to starve, die or rot.

This masterful strategic stroke, combining perfectly coördinated air, land, and sea attacks, caught the enemy completely by surprise. William Courtenay of the *Sunday Times*, London, states, "They (the Japs) had evidently regarded the prolonged air attacks upon Rabaul as a prelude to invasion there, and turned their backs on the Admiralties. Also, when they began to fear that there might be an attack upon the Admiralties, they concentrated their strength and guns around Seeadler Harbor and the north side of Manus Island, at the former seat of government, Lorengau."

Supporting naval forces of a destroyer squadron remained off-shore during the entire operation and, on call from the forces ashore, delivered devastating barrages. Their support of the ground forces was a very material factor in the success of the operation. During the initial approach, gunfire from the destroyers silenced hostile batteries of machine guns and 25mm guns, which were delivering effective harassing fires against the landing craft passing through the narrow harbor entrance.

Although heavy rains greeted the landing force, casualties were described as "light." Up until midnight no organized enemy counterattack had been offered; opposition was confined to sniping and attempted infiltration through our perimeter.

At the close of the first day, the landing force had secured the beachhead and had seized the Momote Airstrip, including dispersal areas. The assault was



Map 1. Encircled area shows strategic Admiralty Islands. Note relation to Rabaul, Truk, Palau, and Philippines.

suspended in order to establish a defensive perimeter against the numerically superior enemy force. (See Map 3.)

Enemy Counterattacks

On March 1, during early morning darkness, the enemy attempted his first counterattack against our lines around Momote Airfield. Slight infiltration and spasmodic in-fighting occurred all night. In an obvious attempt to drive our forces back from the drome, the Japs made a desperate predawn attack but were repulsed with heavy losses.

Daybreak saw the 5th Cavalry mopping up remnants of enemy infiltration and consolidating its own positions. General Chase's troops were carrying out the instructions of the commander in chief, "You have all performed marvellously. Hold what you have taken, against whatever odds. You have your teeth in him now. Don't let go."

The Japs' second try at cracking our lines gave evidence throughout the night that the fight was on, and that a determined enemy was trying to break through no matter what the price.

On the following day the original landing force was reinforced by the remainder of the 5th Cavalry, landed from LST's on the side of the site of the original beachhead, after enemy positions opposite the American perimeter had been strafed by B-25's flying at tree-top level. The first evidence of the highly propagandized enemy air might occurred when two enemy planes made a sneak raid on the landing beach with no damage or no casualties resulting.

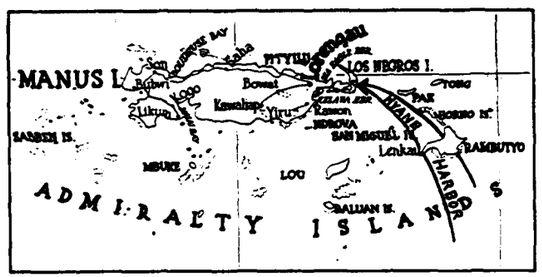
The newly arrived troops, who had been quickly unloaded with equipment and supplies, were briefed on enemy tactics, and prepared to enter the fight. The perimeter was extended to cover the entire eastern edge of the airstrip. During this entire period no enemy naval reaction had occurred. Our destroyers continued to patrol the eastern coast of Los Negros at will and shell targets on call from shore. As the landing ships, which had brought in the reinforcements pulled out, however, they met enemy fire from south of Hyane Harbor entrance.

Jap Night Attacks

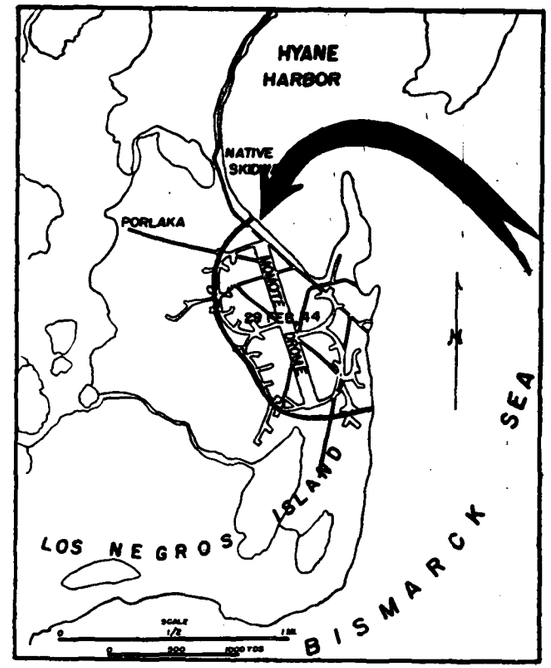
That night repeated Japanese attacks against the North and northwest sector of the 5th Cavalry lines helped add to the enemy's steadily increasing casualties. The Japanese had apparently determined their scheme of maneuver and the sector on which the main attack was to be launched. Repeated failure of their relentless night attacks evidently did not change their minds. They continued hammering away at the same point in a gigantic, all-out effort to break through the perimeter. Their foolhardy, unrealistic determination proved expensive. Their failure was indeed the turning point in the campaign. From that time onward the coördinated attacks of the cavalry drove the Japs backward continually, incessantly, never allowing them to get set, until at the end, the bulk of the enemy force lay prostrate on the field of battle. The scattered, ineffective remnants were left to live like animals in an inhospitable tropical jungle.

Shortly after noon on March 3, supported by a 75mm howitzer battalion which arrived with the support echelon, our forces attacked and extended their perimeter. The extreme western taxiways and revetments of the airstrip, previously the enemy's front line, were occupied by the advancing 5th Cavalry. At nightfall these newly occupied positions formed the outline of an enlarged perimeter.

By midnight the Japanese counterattacked and penetrated the northern sector of the perimeter as far as the airstrip. The defense of this sector had just been assumed by the newly arrived units of the 5th Cavalry.



Map 2. Arrow points to Hyane Harbor, Los Negros, where elements of the 1st Cavalry Division landed February 29.



Map 3. Close-up of Hyane Harbor and Momote Airdrome. Black line is perimeter of defense at close of first day.

Their first night on this isle was a far cry from the storied versions of languid tropical nights bathed in soft moonlight and covered by a peaceful, serene, star-studded sky.

The Jap began to use some of his widely publicized ruses, frequently drawing our automatic fire by catcalls and noises, then attempting to exterminate our positions by chattering machine guns. One desperate charge was made by a force running and singing "Deep in the Heart of Texas," apparently trying to give the impression that they were having a good time. When the shooting was over 100 dead fanatics were counted near one revetment.

During the night, the Japs tried another favorite trick when they tapped the phone wires connecting the mortar batteries with our forward observers. A clear voice in perfect English called, "For God's sake, lift your fire; you're hitting your own troops." Unfortunately for the Jap, the party on the other end of the line was wise to the ruse, and called for an even heavier concentration.

Corporal Bill Alcine, *Yank* staff correspondent, accompanying the 5th in the landing, offers the following story:

"The dead Japs were big men, Imperial Marines, and fresh troops. All were in good condition and well equipped, cool, tough and smart. A large number of them could evidently speak English."

By the early hours of March 4 Japanese night attacks had reached a point of desperation, and our successful defense, especially on the northern sector by that part of the 5th Cavalry which had landed only the day before, obviously left the enemy forces seriously depleted. Following the wild attacks Jap carcasses were piled up three and four deep in front of the cavalry position.

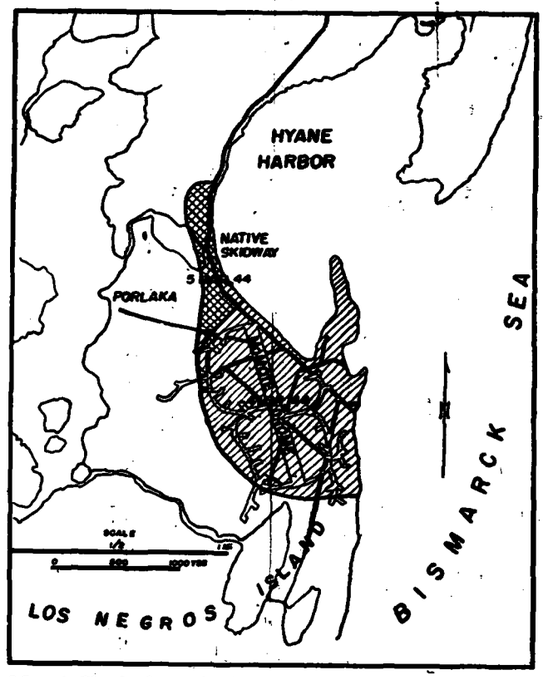
Just before noon elements of the "Gary Owen" 7th Cavalry landed at Hyane Harbor, and were sent immediately to relieve the 5th Cavalry units which had been in combat continuously for 4 days and nights.

Extending the Perimeter

An attack north along the causeway, planned for the following morning (March 6), was to be supported by elements of the 12th Cavalry, scheduled to land early that morning. But the division commander decided that it would be advisable to clear the causeway before the arrival of the 12th for fear the enemy might repair their damaged bunkers during the night and be strongly entrenched by morning. The general thereupon directed an immediate attack to the north, and by dark the ground north and west of the airstrip was firmly secured. (See Map 4.)

Meanwhile, patrols from the 5th Cavalry scoured the extreme southern end of the island and west toward Porlaka in preparation for an attack against the latter place the next day.

Concentrated enemy mortar fire continued all night.



Map 4. Checked area indicates region of attack north along Native Skidway in preparation for landing of 12th Cavalry.

long, but a definite lull in enemy counterattacks in force had taken place. Our forces were now in a position to drive an ever-widening wedge, split the enemy's forces, and effect a clearance of Los Negros.

On the morning of March 6, the 12th Cavalry landed ready for battle and immediately moved northward to pass through forces of the 7th Cavalry advancing toward the Mokerang peninsula. These combined forces succeeded in clearing Salami Plantation and in securing an excellent beach in Seeadler Harbor for the landing of the remainder of the division. This action precluded an unwieldy and perhaps disastrous congestion in the restricted beachhead at Momote. A new base for vigorous offensive action against fortified garrisons was established on the south side of Seeadler at Salami.

A *Yank* staff correspondent gives the following description of the advance over the Skidway for Salami Plantation: "Eager for a fight, the men stormed through the sniper-infested territory, averaged an incredible 3½ miles an hour, arrived at Salami at 1630, and then established a beach where LST's carrying other units of the division were to arrive later."

In the attack to capture a bridgehead at the landing beach on Salami Plantation, the cavalrymen discovered that the Japs had again been taken by surprise and caught with their backs turned. All fortified positions, including machine guns and heavy weapons, strongly dug in, faced toward Seeadler Harbor in anticipation of an amphibious landing. The enemy was unaware of the direction of attack until the cavalrymen had moved in on top of his defenses and quickly wiped them out.

The Japanese battalion, known as the Iwakami Battalion, in position along the Native Skidway, lost 600 of their strength, and the remaining 200 were directed to retreat to Papitalai Mission. Our advancing troops encountered most of the remnants of this battalion, together with about 100 other miscellaneous troops, desperately running into the water in an attempt to reach the Papitalai beach by swimming and using native canoes. So disorganized was their retreat that many of the panicky Japs were frantically paddling their canoes with their hands, not having had time to secure paddles from the beach and from the native huts. No more than 80 of this unit reached Papitalai.

"General Marshall has sent me a message of congratulations on the skill and success of the Admiralties operation, and expressed his admiration for the manner in which the entire operation was handled. He requested that his congratulations be handed on to General Krueger, General Kenney, Admiral Kincaid, and particularly General Swift and his officers and men for the magnificent showing they made in the first fight.

MacArthur."

On their advance west of Momote airstrip toward Porlaka our troops uncovered large stores of equipment and provisions, including quantities of Japanese beer and sake. The beer was quickly disposed of. So was the sake, but in a different manner; the cavalrymen didn't think it very palatable.

As soon as the 5th Cavalry had occupied Porlaka, the Jap positions at Papitalai Village and Papitalai Mission, 500 yards west across the strait, were bombed and strafed by our air units.

The Japanese position there constituted a serious threat to a rapid culmination of the campaign on Los Negros Island. If given time, the enemy could easily render his position, protected as it was on the front by a wide expanse of unfordable water, well nigh impregnable.

Amphibious Landings

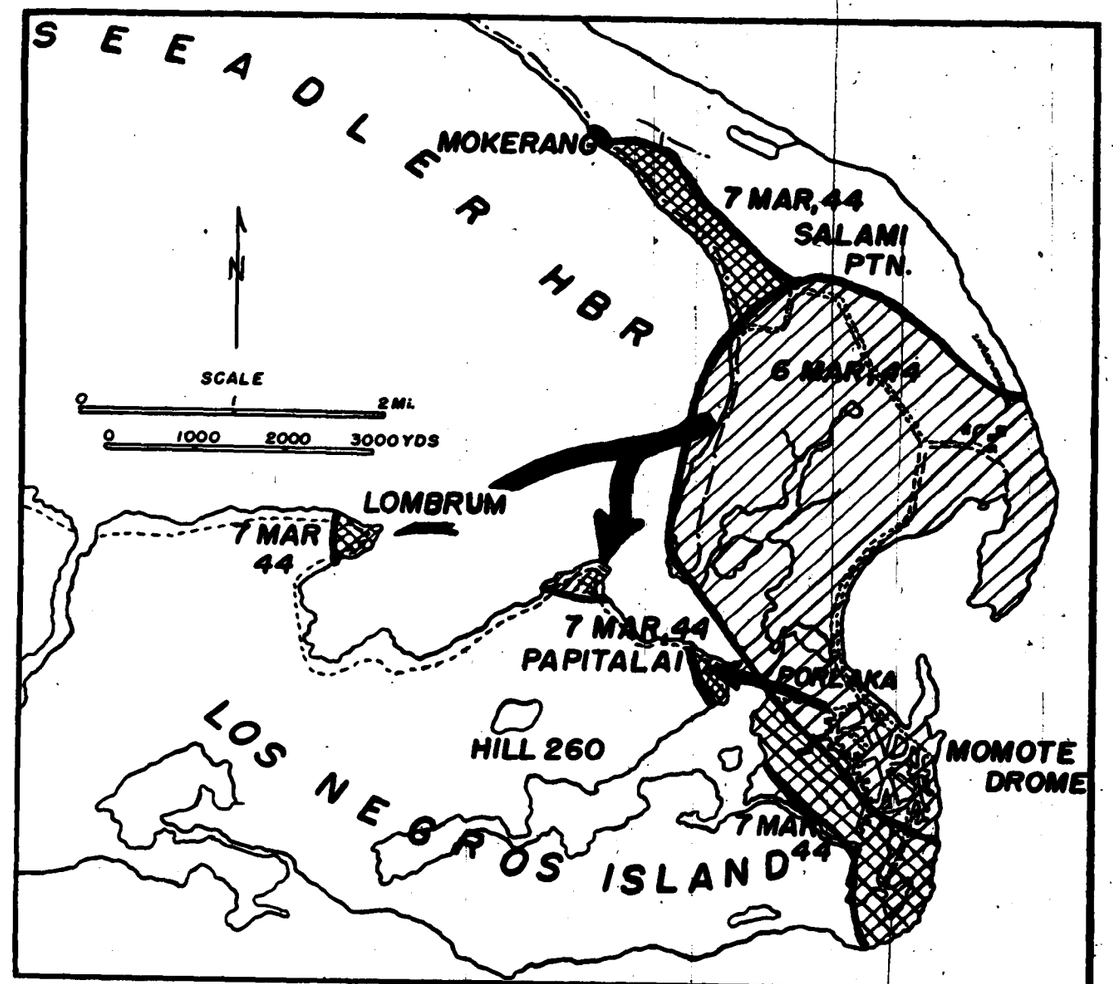
Early on the morning of March 7 a volunteer patrol was dispatched to gain vital information in sufficient time for an attack to be launched before the enemy could reorganize, regroup and deploy his forces to meet it. The reconnaissance force crossed the strait between Porlaka and Papitalai Village in rubber boats, under hostile fire and gained knowledge of the disposition of enemy troops, which enabled us to press our attack successfully. (See Map 5.)

The approach to Papitalai Mission Station was made in amphibious tractors. Upon reaching the beach, an advance patrol located a trench in which an enemy machine gun crew was lodged and, by killing the occupants, enabled the remainder of the platoon to occupy the beachhead without casualties.

Withstanding a severe counterattack, the platoon held the beachhead against a numerically superior force which was striving determinedly to drive the cavalrymen back into the sea. Its ability to hold that line for almost an hour before supporting units could be placed on the shore was the difference between a slow, steady, methodical performance and a brilliant overwhelming success.

Following heavy mortar and artillery barrages, which literally flattened the ground and coconut trees on Papitalai Village and Papitalai Mission, additional elements of the 12th and 5th Cavalry landed from rubber and canvas assault boats. Large quantities of supplies and a well-equipped hospital were captured.

In the afternoon, units of the 7th Cavalry moved over water and occupied Lombrum Point. These actions secured two additional critical terrain features from which the Japs could make untenable the greater portion of Seeadler Harbor and render any landing in the Salami Plantation area extremely costly. The areas now occupied were Salami Plantation, Mokerang Plantation, Papitalai Mission, Papitalai Village, Porlaka, and the greater part of Momote Plantation on the southern end of Los Negros.



Map 5. By end of the eighth day an airfield had been captured, the island cut in half, new beachheads established and Seeadler Harbor secured. Landings at Papitalai and Lombrum were made by elements of 5th, 12th and 7th Cavalry.

Mopping Up

The following day our troops advanced 800 yards west of Papitalai in their drive to mop up the remaining Japanese strong points on the island. Daylight operations consisted mainly of patrolling, while intermittent enemy attacks occurred during the nights. Mortars and artillery concentrations were constantly placed on enemy positions located by the patrols. Large numbers of enemy dead, evidently from this supporting fire, were found. Strong opposition was met by one patrol attempting to reach the high ground commanding Papitalai Mission but the rate of enemy casualties continued to mount.

The enemy's disorganized retreat under heavy fire during the next several days degenerated into a rout and the cavalry had an opportunity to consolidate the territory now occupied and disperse patrols in all directions. Large dumps of Jap food and equipment, abandoned intact west of Papitalai, indicated his hasty withdrawal. The first prisoner of the 1st Cavalry Division's campaign in the Admiralties was captured in this area by a reconnaissance patrol.

In order to intercept the Japanese retreating westward from Papitalai, elements of the 7th Cavalry pushed inland from Lombrum Plantation.

On March 9 the commander of the 1st Cavalry Division watched the "grand opening" of Seeadler Harbor, as a convoy of LST's, escorted by men-o-war, glided through the northern channel to the harbor. Aboard these ships were the remaining units of the 1st Cavalry Division, prepared to finish the conquest of the Admiralties.

(Next issue: Conquest of Manus Island.)

Employment of Cavalry Assault Guns

by Lieutenant Colonel Paul L. Bur

ACTUAL experience has shown that judicious use of both advocated methods of employment will invariably prove the value of the M-8 assault gun in terrain ranging from close-packed hedgerows and narrow sunken roads, to open plains and rolling hills. Instances cited are presented for illustration only. The conclusions are for the reader.

Direct Fire Employment

In this organization, when the situation is fluid, assault guns and tanks are most often employed in close support of the reconnaissance troops. Under these circumstances, one platoon of assault guns and one platoon of tanks is normally attached to each of the reconnaissance troops. The assault guns are employed in the main for direct fire at targets of opportunity on the respective troop front rather than as a mobile pool for indirect fire in general support of the squadron. In this manner, timely fire power of the assault guns is immediately and always available to the units which need it most.

Conversely, the vulnerable assault guns are provided with security through their proximity to the reconnaissance elements which they support. In many cases, it is this margin of fire power which can and does break a stalemate and turn the tide of battle. How well this theory works in practice is evident from the following illustrations chosen at random from three consecutive days of activity.

September 6:

1st Platoon (2 M-8 tanks with 4-men crews), attached to squadron headquarters, used covering fire methods in the vicinity of Rienne, Belgium, and by direct fire caused heavy casualties among foot troops.

2d Platoon, attached to Troop C in the vicinity of Louette St. Pierre, Belgium, engaged a German Panzer Kw VI (Tiger) tank with direct fire at 2,800 yards. One assault gun, covered by the second, blew off a track with the first HE round and registered a direct broadside hit with the second round—an HE AT shell. This latter round set the Tiger tank on fire, causing it to blow up within a few minutes. Similar tactics were employed later in the day in the vicinity of Gedinne, Belgium. In this case, an enemy half-track personnel carrier was observed just as it pulled into position. Two enemy crewmen, engaged in camouflaging the vehicle, were destroyed with the vehicle by the assault gunfire.

While attached to Troop A in vicinity of Membre, Belgium, the 3d Platoon took up a direct fire position under cover of darkness on the crest of a hill overlooking an enemy 150mm rifle position previously located by a Troop A reconnaissance patrol. At first light, one assault gun fired on the position while the second gun covered. Infantry, moving through the position later, found 38 dead, a number of wounded, and the enemy gun and a half-track vehicle behind the gun position completely demolished.

September 7:

The 2d Platoon, while attached to Troop C, covered roads leading to and from Our, Belgium, while a reconnaissance platoon moved in to reconnoiter and outpost that town. An enemy self-propelled 57mm gun and half-track vehicle were destroyed by direct fire at 1,800 yards when observed approaching the town from the opposite side. In the vicinity of Maissin, Belgium, identical tactics were employed. Here, both guns opened direct fire on two heavy ration vehicles and a third, smaller enemy vehicle. During this action, 6 Germans were killed and three were captured as a direct result of the assault gun fire.

The 3d Platoon was outposting Troop A command post in the woods along the main road leading out of Paliseul, Belgium. The town was under mortar fire and a platoon of Troop A plus an infantry complement was moving on the next town. The assault guns changed position to engage two enemy half-track personnel carriers moving into the town from another direction. Both of these vehicles were destroyed by direct fire at 100 yards. There were many observed enemy personnel casualties. One enemy self-propelled 150mm gun, attempting to move into Paliseul through a back trail was engaged with direct fire at 300 yards. A direct hit on the recoil cylinder of this gun knocked it out of action and forced its crew to abandon it.

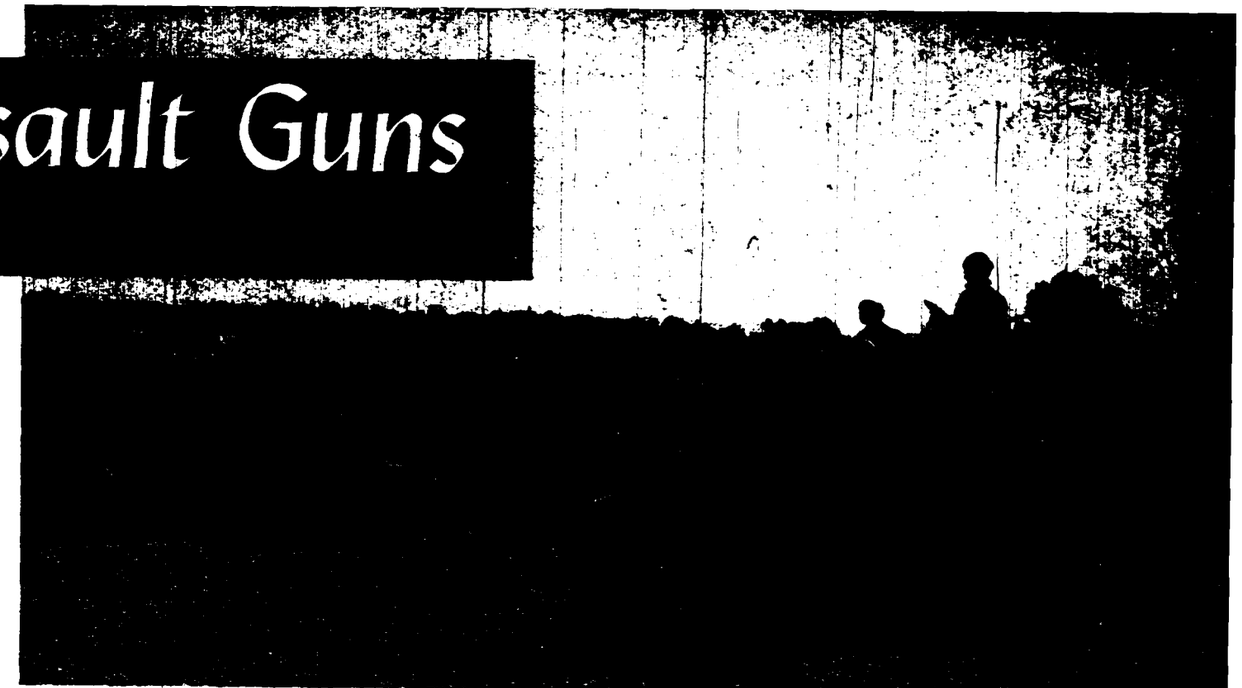
September 8:

While the 1st Platoon was attached to Troop C, during an advance on the village of Villance, Belgium, the reconnaissance elements were halted by heavy mortar fire. Locating the enemy observation post on the crest of a hill, the assault gun crew immediately opened fire and knocked it out. The mortar fire ceased and the platoon was able to move on. This was repeated on the other side of the village when the same assault guns knocked out an enemy machine gun nest so that the reconnaissance elements could again advance. Later, on the same night, elements of Troop C were stopped by a road block, with covering enemy fire by bazooka, machine gun, mortars, and artillery. Our assault guns laid direct fire at enemy gun flashes. This counter fire permitted the reconnaissance elements to withdraw safely. Next morning, infantry and reconnaissance elements in that area found 4 destroyed enemy half-tracks and 11 enemy dead as the result of the 75mm fire of our guns.

*Executive officer, "X" Cavalry Group (Mecz), Western Europe.

"X" CAVALRY GROUP (MECZ)

How can cavalry assault guns be employed most effectively against the enemy? Answers to this question produce two schools of thought from officers of "X" Cavalry Group—the "direct fire" and the "indirect fire." Both theories are equally justified by results achieved in continuous combat with the enemy in Europe since June 6.



Signal Corps Photo

Members of a cavalry reconnaissance unit move their M-8 assault guns into position to fire on retreating Germans near Heure-La-Remam, Belgium, only one and a half miles from the Netherlands border. Picture was made September 9.

Advantages of Indirect Fire

Although the assault guns may be employed very effectively for direct fire, certain of these "direct fire" missions can be accomplished as well by indirect methods of fire, with a great deal less risk to personnel and equipment. Points in favor of employment for indirect fire are:

1. The entire fire power of the assault gun troop may be brought to bear on a single target.
2. The assault gun troop is able to cover and support the entire squadron front and possibly its flanks.
3. The guns are not exposed to enemy fire and observation. (Counter-battery fire on this front has been neglible against this type of self-propelled artillery.)
4. The guns are able to repel enmasse any sudden threat on the squadron front or flanks.
5. Indirect artillery fire gives a distinct psychological advantage to the user. It breeds confusion, fear and panic among enemy troops because they cannot see what is shooting at them and consequently cannot combat it instantly.

Employment of Indirect Fire

In this organization, normal employment of assault guns for indirect fire missions consists of placing the 6 guns of the troop in battery position in support of the entire squadron. Radio communication directly between the reconnaissance platoons and the assault gun troop can be established on the channel frequency of the assault gun troop. In this manner, reconnaissance platoons request supporting fires direct from the battery and the reconnaissance platoon leader acts as the forward observer.

When the advanced elements of the squadron have moved out almost to the effective range limit of the guns, one platoon of two guns is sent forward several thousands yards to take up a new battery position while the balance of the troop remains in position, supporting the squadron. The remainder of the troop follows as soon as the forward platoon is in position. Excellent results have been obtained by using this leapfrog method. Some examples follow.

On July 10 in Caumont, France, the forward observer (platoon leader) reported a tank and personnel moving along a road. A concentration was fired with direct hits on tank and personnel. Casualties were caused and the tank was halted. An infantry patrol in that area the following night reported that the tank had been knocked out and burned.

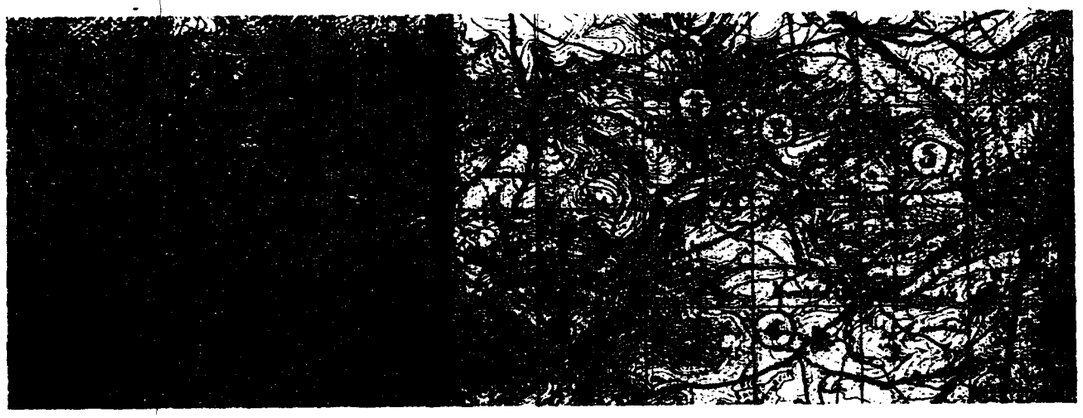
On July 26 in St. Pierre le Semilly, France, the troop in battery position fired preparation for and supported a dismounted cavalry attack on St. Pierre le Semilly in the break-through from the beachhead in Normandy. Hedgerows were the dominant terrain features. HE superquick and tree bursts were used for the preparation fires. Light tank sorties were supported by time fire. In the afternoon, attacking forces were pushed back by a German counterattack. Heavy WP fire was placed so as to blind and burn the enemy. This enabled the attacking force to reoccupy the hedgerows and road. Dead Germans—17 found along hedgerows, 5 along the road, and 3 in the village; 7 wounded evacuated through division aid station: and a large number of dead Germans evacuated by their own troops before the village was taken—indicated the effectiveness of the fire. The bodies of many of these casualties had been hit with shrapnel or burned by WP.

On July 27 in St. Pierre le Semilly, France, the forward observer picked up an enemy column entering a wood. Fire was adjusted on the column. Direct hits were observed on two half-tracks, one cargo truck, and one command car. A column of personnel observed leaving this same wood toward the front also received direct hits which caused casualties. Effects of a further concentration on the wood itself could not be observed.

On August 3 in Etouvy, France, the 3d Platoon laid a smoke screen to prevent the enemy from observing the effect of his 88mm fire on the squadron during the attack on Etouvy. No vehicles were lost after the screen was laid. Shortly thereafter, a friendly artillery observation plane dropped a note tied around a wrench, giving the coördinates of a self-propelled gun which was firing on the squadron. Fire was placed on this location without observation. The gun was later reported to have been knocked out. Fire was also laid on other known enemy gun positions but the results could not be observed.

On 5 September in Hargnies, France, two reconnaissance troops, one platoon of medium tanks, and one assault gun troop (less one platoon) attacked the town of Hargnies which contained a complement of between 300 and 500 known enemy SS troops, reinforced by 4 or more tanks and self-propelled guns. Terrain was not suited for a mounted attack. The only avenue of approach was down a road containing a mined road block which had stopped a medium tank. These circumstances prevented the use of direct fire. The assault guns were placed in battery position near the top of a hill to the west of the town. Though the only map available at the time was of 1/250,000 scale, the town was shelled by the assault guns and the enemy driven from it. Two enemy tanks were also driven by this fire from positions defending a road block near the town. One of these tanks, firing into the woods over squadron personnel, had been obtaining tree bursts and causing serious casualties. Additional fire from the assault guns drove 50 enemy from a road block on the far side of the town and allowed a reconnaissance troop to enter the town from that side. Casualties were observed from the observation post, but it was not possible to determine them exactly because many were evacuated by the enemy before the town was taken. Net result of the assault gun fire was that the squadron succeeded in occupying the town after dark and was able to move on through it after daybreak.

On 9 September at Champlon, Belgium, while the squadron was advancing to the west from St. Hubert, the assault gun troop (less one platoon) arrived in the vicinity of Champlon. Here word was received that the first platoon of a reconnaissance troop (reinforced by one platoon of light tanks) had been cut off and the enemy was closing in on its position. The reinforced platoon had already lost one light tank. The assault guns immediately went into battery position and opened fire, with the platoon leader of the endangered platoon adjusting the fire. The attack was driven off. Two tanks and a personnel carrier were driven out of town to the platoon leader's front. Direct hits were obtained on enemy infantry to his rear, causing casualties and driving them to the northeast. Additional hits were observed in a concentration of enemy transport in a wood to the south. Thirty enemy vehicles were seen leaving the wood after the shelling.



The back of a jeep serves as a desk for these officers of a cavalry reconnaissance unit as they determine the placement of their M-8 assault guns for firing on German positions "somewhere on the continent," September 9.

On 14 September, south of Manderfeld, Belgium, the outposts of a reconnaissance troop reported a platoon of enemy infantry digging in on a hillside above their outpost line. Fire was brought to bear on the target and the enemy was driven over the top of the hill. Observation was very bad because of fog, but 6 or more casualties were seen.

On 25 September at Manderfeld, Belgium, a reconnaissance troop outpost in front of the Siegfried Line observed a platoon of enemy in the vicinity of some houses. Fire was adjusted on the position. Those enemy not hit, took cover in one of the houses. Additional direct hits were observed on the house. In all, 9 casualties were observed. [Positions of battery (Point 1), observer (Point 2), and target (Point 3) are shown on accompanying map.]

On 27 September at Manderfeld, Belgium, an outpost of a reconnaissance troop observed a large enemy patrol forming near a small wood and a haystack. A concentration fired on the patrol caused a number of observed casualties, set fire to the haystack, and disclosed a camouflaged vehicle which was also destroyed. [Position of battery (Point 1), observer (Point 4), and target (Point 5) are shown on accompanying map.] This same outpost adjusted fire upon a house where enemy were seen. Two direct hits were obtained. Stretcher bearers made 7 trips from the building.

Assault guns have returned generous dividends throughout their employment in attack, defense, and pursuit. Their true value may be measured by the fact that they have never been idle during this campaign.

Mechanized Cavalry Retains Tradition of Slashing Advance

by LEWIS HAWKINIS
Associated Press War Correspondent

WITH THE 3d ARMY IN FRANCE, Nov. 1 (Delayed).—Overtaken from the rear by the front line, a group of grounded cavalrymen are fighting a foxhole war here for the first time.

This is the 2d Cavalry Group, the unit which made a story-book dash across France and always moved so fast it never had to dig foxholes.

The group evolved directly from the 2d Cavalry Regiment, which rode first in 1836. While the horsemen of those days would gape in amazement at today's armored cars and jeeps and light tanks, they would applaud the skill of these youngsters in the use of the cavalry's traditional weapons of speed and surprise.

Since it wheeled into action August 1 as a reconnaissance spearhead for the 4th Armored Division in the break-through at Coutances, the 2d Cavalry Group has traveled 160 miles some days and almost certainly has killed 6,000 Germans and taken more than 1,500 prisoners, although it has no means of handling large numbers of captives.

Against the awesome destruction piled on the Germans, the 2d's own losses have been fantastically small. Up to a few days ago its dead numbered fewer than 40 and only 18 were missing.

Units of the 2d were on the Loire River three days after the Brittany break-through, and among towns they reached first were Vitre, Toul, and Luneville.

The odyssey, which ended in a bitter but successful struggle to hold Luneville against a counterattack led by German Tiger tanks September 18, brought the group 25 Bronze Star and six Silver Star awards for bravery and there are that many additional recommendations now pending.

Reading through the thick sheaf of pending and approved awards and talking to the men whose feats they describe, it is easier to understand their lopsided victories.

Take the case of Staff Sergeant Edmond Testa. He was acting as sergeant for a platoon of armored cars and jeeps and more than a score of men on outpost near Bar-sur-Seine one evening. First they knocked out a gun crew, killing one, wounding two and capturing three. Then they killed two motorcyclists and with a single searing volley killed all but three of 25 Germans in a half-track. Sergeant Testa then moved his little band toward his command post at Chaource only to run into a long enemy column.

This presented a problem which he solved in typical fashion. His own description was:

"I ordered my platoon to open fire with all guns, and we raced down the road pouring it into them at 40 miles or more an hour. The column was at least 3 miles long and we went its whole length, killing at least 100 Germans and knocking out 10 vehicles for sure. They were shooting at us with everything from rifles to 88s, but they were so surprised and we moved so fast they couldn't do much."

Sergeant Testa and his men hid out that night in enemy territory and returned to their own outfit the next morning. His casualties were two wounded.

Reconnaissance in Normandy - -

"Y" Cavalry Reconnaissance Squadron (MECZ) June 6–July 1

IN the early predawn of June 6, four enlisted men, each armed with only a knife, swam to what was supposedly an enemy-held shore on two small channel islands, four miles east of the Cotentin Peninsula, Normandy, and marked the beaches for the landing of a reconnaissance detachment. They were the first American soldiers of the ground forces to land in France on D Day.

At H minus 2 hours a detachment from "Y" Cavalry Reconnaissance Squadron followed these men ashore and investigated the islands. No enemy was encountered, but the islands were found to be heavily mined. Initially, the detachment was slowed up by the mine fields, but despite casualties and the uncertainty as to the presence of the enemy, the unit had all elements ashore and the islands fully occupied by H minus 1 hour, and dispatched the first message to corps headquarters from ground troops.

The detachment held the islands until noon of the following day when it was relieved by an AA unit. The reconnaissance unit then proceeded to its main beach and reported to corps CP in the vicinity of Audouville La Hubert, where it provided local security and patrolled for snipers.

On D plus 10 the remainder of the squadron was landed, and dismounted patrols were immediately dispatched to report enemy dispositions in the vicinity. These patrols infiltrated through German positions and far to the enemy rear to obtain necessary information upon which subsequent operations depended. One patrol (dismounted) infiltrated through German positions as far north as Valognes in one night and returned the following morning to report important information concerning enemy installations between Montebourg and Valognes.

Battle of Rocheville

The squadron's next assignment was to reconnoiter the zone between two adjacent infantry divisions and to maintain contact between them on the advance to the corps objective. From the village of Nehou, one group advanced northwest and one due north. The advance was continued rapidly until leading elements were exposed to hidden enemy artillery, mortar, and small-arms fire. A dismounted reconnaissance disclosed what was believed to be the principal enemy delaying force, estimated as a reinforced platoon, with 2 AA guns, occupying positions on the edge of and in the village of Rocheville.

A coördinated attack soon reduced the enemy to impotence, and resistance was wiped out. That evening a company of friendly infantry moved into the town.

It had been the first pitched battle for the assault troops of the squadron, but they conducted themselves exceptionally well—fighting from building to building, and wiping out all enemy encountered. During this action, one lieutenant not only led and directed the employment of his tank platoons from the open turret of his tank but, entirely disregarding enemy small-arms fire, sprayed enemy occupied buildings and positions with the AA .30-caliber machine gun mounted on the turret of his vehicle.

Dismounted Attack

Two days later, while still in Rocheville, the squadron was attached to an infantry division, with the mission of occupying high ground near les Flagues for the purpose of protecting the division flank. On its approach march, the rear of the column came under enemy small-arms fire. This fire ceased when vehicular .30 caliber and .50 caliber machine guns opened up.

The advance proceeded until the lead elements encountered a road block covered by antitank guns, rockets, and small arms. Preliminary attempts at reducing this obstacle were repulsed, and the troop in assault was forced to withdraw.

The squadron then withdrew to the south in the vicinity of Breuville, from which place it prepared to attack dismounted and seize the high ground near les Flagues. After the artillery preparation the attack jumped off at 1630, with the squadron commanding officer leading the dismounted personnel of Troops "A" and "C". By 1730 the objective had been overrun in the face of heavy fire from small arms and mortars.

Patrols

Shortly after dark the squadron was ordered to relieve an infantry battalion in position and from that position protect the left flank and rear of the division in its assault on Cherbourg.

Anticipating a delay in the relief of dismounted elements of the squadron, the group commander assembled the reserve troops, "E" and "F", and marched them to CR 022198 via les Pieux and Vasteville in order to avoid a late start on the new mission. Relief of the dismounted elements of the squadron, which was to have been accomplished by midnight, was completed at 0600 the morning of June 21. They then marched at once to rejoin the rest of the squadron at CR 022198 and arrived there at 1000.

The squadron commander and the squadron executive officer made a personal reconnaissance of the prospective position, contacted the units to be relieved, and planned the actual occupation operations. These positions near Vasteville were occupied for about 8 days, during which time mounted and dismounted patrols were sent daily into and behind the enemy's position.

The following are examples of the patrolling during this period:

One patrol, reconnoitering toward Beaumont Hague, penetrated the enemy's position and located three artillery pieces which had been shelling the squadron's position.

Another patrol led by a lieutenant threaded its way through mine fields, penetrated, and passed through the enemy's lines, and established an observation post and listening post adjacent to the Ste Crox-Beaumont-Hague highway, then being used extensively by the enemy. The lieutenant spent three days and nights in this position, the last two of which he spent alone after having sent back information of enemy movements by all other members of his patrol. The lieutenant, a replacement officer, and his patrol, which consisted primarily of newly joined replacements, were commended for their initiative and the manner in which they immediately contributed to the successful accomplishment of the squadron's mission.

An armored car patrol led by a sergeant had its car overturned when it struck several enemy mines. The sergeant lay for the remainder of the day suffering with two badly mangled feet. The following morning he crawled toward his lines a mile away, when he finally reached friendly troops.

Flank Guard

The squadron next received the mission of advancing on the left flank of the division by assaulting to the northwest abreast of the leading infantry regiment from the vicinity of l'Epinette along the axis-l'Pinette-Rue de Peaumont-Bouchard-Camp Romain. The objective was to eliminate enemy resistance in the Cape Hague Peninsula subsequent to the fall of Cherbourg.

At 0600 June 29 two troops of the squadron advanced on Objective 1 (see map) which they occupied with no opposition other than enemy artillery and mortar fire. On Objective 1, contact was established with the infantry on the right flank of the squadron zone.

Patrols were dispatched immediately to Objective 2 where they drew enemy artillery and small-arms fire from Objective 3. During the day these patrols were reinforced to the strength of two platoons, and they were able to locate several enemy gun positions on Objective 3, against which they directed artillery fire. By dark the division had partially occupied the high ground south and southeast of Beaumont Hague, and all elements of the reconnaissance troop had reached Objective 2. Patrols which were sent to Objective 3 brought back 76 prisoners.

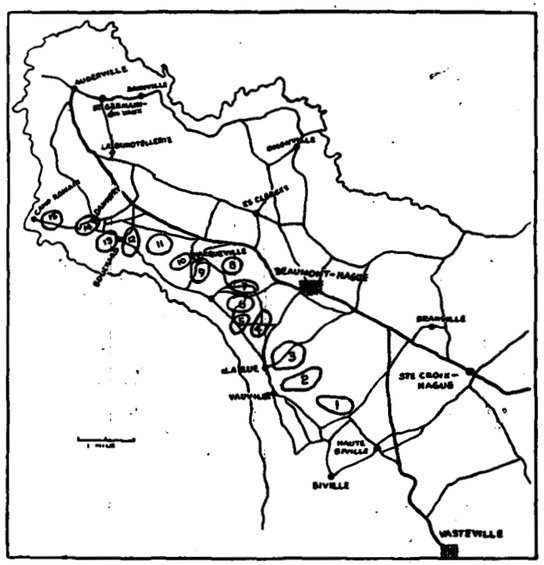
The mission of the squadron remained the same for June 30: namely, protect the left flank of the division by seizing successively Objectives 3 to 15 (see map) as the division advanced.

At 0700, after a 15-minute artillery preparation, the dismounted elements of the squadron attacked Objective 3 in column of troops. Friendly artillery, continuing to fire on Objective 3, pinned the enemy down in his position, which was a strong one, and thus facilitated the success of the attack. Enemy resistance was eliminated and over 200 prisoners captured. The position was consolidated; mopping up continued until noon.

An excellent OP was established on Objective 3 from which observers directed very effective artillery fire onto the enemy retreating on Objective 4.

Against only scattered enemy resistance, the advance to the northwest was continued to Objective 8, where the squadron was temporarily pinched out by the infantry moving almost to the coast in preparation for its attack on Herqueville. As this attack moved out, the squadron continued its advance to Objective 11 where it arrived just before dark.

After dark the squadron continued to the village of Thiebot, captured 19 Germans, and occupied the village until daylight July 1. Then in a dense fog the advance was resumed toward Objective 15.



Further assaults on succeeding objectives was consummated with little organized resistance, and the squadron assembled in Bouchard with light casualties and a long record of successes.

The squadron did not confine its operations exclusively to land and sea but also had a troop function in an attached rôle with an airborne division in the initial assault. As a result of several successful combat missions many prisoners were taken, and many casualties were inflicted. One platoon distinguished itself particularly when it surprised an enemy column on the march. Firing all vehicular and individual weapons, the platoon ran down the column and killed several hundred of the enemy, while its own casualties amounted to only one man wounded. The remainder of the time that the troop's attachment was effective, however, its activity was confined exclusively to reconnaissance.

"Z" Cavalry Reconnaissance Squadron (MECZ) July 7-10

On the evening of 7 July the "Z" Cavalry Reconnaissance Squadron (Mecz) crossed the Vire et Taute after the engineers had put in a bridge, and the squadron, followed by group headquarters closed along the trail just south of the bridge and leading to the vicinity of Goucherie.

The mission of the cavalry group was as follows:

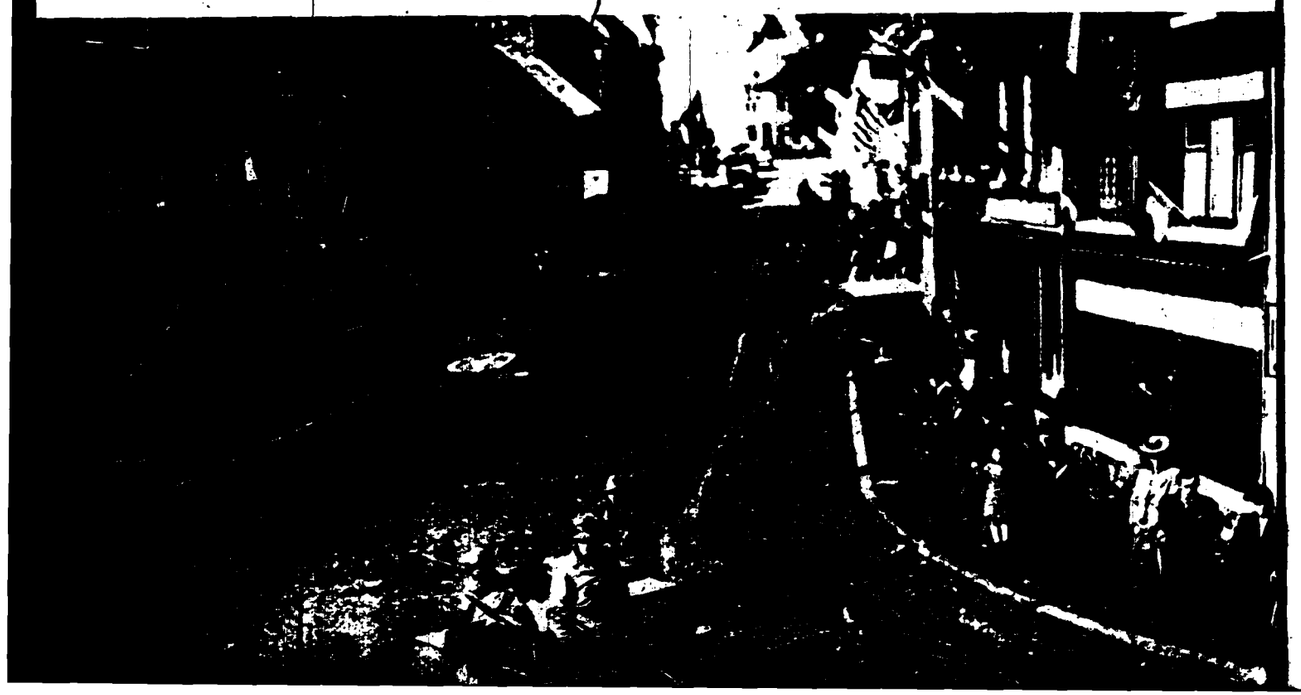
Relieve an infantry division in its zone on corps order, occupy and defend the zone, and on corps order cross the Vire River and/or Vire et Taute Canal; move to the right flank of the infantry division; destroy and capture the enemy in the vicinity of Graignes to the canal; maintain contact with the division, and establish and maintain contact with the corps. This mission in effect placed the group between the left flank of the corps and the right flank of the infantry division.

The squadron in the lead was supposed to move rapidly over the trail in the vicinity of Goucherie. This road, however, was in terrible condition. In some places mud was four feet deep. The squadron moved out in order of march with an advance guard of one light tank and assault gun, followed by a reconnaissance platoon. Because of terrain conditions, the entire unit was forced to move in a solid column; it was possible to leave the road only by demolition on hedgerows or by using openings through the hedgerows to get into adjacent fields.

The column had moved but a short distance when it ran up against an enemy platoon with light automatic weapons entrenched, but was dislodged by use of assault gun, 37mm canister, which was very effective.

Light tanks left the road through hedgerows (after demolition had been executed on the hedgerows) and

A Reconnaissance unit passes through Theux, Belgium. Belgian flags are hung in welcome.



moved in on the flank of the enemy position. Reconnaissance platoons attacked dismounted along the hedgerows covered by the fire of the mechanized vehicles.

Several similar actions took place during the march to the vicinity of Goucherie. The squadron closed late in the night of the 7th in the "er" in the word Goucherie. A 75mm enemy gun was discovered in this vicinity and was knocked out by firing canister from tanks which were later supported by assault guns. Available information regarding the enemy at that time was that the line Sur-le-Mont-Graignes was occupied by poor class Todt troops, with most of the SS 38 Panzer Grenadier Regiment in the le-Mesnil-Angot area.

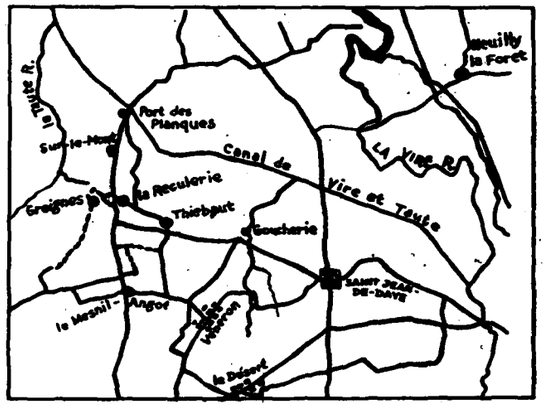
At 0700 on July 8 the squadron moved to the attack on Goucherie. Attack was made dismounted by the reconnaissance troops with Troop A, with a squadron of engineers attached, and reinforced with tanks and assault guns forming a base of fire. Troop C moved in on the south flank of the town with machine guns, mortars and using 510 radios. Troop B was held in reserve. On the south flank Troop C encountered determined and strong resistance, but eventually drove the enemy out and entered the town shortly after Troop A. Eight prisoners were captured, 5 enemy killed and two enemy machine guns, rifles, pistols and other equipment were captured. During this attack corps artillery furnished supporting fire.

Upon entering the town Troop A consolidated its position, while Troop B then mounted up in its vehicles and moved around through St. Jean De-Daye to Goucherie and pushed on west to just east of Thiedaut. Although its advance was opposed by a company of the 38th SS Panzer Regiment, Troop B killed 70 Germans, wounded 55; they suffered in turn one seriously injured and one wounded.

In the afternoon Troop A received a heavy counterattack by dismounted enemy supported by 75mm antitank guns and flame throwers. Forced to fall back, the troop experienced much difficulty in moving their vehicles to the rear and were closely followed by the enemy. Troop B was pulled in to help on the right flank. After Troop A had taken a position just south of Goucherie the attack was stopped and the enemy withdrew.

Meanwhile Troop C had been brought into town to await orders. About dark the group elected to take position along a creek running north and south through Goucherie to carry out the mission of protecting the flank of an infantry division. Troop C, left in town with the engineer platoon, was bothered greatly during the night by the action of enemy snipers, who were extremely difficult to locate and get out of the way during darkness.

Early in the morning of July 9 the group was attached to CC "B" of an armored division with a mission to hold the line just west of the north and south road through Goucherie, with reconnaissance to a line a mile and a half to the west to cover the crossing of elements of the



9th Division. This mission was performed successfully. Only small dismounted enemy groups were encountered and driven out by the action of the small dismounted units supported by tanks and assault guns.

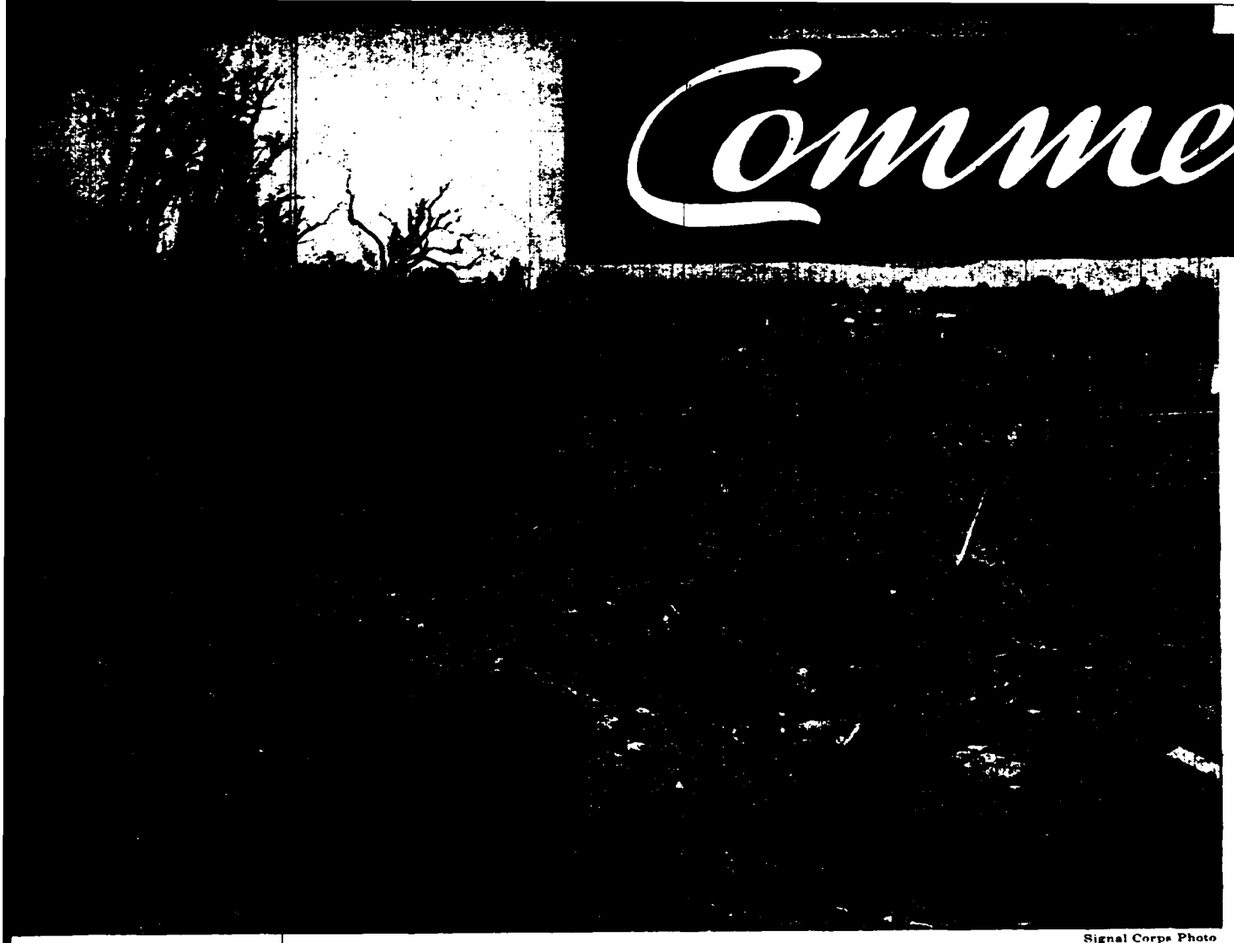
Late in the evening the group was attached to the 9th Division. At 1630 orders were received for the group to move to the north and south line through le-Mensil-Angot and then move north to seize the bridge at Port des Planques. The attack, to be launched at 1800, was to be supported by a medium tank company from the armored division. Troop B, reinforced by one light tank platoon, one medium tank platoon and one squad of engineers was to move along the road, while Troop A, with the same reinforcements as Troop B was to move north of the road.

Troop B's move on the road west from Goucherie was stopped by two well organized enemy companies. Troop A was able to push on to la Reculerie. Late in the evening the enemy blew up an antitank gun; sniper activity completely ceased; and some movement was observed in the enemy rear. It appeared that the Boche was going to withdraw.

The morning of July 10 the squadron again moved out optimistically. Troop A sent a strong patrol, reinforced with a tank section and assault gun section to the north, while another patrol, similarly organized reached a point just north of Graignes, where it ran into friendly artillery and was forced to retire.

At about this time the enemy launched a counterattack from the southwest, followed later by an attack from the west supported by 4 or 5 antitank guns. The enemy attacked with two companies of infantry with many automatic weapons and mortars. Part of Troop B became isolated at the town of Thiebaut, which forced Troop A to take up a position just north of Thiebaut. During the intense fire fight, which lasted for 30 minutes at extremely close range, Troop B fought and held. The situation was looking bad when an infantry regiment arrived and attacked with two battalions. The advance was then pushed forward to the original western objective.

Comments from Combat



Signal Corps Photo

Vehicles of an infantry division move through the ruins of St. Lo, France, July 29, 1944.

"Normandy, Brest and the Present"

From "Q" Cavalry Reconnaissance Troop (Mecz)

Captain Edward G. Jones, Jr., Troop Commander:

LEADERSHIP is really the key to it all. As a leader you must make sure that orders are carried out to the letter.

Special attention to details is very important. When a unit goes into operations, it should not let down on these things; if anything, it should place more emphasis on them. During operations, troops are not always active; there are periods when nothing is going on. Unless things such as appearance, wearing of equipment, care of equipment and vehicles are stressed, there is a tendency to relax and not uphold the standards previously taught.

Training in tactics, employment of weapons, and the policy of having everyone in the organization know the other man's job are not only sound in principle, but absolutely essential in battle. Enemy fire is no respecter of persons. If a radio operator is hit someone must take over immediately. The same applies to drivers, gunners, or leaders.

While training is very important, if men do not practice conservation of matériel and equipment—in fact, supply discipline—then the training is no good. It would take a QM regiment to haul replacement stocks to one careless troop. It has often been said that there is no accountability in combat but any loss or damage to equipment because of carelessness will mean someone's life. That is the only accountability. It is the duty of all leaders, down to and including the squad leader, to make this point clear. If equipment is damaged, salvage it; if equipment is found, turn it in or put it where it will be found by the follow-up troops.

Inasmuch as communication is the spine of a reconnaissance troop, all personnel should have a reasonable working knowledge of the organizational radio sets. This troop was so trained prior to entering operations and it was found that such training paid dividends in battle.

The German is still making the best possible use of terrain, camouflage and observation. Furthermore, he is now fighting in his own "backyard." He knows the ground, and too, he is fighting for his own home. The tendency, therefore, is for him to fight harder than ever.

1st Lieutenant Henry Strickland, Communication Officer:

In general, communications in this troop have been good, and very little time has been lost on repeats.

The question of a quick flexible code for reconnaissance elements has been quite a problem. By using a separate base plate from that used by division the slidex method proved very successful. The M-209 was found to be entirely too slow and caused delay in traffic.

Whenever two or more radio units are mounted in the same vehicle, a minimum component parts list should be specified. It was found that the combination of two large radio sets in an M-8 constituted excessive equipment and required a necessary reduction.

Rainy weather in France caused a break in communications; transmission was out about one-fifth normal distance.

In training of radio operators, more stress should be placed on practical common-sense repairs, which could be performed by the operator himself. Too many times an operator knows how to pound brass and give the correct procedure but is completely lost on simple repairs to his equipment. This applies especially to reconnaissance and tank units out in front of division.

1st Lieutenant William S. Murdoch, Platoon Leader:

All cavalry replacements should have training in the removal of mines.

With almost no exceptions, it has been found that the enemy is very free in his use of Teller mines. Whenever he withdraws he leaves most roads and trails mined. These mine fields are of various patterns, and about one-fourth of the mines laid are booby trapped. Most mine fields are easily spotted because of the enemy's haste in laying them. The fastest and safest way to remove mines is to pull them with long ropes.

Several M-8 armored cars have run over Teller mines, but with the protection of the armor plate on the floor very few casualties have resulted; whereas, if this protection had not been added it is felt that hitting mines would have caused a great many more casualties.

1st Lieutenant Clarence Gebhardt, Platoon Leader:

Inasmuch as a reconnaissance platoon operates quite often by sections, usually in front of or in between all other troops, every man must know and carry out his job to a "T."

In Normandy we bitched about the hedgerows, but from experience in the open country since then, it is generally agreed that the hedgerows had their advantages for us as well as for the enemy. The M-8 armored car is not an off-the-road vehicle, and in open terrain it is sometimes very important to travel cross-country.

Of the three campaigns—Normandy, Brest, and the present—the terrain around Brest was by far the best suited to reconnaissance vehicles. The hedgerows in the Brest area were thinner and more widely separated than in Normandy. The roads had fair cover, and the hills in most places were easily crossed or by-passed without exposure to enemy fire.

It sometimes pays when in actual contact with the enemy, even on a reconnaissance patrol in vehicles, to use every weapon available as soon as exposed or fired on. At the same time, it should be borne in mind that the 37mm gun is not to be used against heavy pillboxes or tanks—especially Tigers! It is like hail on a tin roof. Its most effective use is against a machine-gun nest or personnel in groups. On the other hand, the .50-caliber is very effective against personnel and light vehicles. It should be used on the lead jeeps as well as on the armored car.

Hermann, the German GI, fights to his last chance, and then comes out with a big smile on his face, looking for sympathy and cigarettes. This was noticed especially during the Brest Campaign.

S/Sergeant Edward H. Duane:

Upon arrival in France, the supply stock was very low, with only necessary and organizational equipment. By starting immediately upon strict supply discipline and requisitioning items as needed, the amount of equipment drawn by this unit has been comparatively small.

Upon landing, the equipment was distributed in three half-tracks and trailers. At the first opportunity, these vehicles were reassigned and a half-track and trailer designated for signal supply and repair, one for ammunition and small-arms repair, and one for supply. This arrangement left two half-tracks practically empty. These have been used to transport food and equipment to the platoons in the field and to draw supply and food from the supply points.

With a good crew, such as this supply section has, by coöperating and pitching in to accomplish whatever necessary, most obstacles can be overcome very early.

It is believed that by substituting the three half-tracks for one 2½-ton 6 x 6 and two weapons carriers the section could overcome its transportation problem. By using the 2½-ton 6 x 6 for a supply room and small-arms repair shop, and the trailer for all equipment not in frequent demand, a more efficient supply room could be established.

Because a half-track uses a considerable amount of gas, makes a lot of noise, and gets around slower than a weapons carrier, it is believed that the weapons carrier could be used to transport food and equipment back and forth from supply points and to the field more easily and quickly. Thus the two trailers attached could be used as a signal supply and a maintenance shop.

S/Sergeant Clarence L. Robertson, Platoon Sergeant:

Versatility, Joe! The more you know about the other guy's job in this war, the more chance you have to get through. Of course, this is said with reservations, but take it or leave it, a slight working knowledge of all units and their weapons is a must. This reconnaissance troop was trained with this idea, and it has been useful, because at various times the troop has fought as infantry, artillery, reconnaissance or what-have-you, and it has been able to step in at any time at any job. Versatility creates an element of surprise for Hermann, who has you tabbed as a specialist. So ask plenty of questions, and be curious as hell about the other Joe's job.

France—Rear Echelon Personnel

Private John A. Maitland:

FOLLOWING hot on the heels of an American army in France, this ordnance ammunition company has on several occasions been very close to the German lines. Most of the following comment is "old stuff" but cannot be stressed too often.

Information. Whenever possible, all personnel should be given a true picture of things happening. Failure to do this is a main trouble. We just do our duty—not knowing, when, where, or why. This can be altered by following the Five Paragraph Field Order.

Orders. Make all orders as direct as possible. Don't let men obtain any information by the "grapevine" method. This pertains to any movements. N.C.O.'s should inform their men correctly and not keep things to themselves until the last minute. Men are not mind readers.

Equipment. Be certain that all equipment is in good condition and have the right things for the right job. Don't over-burden yourself by carrying anything extra.

Mines and Booby Traps. "Curiosity killed the cat." Don't worry about what is in the other field or on the roadside. You will know in time.

Rumors. "Just heard the latest. . . ." Watch out, that is dangerous. Men have died by failing to check up on stories. If you hear or pass on any information be certain that it is true and comes from good authority.

Bivouac Areas. Obey all things taught regarding rules, regulations, camouflage, layout and bivouac security.

Maps. If possible, study maps of the country you may visit. It will help greatly, for you may be out on detail alone, as often happens here.

You. Know yourself, your job, your vehicle and weapon well and always be a minute man. Remember the unpredictable always happens in war. Be ready for anything.

It has been our job to see that various units get their ammunition correctly and as fast as possible. We shall soon be in Germany.

South Pacific—Quick on the Trigger

1st Lieutenant William W. Chiprin, Tank Bn.:

IN many, many instances the *physical* condition of a soldier will spell the difference between life and death. Upon that premise thousands of soldiers will stake their lives, just as thousands will learn in the hard school of warfare—and many will die because of being a "bit soft."

In one phase of the Kwajalein Campaign I witnessed a scene which will long live in my memory. One early morning during February, 1944, I was leading my platoon of tanks to the front when we were stopped by an infantryman who needed some help on a pillbox. Just as I stuck my head out of the turret to hear what he had to say, a Jap, who had been very well concealed, arose on all fours and flew through the air in a manner that reminded me of a Marathon runner. As he dashed toward the infantryman, whose back was to the Jap and, incidentally, only 10 to 15 yards distant, my mind froze for a second. Simultaneously, the Jap raised a two-armed saber.

Desperately I pointed and yelled, "Behind you, behind you!!"

Finally catching the meaning, the sod pusher turned swiftly and, firing his M1 rifle from the hip, in the same instant jumped to one side. When he fired, the saber was just beginning its downward arc toward his head or shoulder. As the Jap fell, his saber slashed through space and the infantryman fired another shot, then finished the Jap with a few bayonet thrusts.

If the infantryman had not been in good physical condition, he would not have turned fast enough, nor pulled the trigger in the right split second, and in a case such as that there is only a split second between life and death.

Good physical condition quickens thought and reaction; poor physical condition slows them. In the above instance, although the soldier did not comprehend my signal in the first split second, when he did understand, his reaction was instant.

In addition to physical alertness, the above incident also illustrates another point of value. Tank commanders, armed with pistols in addition to or instead of tommy guns, would often find such side arms of inestimable value.

Tommy guns are too clumsy to be utilized from a tank. The tank is merely a storage place for the guns until the tank crew actually dismounts. If a situation requires that an individual weapon be used from a tank, what could be faster than for a man literally to snap out a pistol and fire instantaneously? Naturally, he would have to be adept in the use of the weapon and thoroughly trained.

Another incident which occurred illustrates this point even more emphatically than the above experience. One tank commander had opened his turret to dispose of his brass, when he found himself face to face with a Jap who had jumped up on the rear deck and was about to throw a hand grenade at him. The tank commander whipped out his pistol, which he had acquired by a "midnight requisition," and shot the Jap.

One trick that the Japs tried to put over—and almost succeeded—was tried on my tank on two different occasions. Two Japs, waving a white flag, would come out of a foxhole and approach the tank. Just as they were about to be accepted as prisoners, the first one would suddenly go down on his hands and knees, while the Jap in rear would pull the trigger of a machine gun strapped on the first Jap's back. Fortunately, the first time my shots were truer than the Japs; the second time, the trick was stopped earlier.

Modern cavalry—in tanks—need to be as "quick on the trigger" as rough riders ever were.

Burma—"The Jungle Isn't Half Bad"

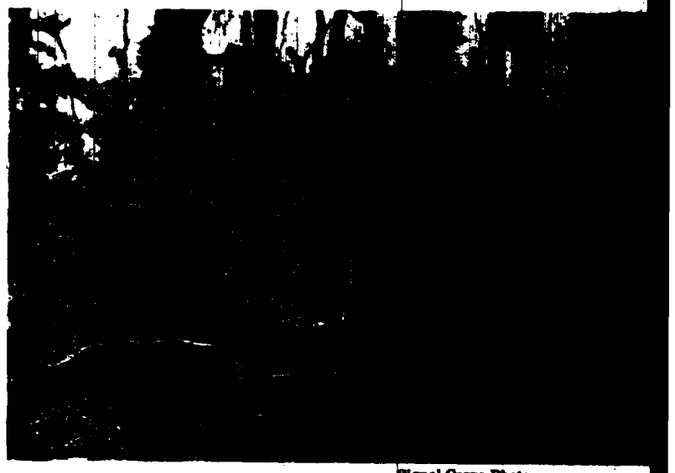
Lt. Colonel D. E. Still

IN 6 months of operations with "Merrill's Marauders" in Burma I have seen two snakes (garden variety), one scorpion, and that is all. Without even trying, anyone could do as well in one afternoon along the Texas Border. At certain seasons of the year the jungle is a bit warm, but it is certainly not any hotter than Fort Clark in the summer, or for that matter, Fort Riley in August. There are, however, quite an assortment of trees, bushes, and vines. In fact, for the most part, on careful inspection, one finds that the Burma jungle is composed of that and little else. To this there is one important exception; there are trails, villages, and clearings.

These latter terrain features are all important. No one (not even the natives) does much fighting, carousing, or loitering in the jungles proper; that is, not for any extended period of time. Everyone travels on the trails, makes his living off the clearings, and lives in or near the villages. Likewise, most all of the fighting is on or near roads, trails, and villages. Of course, during the excitement of battle, and for tactical reasons too, a certain amount of fighting occurs in jungle terrain adjacent to trails and villages—but it is very adjacent.

Most writers on the jungle seem to fill up space with the unusual and rare features of jungle terrain and jungle fighting but fail to mention the commonplace and day-by-day usual items.

As far as fighting is concerned, the Burma jungle imposes limitations on the usable range of weapons, increases the relative importance of short range automatic weapons, and increases the difficulties of observation for artillery and mortars. Maneuver is restricted of course.



Signal Corps Photo

Supreme Allied Commander of Southeast Asia, Admiral Lord Louis Mountbatten, visits the forward Burma area 25 June 1944. Note thick jungle growth bordering trail.

Usually, troops move more slowly and for shorter distances. Obviously negative air information must be closely checked.

He who controls the trails, towns, and water courses, controls all the rest of the local scenery. If the Japs prefer to forsake these and go in the jungle, don't become impatient. They will get disgusted and hungry enough to come out. If they stay in the Burma jungle long enough, and in sizeable numbers, the Emperor will probably be forced to form another new cabinet.

As for living off the Burma jungle, forget it. Stick to K or C rations, however monotonous. If bad becomes worse, bum some chow off the natives. If lost, and unable to find your way around blame yourself for not learning basic scouting and patrolling, which is as applicable in Burma as in Kansas or Texas. Then, after this period of self recrimination, swallow your pride and ask directions of a native as you would of a San Antonio traffic cop or a local farmer in Louisiana.

Seriously, all that one has to do to survive the jungles of Burma is to be sensible, adhere to basic principles, and snuggle up close to your own artillery and air support. If you do this, you will find that the jungle isn't half bad.

What have you learned in combat?
Write it down—100 to 2,000 words.
Tell your own story; tell it your own way.
Write about what to do—what not to do—to save lives, time, weapons—how to outwit and outfight the enemy.
Write what your unit did in battle—what the enemy did—and what lessons were learned.
Send your story through your Public Relations Officer for "field clearance." Mark it for THE CAVALRY JOURNAL, 1719 K Street, N.W., Washington 6, D. C.
Let others benefit from your experience.

THE "BUFFALO" PLAN

by 1st Lieutenant Richard K. Gottschall

1st Armored Division on Road to Rome

"BEFORE I will report to the Fuehrer that this division is unbattleworthy, I will pack the remnants into one truck and take them home." So said Lt. General Heinz Greiner in March as he brought his newly organized 362d Infantry Division into the German line opposing the Anzio beachhead.

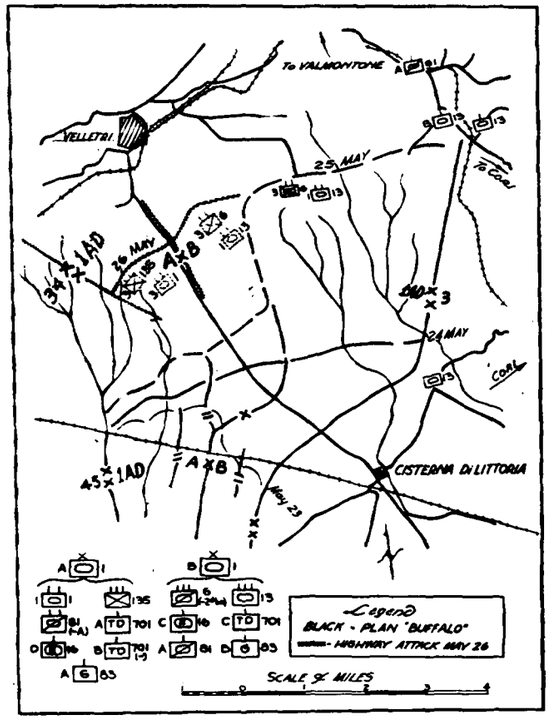
On May 23, in an attack called "Buffalo," the 1st Armored Division made the first part of the general's threat come true. It can safely be assumed that the general saved one truck from the three-day battle that wrecked his division.

To wipe out a division, penetrate a line of fortifications which the Germans had spent 4 months preparing and so disorganize a German army that it was forced to begin a 200-mile retreat the attack required careful planning, unquestioned teamwork and an element of surprise.

The over-all planning of the Fifth Army attack from the Anzio beachhead consumed two months, but the finer stages of the preparations were not reached until the final month. For those 4 weeks, the commanders and staff, and unit leaders down to squads and tank commanders, pored over two attack plans—one aimed at Cori in the northeast, the other at Littoria, to the east.

The plans were "Buffalo" and "Grasshopper." Plan "Turtle," the only other of the many considered to survive to the semifinals, was discarded at the last moment because of reportedly heavy German defenses on the road to Albano.

For both the "Buffalo" and "Grasshopper" plans, artillery positions were dug and stocked with ammunition; final assembly areas were selected and reconnoitered; complete air reconnaissance was made of both sectors; and personal reconnaissance was undertaken by unit commanders. German troop dispositions and strengths were discovered and studied. Every possible obstacle that the enemy might throw in the path of either attack was considered and measures taken to combat it.



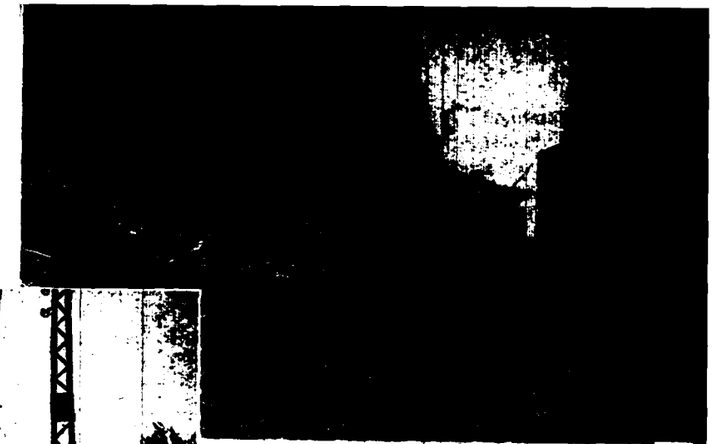
Sweating and Swearing

The teamwork was achieved by the 1st Armored Division through weeks of attack problems rehearsed down to the smallest detail. The training area was so close to the front lines it could be observed with a three-power binocular and shelled with an 81mm mortar.

The teamwork was not achieved by last minute exhortations by commanders to coöperate, but resulted rather from much sweating and swearing through the same attack problems time after time until every man knew his job. In the problems particular stress was placed on communication between platoon leaders and company commanders of tank and infantry units. The individual infantry squad leader was taught not to wait for radio communication if it were not immediately available, but to approach on foot the nearest supporting tank and in person request fire on the strong point or machine gun nest holding up his advance. The foot soldiers were the "eyes" of the tanks.

Numerous times in the actual attack on May 23, infantrymen sought out their supporting tanks and from a perch behind the turret directed them into the firefight.

Artillery preparations for the attack were plotted for virtually every inch of ground in the division sector. Through a series of phase lines, artillery could be concentrated in a single band completely across the division front.



Signal Corps Photo

A 1st Armored Division light tank crosses a road block, blasted-in ten minutes before by the Germans in a vain effort to delay troops from reaching Rome.

Signal Corps Photo

From Anzio through Rome to Viterbo, armor led the way in a well-planned attack over good tank country. Left, reconnaissance cars of the 1st Armored Division, move past an American tank, knocked out during the drive on Rome.

By plotting the numerous houses that dotted the Cisterna plain, and assigning to each a number, it was possible for every soldier in the division attack to call for, and get, artillery support where it was most ne Probably more than in any other attack of the div artillery fire was called for not by battalion and h commanders, but by platoon and squad leaders, whom knew the numbers of the houses direc their front.

As a further aid to planning, the division's ar engineer battalion constructed a 30-foot square t board covering the sector of the intended attack. board was studied by all officers and noncommiss officers of the attacking troops.

Surprising an enemy who had been expecting tack for weeks was difficult to do, and especia when every assembly area was under observation. camouflage discipline and last-minute groupi forces were the only ways that offered any hope ception.

Since the direction of the attack was not fina cided until May 21, there seemed little likelihoc the Germans would be able to get positive infor of the plan long enough before H-hour to do much good. To confuse German intelligence, ho during the week preceding the attack officers an wearing 1st Armored Division patches were s patrols with an infantry division in the sector northwest, along the "Diagonal" road. British a enlisted to simulate increased troop movement on the opposite flank of the beachhead. Some British artillery was moved into position in that sector and dummy

Command "B", which had been assigned the right half of the 1st Armored sector. By dark, when CC "B" had reached the railroad, CC "A" had pushed up to 1,000 yards beyond.

The difference in speed between the two combat commands was due partly to heavier enemy resistance on the right, but mainly to the use of 6 demolition "snakes" employed on the left to blast paths in the heavy mine fields rimming the German defenses. These "snakes", used for the first time in combat, not only cleared gaps wide enough for tanks but killed or stunned enough enemy troops in forward strongpoints to permit the assault infantry to mop up with little opposition.

The "snakes", as constructed by the division engineer battalion, were 400-foot flexible steel lengths packed with more than two tons of TNT. Towed as close as possible to the mine field by a medium tank, each "snake" was pushed into its final position and detonated by machine-gun fire from the tank.

Only one light tank, which accidentally strayed from the safe path, was lost through antitank mines the first day in the CC "A" sector. Because of tank losses through mines in the CC "B" sector, it became necessary to attach a platoon of tank destroyers as replacements.

The CC "B" losses should not be considered as high, despite the necessity for replacement of vehicles. In the case of both combat commands, the surprise achieved by the attack was complete, and constituted a real advantage over the enemy from which he never really recovered.

The attack was continued the following morning, and by 1100 hours tanks from both combat commands had cut Highway 7 north of Cisterna. Both forces reached their objectives and secured them before dark.

The day's attack cut off Cisterna, caused the evacuation of Cori and destroyed a large amount of enemy matériel. Prisoners of war for the day totaled 850, a figure nearly equivalent to the fighting strength of one of General Greiner's infantry regiments.

Dead End Street

On May 25, enemy resistance and unsuitable tank terrain slowed the CC "A" advance on the left, while weakened resistance and adaptable terrain speeded the attack of CC "B". The Cori-Velletri road was cut at 1300 hours, and CC "B" was ordered to halt and secure its position.

The day's operations indicated that the enemy had suffered so many casualties he was forced to withdraw on the division's right, while stiffening resistance on the left indicated the enemy had regrouped the remnants of his forces to make a determined stand in the Albano hill mass.

After detaching a medium tank battalion and an infantry battalion for operation with the 3d Infantry Division toward Artena, the 1st Armored Division was grouped in assembly areas near Cisterna. At 1100 hours on May 26 the attack astride Highway 7 jumped off over unsuitable tank country against a strong enemy position. Mine fields and enemy guns stopped the attack cold, and by dark the forward troops were still 2,000 yards short of Velletri.

Relieved by an infantry unit, the division dropped back to assembly areas for two days of maintenance. On may 29, the attack was resumed still farther to the left, and the day's operations were both costly and fruitless. Owing primarily to poor coördination between the 1st Armored Division and the infantry division on its left, 37 tanks were lost. The enemy was permitted to infiltrate tanks and infantry behind our own assault tanks and attack the friendly infantry from the flanks and rear.

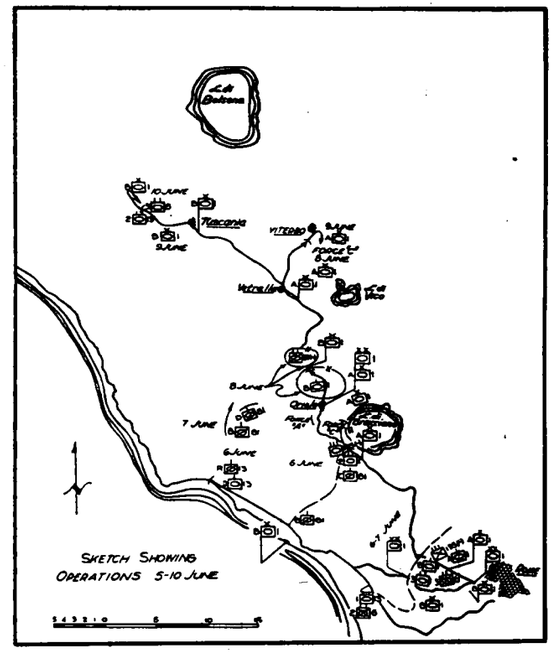
During the following two days the attacks were continued with better coördination but little more success. Tank and personnel losses had been high, little damage had been inflicted on the enemy—in proportion to that done in the first days of the break-through—and the 1st Armored Division was withdrawn from the line.

The Capture of Rome

On June 3 at 1330 hours both combat commands launched another attack along the Anzio-Albano axis. The battering that the German forces had taken in the past several days had so reduced their combat strength that they were forced to withdraw, and opposition to the attack consisted mainly of mines, demolitions and scattered strong points.

Several thousand yards of ground were gained during the afternoon, and orders were issued to push the attack through the night to secure Rome.

A flying column of a company of light tanks and a



platoon of tank destroyers was sent ahead toward Rome at 1330 hours. An hour and a half later three task columns of CC "B" were dispatched to secure crossings of the Tiber River immediately south of Rome. The first elements reached the city limits of Rome at 1615 hours.

Combat Command "A", which had been ordered to secure the Rome bridges across the Tiber, was delayed in accomplishing its mission until 2400, mainly because of the throngs of enthusiastic Romans filling the streets, and unfamiliarity with routes through the city.

In the pursuit north of Rome to Canino and Viterbo, launched the following morning, considerable difficulty was encountered just across the Tiber because of the extensive demolitions. At one point, contact was made with an enemy strong point by an infantry division's artillery, which crossed (in march column) in front of the reconnaissance elements of CC "B." Considerable confusion resulted in the CC "A" sector when a second infantry division discovered that it had taken the wrong route and was forced to countermarch on the road which CC "A" was employing for a main axis.

In the earlier full-scale attack through the German defenses around Anzio and the subsequent attacks on Velletri and Albano, the medium tanks followed by tank destroyer units, had been sent well ahead of the main body of the combat command to provide the maximum shock action. Then the infantry following in mopping-up operations, had been closely supported by the division's light tanks which had reduced any strong points passed by the initial waves of armor.

For the the pursuit, conducted on two parallel routes north of Rome, a considerably different formation was used. Small task forces were organized. These consisted of a company of medium tanks, a company of infantry, and a platoon each of engineers, light tanks and tank destroyers. Since most of the strongpoints and road blocks encountered had to be attacked frontally, the infantry was carried on the medium tanks so that the full strength of the force could be developed in a minimum of time. To speed the operation further, a second "pursuit task force" of the same strength passed through a road formation as soon as the first force had reduced the strong point or road block.

The Box Score

In the breakthrough and pursuit of the German forces 120 miles north to Canino and Viterbo, 2,805 prisoners of war were taken by troops of the 1st Armored Division. Destroyed or captured were 77 tanks, 115 trucks, 50 self-propelled and antitank guns, 17 artillery pieces and 6 armored cars.

In contrast to this, personnel losses within the division were light in proportion to the gains made. Equipment losses, although occasionally as high as 25 to 50 per cent of tank strength, were counterbalanced by the exceptional work of the division's ordnance battalion. On H Hour, tank strength was invariably above 90 per cent.

Although the largest single loss to the division's prisoner of war cages was the German commander, General Greiner, virtually every German unit—in rear as well as forward echelons—lost some men. The roster, made up at the end of the campaign, included nearly every unit that the Germans had had in that sector of the Italian front. Captured were numerous artillerymen, clerks pressed into front-line service by the heavy battle casualties, antiaircraft artillerymen, and even some representatives from hospitals and a quartermaster baking company.

General Greiner's division furnished 1,312 officers and men to the prisoner of war cages. Of these, 634 were from that division's 956th Infantry Regiment. Captured almost intact was one of the general's infantry battalions.

If War Department experience tables are taken as a key to enemy losses, the casualties inflicted by the 1st Armored Division alone on the 362d total approximately 6,500 men and officers killed, wounded or captured. From a D day strength of approximately 10,000 General Greiner had few combat troops left on June 10.

Editor's Note: *The January-February* Cavalry Journal *will carry a third article by Lieutenant Gottschall on the employment of tanks in Italy. In it the author will discuss the day-by-day armored attack from Grosetto to Volterra—probably the worst tank country in Italy.*

Miracle of the Normandy Beaches

The story of the artificial harbors, prefabricated in England and towed across the English Channel to Normandy.*

NO more extraordinary and dramatic tale of naval construction and operation has ever been told than the story of the two artificial harbors, built in Britain and towed across the English Channel in sections to Normandy.

Detailed dimensions of the harbors are not given, but it is stated that each was designed to be "roughly the same size as Dover." Also speaking roughly, Dover harbor covers some 760 acres—a very useful sized port indeed.

The Germans had always thought that the capture of a port was necessary before a properly equipped army could be deployed for action. In Normandy, 4 Allied armies were landed and equipped, and within 11 weeks the battle which decided the fate of France had been fought and won. This was accomplished, it appears, without help from matériel landed at any French port.

Many months before the invasion it was realized by the administrative planners that even if French ports in working order could be captured quickly, the stores required for the armies would far exceed the capacity of the ports. It was, therefore, planned to land, over the beaches, an estimated daily quantity of 12,000 tons and 2,500 vehicles of all sorts and sizes for a period of at least 90 days.

In the whole history of the world nothing like this has ever been done before, and to this fulfillment of what must have seemed a fantastic dream when the plan was first proposed must go a huge share of the credit for the brilliantly successful strategy of the European invasion.

British Labor

All the units composing these gigantic structures, including those required for the American part of the project, were built entirely in Britain by British labor. The construction of the concrete caissons alone necessitated the employment of 20,000 men; many thousands more were engaged on the other structures; and large numbers of workers in the steel and cement industries were switched to supplying the vast quantities of matériel needed.

A tremendous strain was placed on workers in the building and civil engineering trades, whose ranks were already heavily cut by military needs. The only men left in those trades were engaged entirely in war work or essential maintenance. To meet the new demand, therefore, workers had to be withdrawn from airfields, factories, military depots, grain silos and other construction work of equal importance. Skilled men were temporarily released from the army and vital industries.

All this had to be accomplished according to an unalterable schedule to meet the D Day deadline.

The work had to be done in special sites near deep waterways and equipped with dry docks where these could be spared from urgent shipping demands. This meant transporting the workers sometimes hundreds of miles from their families, often at a few hours notice. It also meant finding temporary housing, transport and feeding facilities for them.

The men—whose ages ranged up to 72—had to face the difficulties of getting to their jobs, which were sometimes a considerable distance from roads, over waterlogged country. Most of the work was done in the winter, in wet and muddy sites. In the final stages of the job, the men had to work at great heights over water.

During the construction period, London, where most of the work was done, suffered a series of air raids. This meant that artificial lights, under which work was being carried on throughout the night, had to be extinguished—leaving the workers groping in the dark on the scaffolding under the light of enemy flares.

Despite all of these handicaps, the men worked willingly, long hours. How well they did their job has since been proved by the course of events in Europe.

The Task Up To D Day

The construction of the prefabricated ports was a race for time. The main undertakings were:

1. The construction of the concrete caissons under Ministry of Supply arrangements, more fully described in Appendix A.
2. The prefabrication of the pier equipment and its assembly into towing pieces, more fully described in Appendix B.
3. Construction of the floating breakwaters, more fully described in Appendix C.
4. Preparation of the blockships so they could be sunk easily and rapidly on an even keel.

These four in themselves were an enormous task in the time, without taking into consideration other tasks, such as:

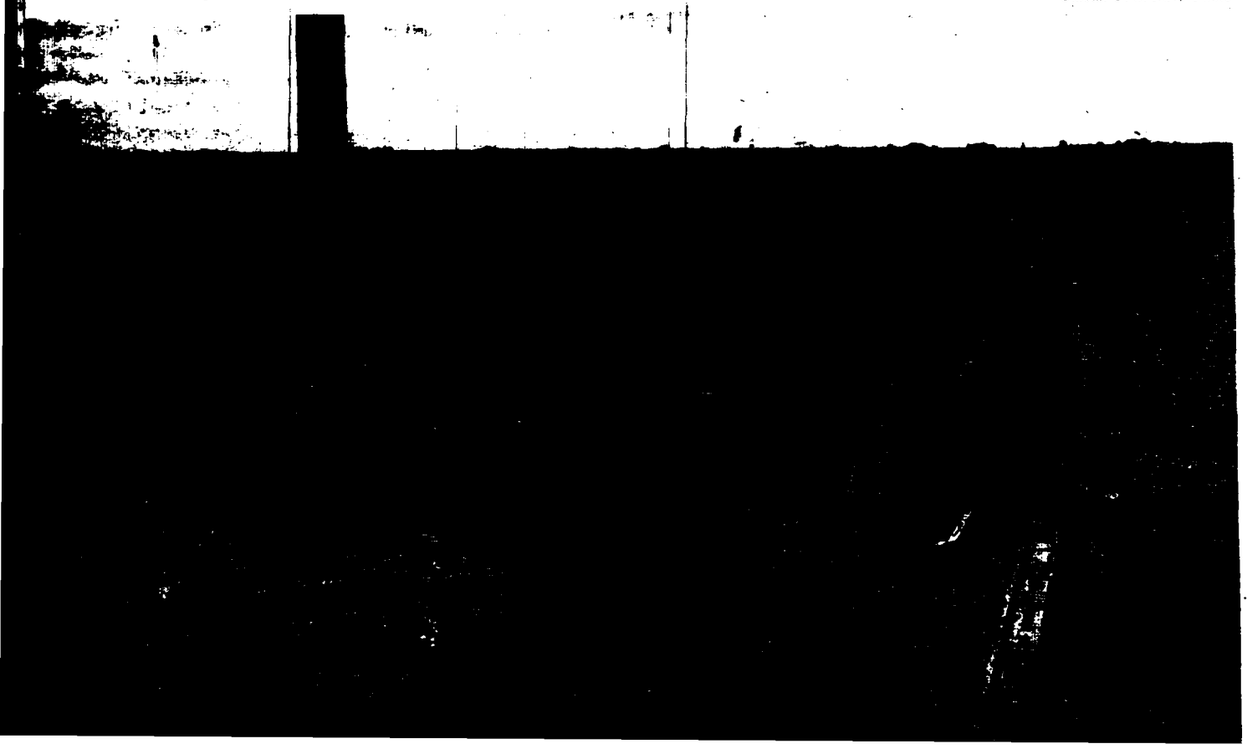
1. Towing caissons, floating breakwaters and pier equipment from construction sites to assembly parks. In all, this amounted to 500 tows, some from ports as distant as Leith or Glasgow to the south coast.
2. Servicing and general preparation of the tug fleet for sea.
3. Forming and training the staffs and personnel of the Royal Navy, U. S. Navy, and Royal Engineers to carry out the operation.

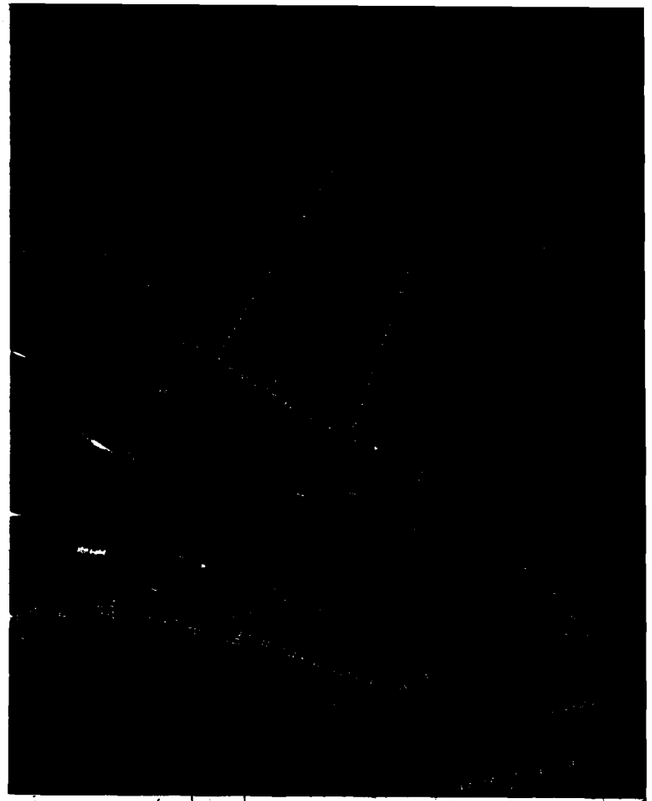
The time was, in fact, inadequate to complete this program, but the essential equipment with a suitable proportion of reserve was assembled and ready to go on

*From SHAEF releases, through British Information Service.

One of the most remarkable engineering feats of all time was the provision of two prefabricated harbors on the coast of Normandy without which the liberation of western Europe would not have been possible. These artificial ports, each the size of Dover, provided the invasion forces with the necessary stream of supplies and reinforcements. This unloading scene at the U.S. Mulberry occurred before the gale caused work on the United States harbor to be discontinued.

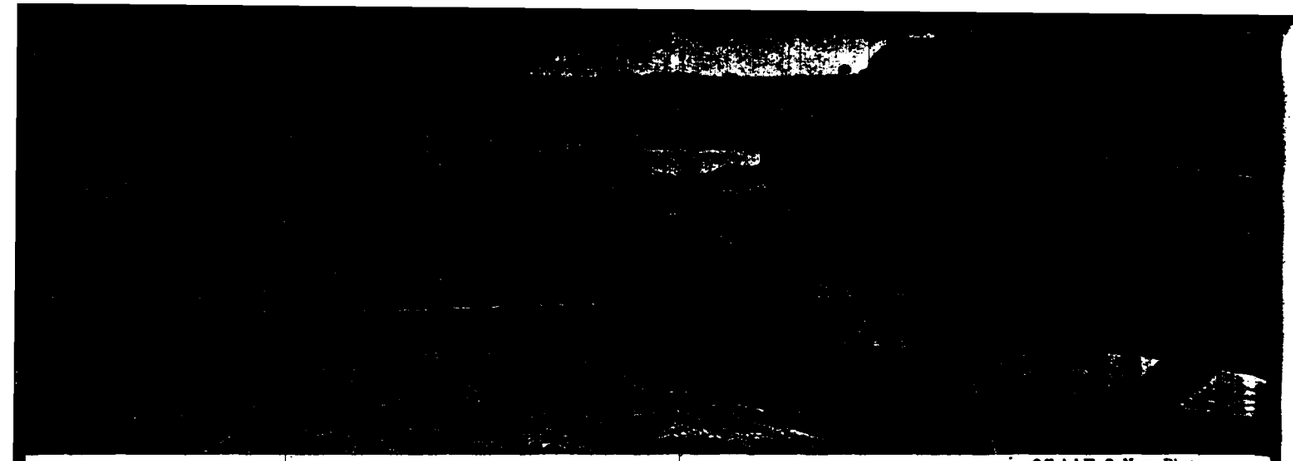
Official U. S. Navy Photo





British Official Photo

This aerial view of a section of the British prefabricated harbor on the Normandy coast shows two steel roadways supported on special floats leading from the shore to a wharf formed by spud pierheads. In front of the wharf is the special breakwater of concrete caissons and blockships.



Official U. S. Navy Photo

Close-up shows side view of the prefabricated steel roadways, hundreds of feet long. It is built of a series of small steel bridges joined by special means to give flexibility and supported on floats that rise and fall with the 20-foot tide.

the right date, although the personnel had not been able to complete a full program of training.

For technical reasons, the concrete caissons could not be placed in water deeper than 5½ fathoms, which meant that only a limited number of ships, such as the Liberty type, could use the harbor. It had been decided, therefore, to make an outer floating breakwater.

In order to provide immediate shelter for the host of small craft, it was then decided to make five short breakwaters, formed of blockships, along the invasion coast. These could be provided quickly and would give immediate shelter. Two of them would be incorporated in the artificial ports. Sixty ships of varying sizes and types were earmarked by the Ministry of War Transport for this purpose. These, inluding some warships such as H.M.S. *Centurion*, the French battleship, *Courbet*, and the Netherlands cruiser, *Sumatra*, formed a total length of about 24,000 feet of breakwater.

The Operation

On D Day the first arrivals on the Normandy shore were the blockships, all of which, in spite of their age, made the crossing close behind the assault forces and arrived safely.

The ships were sunk by explosive charges, and their Naval and Merchant Navy crews were then returned to the United Kingdom. The whole of this part of the operation was completed successfully during the 5 days following D Day, and provided some very valuable shelter on the beaches during this critical period.

Meanwhile, the concrete caissons, floating breakwaters and piers were being towed across at an average speed of 4 knots, the total distance being over 100 miles. All the pieces towed very well in spite of their awkward shapes, except for the length of pier which had to be treated very tenderly in the choppy weather experienced.

The tug fleet available for towing the equipment totaled 85 vessels varying from very large U. S. tugs of over 1,500 H.P., to small tugs of 600 H.P., not generally used in the open sea. A minimum of 210 tows was required. Allowing for a few losses by enemy action, the tows were expected to pull a weight of over 1,000,000 tons, and each round trip was expected to take three days. Luckily there were very few losses of tugs, and they carried out this unusual, strenuous and sometimes dangerous task with great patience, courage and skill.

On arrival, the concrete caissons had to be sunk accurately in places selected as a result of surveys made by a special party landed on D Day. In spite of the difficulty of picking the exact spot, the operation was carried out very successfully and very few caissons were out of alignment. By D plus 12 more than half the caissons were in position, and the harbors were already an impressive sight.

Similarly, advanced parties in special ships arriving on D Day had laid heavy moorings in deep water, to which the floating breakwaters were attached as they arrived. This operation was completed by D plus 8.

Meanwhile, port parties of Royal Engineers (or of Seabees in the American harbors), landed on D Day, cleared mines, cut ramps in the esplanades and prepared roadways down to the beaches ready to receive the shore ends of the piers. The port party also included a naval beach commander and a detachment from the Royal Marines.

In the setting down of the harbor the navy and the army worked hand in hand; soldiers were sailors and sailors were soldiers and Royal Marines were both. This operation was half finished by D plus 12, by which time one pier, hundreds of yards long with several pierheads, was complete, and coasters could be unloaded at any state of the tide.

The Gale

Up to D plus 12 the operation developed according to plan. Very few accidents of the sea had occurred, and air superiority was such that enemy interference had caused little trouble.

But on D plus 13 a gale blew up from the northeast which continued for three days—the worst June gale experienced for 40 years. Moreover, it came from

the worst possible direction as the harbors were exposed to its full force. Unfortunately, it caught the harbors at the half-way stage. The American harbor suffered most severely, as it was in a more exposed site, and the breakwaters were largely broken up, so much so that this, combined with the capture of Cherbourg, caused work on this harbor to be discontinued. The British harbor, protected to some extent by the Calvados Reef, suffered far less damage, and it was soon recovered and completed.

The gale took a heavy toll of shipping and craft, but this was largely damage rather than dead loss, except in the case of the experimental floating breakwater, which broke up and ceased to give protection. The shelter provided by both harbors and the three additional blockship shelters, which stood up well in the gale, undoubtedly saved great loss of life and equipment. Unloading on the beaches elsewhere was quite impossible, but during this critical period a small but important trickle of stores could be landed in the harbor. Even on the worst day 800 tons of gasoline and ammunition, as well as many troops, were landed over the piers.

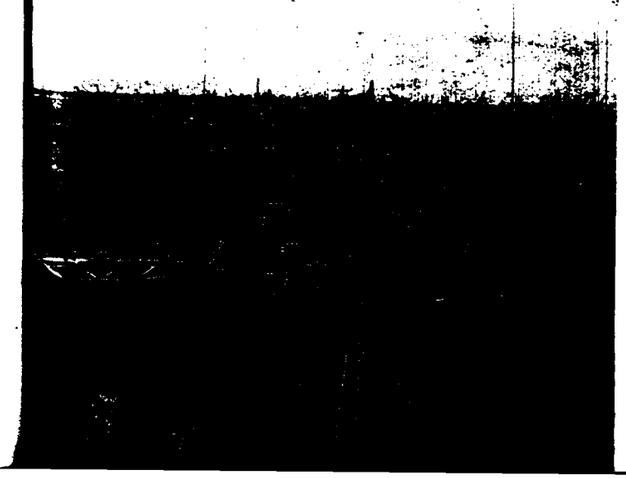
All the pier equipment which was on the voyage across when the gale started was sunk, but only one concrete caisson failed to weather the trip. After the gale subsided, the work of construction continued as before, though a long spell of rough water prevented pier equipment from being towed over, so that the harbor was not unloading to maximum capacity until well into July.

Finally the artificial harbor was complete, and a port bigger than many with famous names had been built in a few weeks against a lonely French beach. Day after day, in all weathers, scores of ships of all sizes have moored within its shelter or berthed in unbroken lines alongside its quays. As a result, hundreds of thousands of tons of vital supplies, scores of thousands of men and many thousands of vehicles have been put ashore in the most rapid military build-up ever undertaken.

The prefabricated port made possible the liberation of western Europe.

The wharf at the British prefabricated harbor on the Normandy coast consists of seven specially designed "spud pierheads"—steel pontoons with a displacement of approximately 1,000 tons. Each pierhead is a "ship," complete with crews' quarters, generating sets, storage accommodations, etc. Running out from the shore to these remarkable pierheads are two flexible floating pier roadways.

British Official Photo



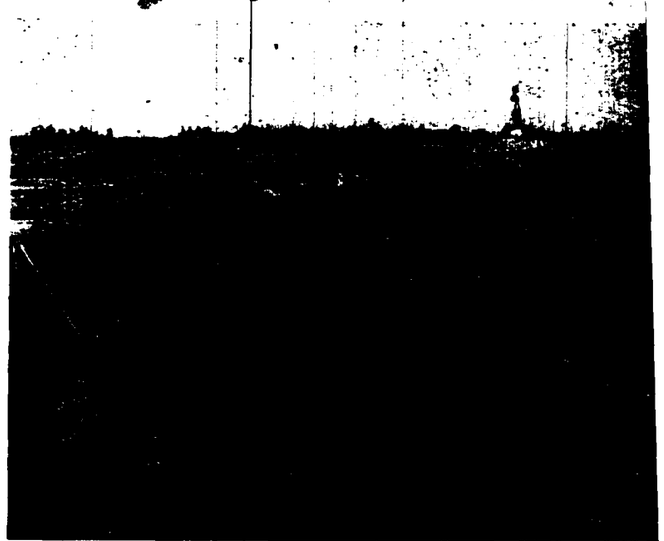
Appendix "A"—Concrete Caissons

These caissons were made in 6 different sizes to suit various depths of water up to 5½ fathoms. The largest size had a displacement of 6,044 tons; the smallest, a displacement of 1,672 tons. When floating, the whole looked rather like a Noah's Ark without its roof; while, viewed from above, the cross walls made it look like an egg crate, as there was no deck.

Each caisson contained crews' quarters for use during the passage. The crews consisted partly of naval personnel for handling the ship and partly of the Royal Engineers (or Seabees) for carrying out the operation of sinking.

At a late stage, Bofors guns, 20 tons of ammunition, and rough shelters for a gun crew were placed on the top of most caissons as additional AA protection of the harbor.

Caissons were towed empty across the English Channel by one large tug (about 1,500 H.P.). On arrival they were maneuvered into position with the help of small tugs, and then the opening of special valves allowed water to fill the ship and sink it in place. Valves were left open so that the water level remained the same inside and out. It took roughly 22 minutes to sink the largest size caisson.



Official U. S. Navy Photo

View of the damage wreaked by the terrific channel storm which broke on June 19, directly after the completion of the American Mulberry near Colleville, France. Boats and ships of all sizes were strewn about in a jumbled mass of inchoate wreckage. Much matériel was irrevocably lost.

Official U. S. Navy Photo

Tugs jostle phoenixes into position before the seacocks are opened and the phoenixes sunk. In the background can be seen some of the vast flotilla of ships which thronged the channel off Omaha beach, waiting to unload matériel.

The number of caissons produced in various sizes were 60 (largest), 11, 25, 23, 17, and 10 (smallest), a total of 146. Construction was carried out in various ways:

	Number Constructed
In 8 dry docks	57
In 2 wet docks	18
In 12 basins	48
In 4 slipways	23
	146

The basins were holes excavated beside the Thames, in which the lower lager of the caisson could be built as in a dry-dock. A channel was then cut to the river and the caisson floated out to be completed in a wet dock berth. The required wet-dock berthing space amounted to 12,000 feet.

Construction sites were mainly in the Thames and Southampton areas, but outlying ones were as far distant at Birkenhead and Hartlepool.

The Ministry of Supply employed many of the leading firms of consulting engineers to assist in the project, and the actual work was carried out by 25 large contracting firms.

In all, it is estimated that the following main materials were used:

330,000 cubic yards of concrete, nearly 600,000 tons;
31,000 tons of steel
1,500,000 super yards of shuttering

Appendix "B"—Pier Equipment

The piers consisted of a single steel roadway, carried on steel girders similar in many respects to an ordinary bridge, but so designed that there was such flexibility that the heaving and twisting effect of the sea could be withstood. Each bridge span was supported on special floats, some of steel, and others of concrete, also designed to withstand the sea and also to sit down on rock or sand when the tide receded. Sections of pier were joined together by special means to give flexibility and to ensure easy and rapid connecting up.

There was no limit to the length of a pier, other than the depth of water for successful anchoring; for towing, lengths of 480 feet were joined together.

At the shore end these piers were joined to a very stout steel shallow-draught float which could be pulled right inshore at high water.

At the outer end, they were linked to specially designed spud pierheads, which consist of a steel ponton with a displacement of approximately 1,000 tons. Each pierhead is a "ship," complete with crews' quarters, generating sets, storage accommodations, etc. Coasters berth alongside and unload direct into trucks on the pierheads.

The same pierhead with some extra fittings can be converted for use of L.S.T.'s. A sort of false beach piece made of steel is provided, and onto this the L.S.T. runs its bows and lowers its ramp. Vehicles can be discharged very rapidly by this means.

Pierheads were built as ships in various ports on the coast, from Leith round to Glasgow; 4 were built by the Royal Engineers at military ports in Scotland. Most of the remaining equipment was prefabricated all over the country and then assembled at army depots at Southampton and Richborough. Some 240 contractors were employed on this task, so that it is impossible to estimate the labor force involve. In all, 50,000 tons of steel were used.

Appendix "C"—Floating Breakwater

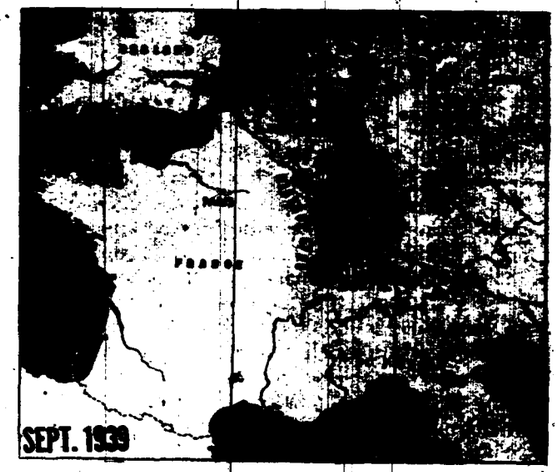
The floating breakwater consisted of steel floats, moored end to end in a long line and designed to have a damping effect on the sea in winds up to Force 5 which might be expected during the summer months.

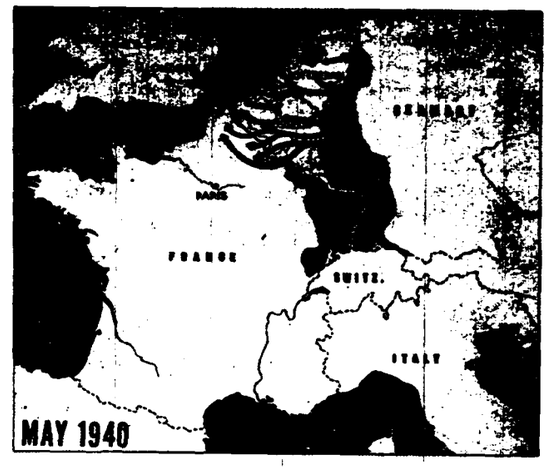
By March two rows had been completed and moored under constant observation off the south coast. From then until D Day, the weather was generally calm so that, although the breakwater gave great promise, no one could be certain how it would behave in really rough water.

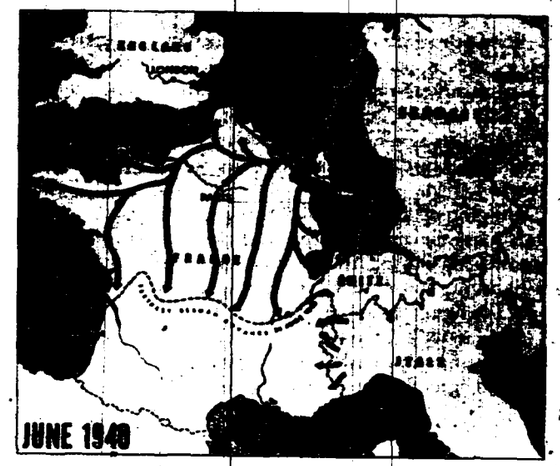
Units were prefabricated, and then assembled at Southampton, where a labor force of 2,000 men was employed. It is difficult to estimate the number of men employed in other areas on prefabrication, but this is probably about 6,000. A total of 15,000 tons of steel was used in this construction.

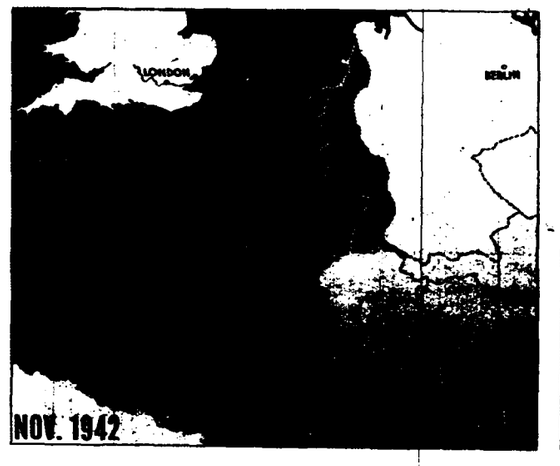
Conquest and Liberation of France

France built her Maginot Line in the ten years before 1939 with the idea that she should never again be invaded by the Germans. Opposite it the Germans threw up the Westwall or Siegfried Line. In the months between September, 1939, and May, 1940, troops in both fortifications maneuvered but contacted each other only in patrols. Nazi troops hit France at the northwest border after overrunning Poland, Denmark, Norway, the Netherlands, and Belgium and struck where the Maginot Line ended and its weaker extension at the boundary of Belgium began. Fast motor columns drove for the Channel and split the Allied forces in two. A week after the Nazis reached the sea May 21 came the miraculous withdrawal from Dunkerque in which 325,000 Allied troops escaped the German trap. At this helpless moment France was attacked from the south by Italy on June 10. The Germans entered Paris four days later and while some units pressed southward others swung around behind the Maginot Line. By June 24 the fighting was over. The armistice split France into occupied and unoccupied areas, put more than half the French population under German rule, placed the cost of supporting the occupying forces on the French people and gave Germany the best industrial and agricultural areas. In November, 1942, when the Allies invaded North Africa the last pretext of a French government was swept away as the Germans moved into Southern France. The freeing of French soil was begun June 6 and the plan that was opened with the Channel crossing is still unfolding. The invasion of Normandy, the drive through Brittany, the landings on the south coast of France, the invasion of Germany are only continuations of what started long before.









BLITZ THROUGH FRANCE

4th Armored Division Spearheads Third Army

IN 9 weeks of combat (from July 17 to September 20) the 4th Armored Division, commanded by Major General John S. Wood, spearheaded the armored advance of the U. S. Third Army from the hedgerows of Normandy into the German-annexed territory of Lorraine.

In those 9 weeks an 800-mile right hook was thrown from Normandy through Brittany across France, into Lorraine, and over the Reich's self-proclaimed frontiers. During the advance, tanks put up to 1,900 miles on their mileage meters, destroyed 400 enemy tanks (up to September 27), captured 15,000 counted prisoners, killed 5,000 Germans, and knocked out 1,500 miscellaneous vehicles and 140 large artillery pieces.

The 4th Armored Division (activated April 15, 1941) was a part of Lt. General George S. Patton's Third Army as organized in Great Britain before the invasion. After landing in Normandy the week of July 12, it was temporarily attached to the First Army until the Third was activated during the fighting in Brittany.

Jumping off from Raids, Normandy, on July 27 after an intense air and infantry attack on the enemy front, the division cut off the Brittany peninsula in 10 days of lightning movement and fighting that outblitzed the best German panzer achievements. Racing through Periers, it took Coutances and Sartilly and after savage fighting captured the key city of Avranches and plunged into Brittany. It then marched alone for 140 miles to contain Rennes and capture Vannes on the south coast of Brittany and seal off the peninsula.

The division, again a part of the Third Army, also took Nantes and contained Lorient in a move that trapped thousands of Nazi navy personnel.

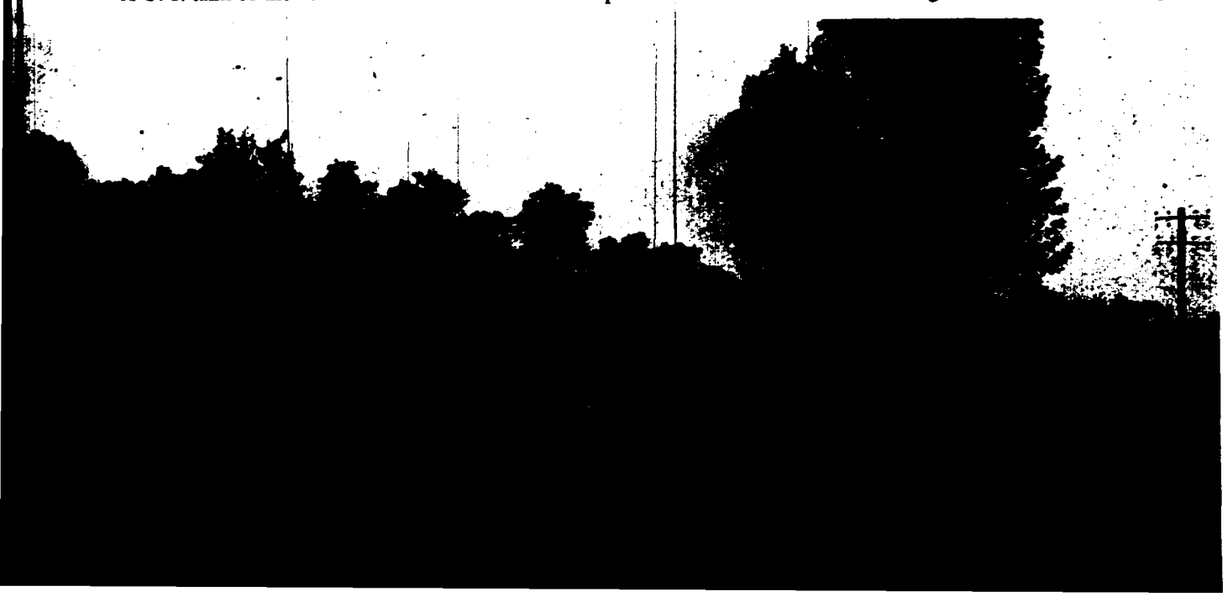
When the armor penetrated Brittany, the supporting infantry were left far behind. Actually, the division became an armored island in the midst of thousands of Nazi troops. The enemy which escaped destruction were disorganized and bewildered by the penetration, during which marches of from 50 to 100 miles were made in less than a day.

Enemy units contacted and defeated included the 5th Paratroop Division, the 17th SS Goetz V Berlichingen Panzer Grenadier Division, the 2d SS Das Reich Panzer Division, the 116th Panzer Division and the 77th, the 243d, 265th, 266th, 353d, and 709th Infantry Divisions, and supporting and attached units.

After contact with the 4th Armored, the Nazi 77th, 91st, and 243d Infantry Divisions were considered destroyed, the 6th Paratroop Regiment was wiped out, and three regiments of the 5th Paratroop Division were severely beaten. The 56th Security Regiment, which fought in the Vannes area, and the 281st OST Cavalry Battalion were liquidated.

With its extended supply lines in Brittany, however, the 4th Armored Division was under constant threat, and it was necessary for tanks and armored cars to shepherd supplies.

A U. S. tank of the 4th Armored Division churns deep into the mud as it makes a crossing of a canal in France, Sept. 20.



After sealing the peninsula the division turned to the east. Making a 153-mile march in two nights and a day, Combat Command "A" moved on Orleans from Nantes on August 15. The city fell to the armored thrust after sharp fighting in which two German regiments of artillery and infantry were both virtually destroyed. As a result, Paris was outflanked from the south on a line along the Loire River.

Assembled in the vicinity of Orleans, the division then resumed its drive to the east on August 21. By the afternoon of the same day CC "A" sped to Sens and drove into the heart of the city. Catching the garrison by surprise, with officers on the streets in dress uniform, the tankers eliminated the enemy and captured enormous stores of fuel, food, and military equipment. Then quickly securing the city and moving across the Yonne River to secure the bridgehead, CC "A" met and destroyed an SS brigade on the outskirts of Villeneuve.

Meanwhile Combat Command "B," moving to the south, captured Courtenay and moved on Montargis from the east. A large enemy pocket of infantry and artillery was reduced north of Montargis and the evacuation of the city forced on August 23.

The division next secured a bridgehead across the Seine River at Troyes August 26 after fierce fighting in which one column of CC "A" routed an SS brigade. The attack was made in vehicles spread in open desert formation down a 3½-mile slope under heavy enemy fire. According to a prisoner of war, only 40 per cent of the 51st SS Brigade was left after the armored attack.

Three days later the division made three crossings of the Marne River and captured Vitry le Francois. Chalon-sur-Marne, St. Dizier, and Ligny fell rapidly. An assault led by a light tank company driving through a torrential rain at 40 miles an hour took Commercy, captured the bridge across the Meuse, and seized the high ground east of the river.

Halted by command of higher headquarters, the 4th Armored held the ground for consolidation by infantry which followed and prepared for an assault on the Nazi defenses of the Moselle River.

On September 11, supported by doughboys of the 35th Infantry Division, the tanks burst across the Moselle south and then north of Nancy. Routing Nazis who had been ordered to hold the Moselle line throughout the winter, the division's two armored columns swept into Lorraine to come together east of

Nancy in a move instrumental in forcing the enemy from that city.

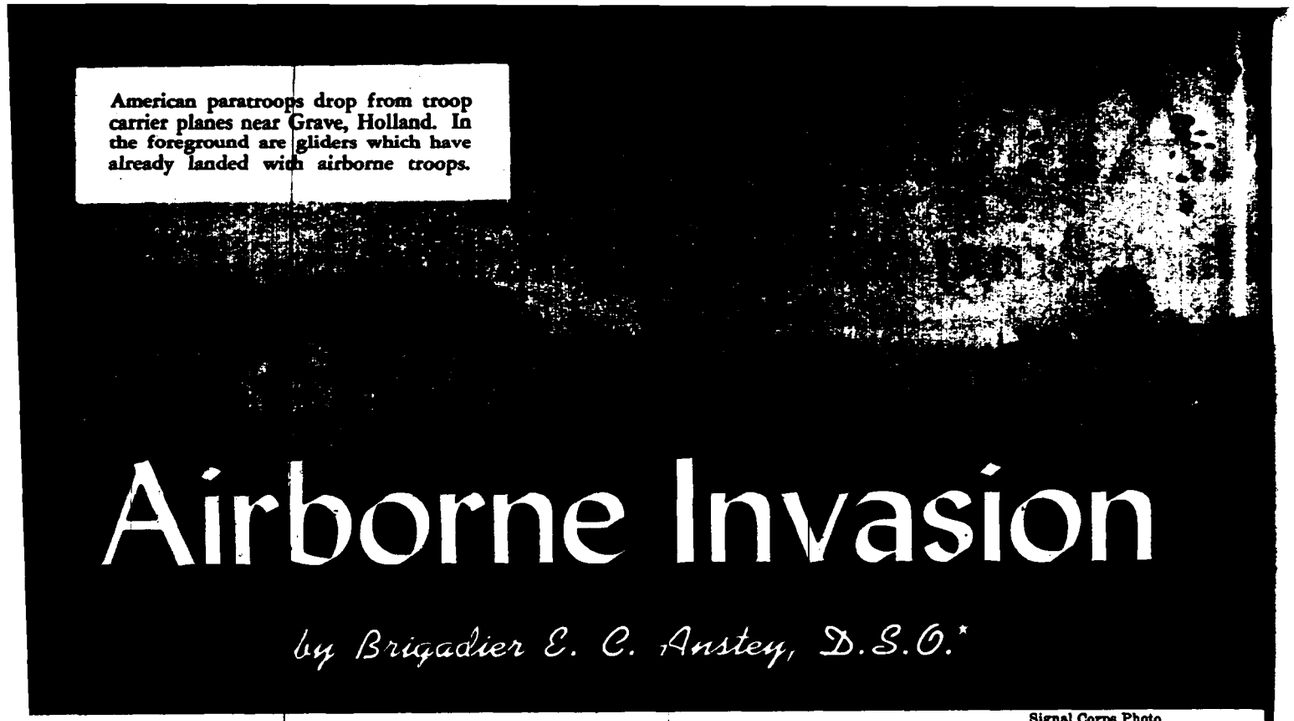
As CC "B" forced the south crossing at Bayon, some tanks forded the 25-foot deep dry canal and the river before engineers could span the blown bridges. The north crossing at Dieuleuard was effected by CC "A." The pincers closed in the vicinity of Arracourt and cut across RN 74, main highway northeast from Nancy.

While the massive Moselle bridgehead through Nancy was being consolidated the division withstood the heaviest German tank attacks launched in the battle of France. In two weeks of the unabated armored battle (up to September 28) Mark IV, Mark V, and Mark VI tanks, supported by Grenadiers were thrown back with heavy losses to the enemy. The American tankers destroyed as many as 350 German tanks, many of them Mark V Panthers, at an average rate of 8 enemy tanks to one of their own.

The Germans, who first described the division in broadcasts as "The American Elite 4th Armored Division," soon used less complimentary phrases in describing the division as a band of ruthless fighters. The German soldier knows it as the "4th Panzers."

A German colonel of SS troops who was captured by the 4th Armored near Lemoncourt when the division broke into the German rear areas across the Moselle, said:

"Having been a commander of army units in Russia, covering an area of approximately 1,500 miles, I must admit that the American troops are not only equipped with the best matériel, but what strikes me especially is the excellent organization under which these men function."



American paratroops drop from troop carrier planes near Grave, Holland. In the foreground are gliders which have already landed with airborne troops.

Airborne Invasion

*by Brigadier E. C. Anstey, D.S.O.**

Signal Corps Photo

THE use of airborne armies is the latest offspring of the military art. Its birth was slow and painful. The conservatism of military thought was slow to adopt a novelty. It is curious that the Russian originators of the concept have confined themselves solely to parachuting, while their German disciples, who added air transports and gliders to their flying armies, were so disheartened by their first great airborne operation in Crete—successful though it was—that they refused to face again such losses as they then suffered and have since employed their picked and highly trained parachutists as infantry. It was left to the British and Americans to develop the airborne division of all arms.

A great deal of thought and experiment was necessary to devise the best organization and equipment for an airborne division, and to settle the principles of its employment. More and more, as time passes, logistics dominate military practice. Supply and transport have always controlled military operations; but in this war their problems have become more acute, more complex, and more dominating than ever before.

This is as true in airborne operations as in any others; logistics have dictated both airborne strategy and tactics. The simplest way of appreciating these logistical problems is to work backwards from the tactical to the administrative.

Tactics demand that the troops should be landed in the shortest possible time in a concentrated space so that the enemy's defenses should be surprised and the full airborne force ready for action before the enemy's reserves can arrive. From this it was deduced that it would be necessary for air transports to arrive on each landing ground at the rate of one aircraft every ten seconds. That was the fastest rate of landing believed possible to attain, and then possible only in daylight.

From the airman's point of view it was desirable that the whole landing operation should be over in half an hour so as to avoid a heavy concentration of enemy fighters gathering against the air fleets. As one machine-per-10-seconds was the maximum speed of arrival, it followed that the size of the airborne force which could be landed in half an hour depended on the number of landing plots or areas available. An airfield or open zone of good size could, of course, be divided into several landing areas. Such, therefore, were the tactical conditions which air administrative staffs had to meet. They had to arrange for a stream of aircraft flying into each landing area, at intervals of 10 seconds.

At first sight the problem appeared insoluble, for it was not possible for heavy transport planes to leave any airfield, however large and well-equipped, at 10-second intervals. When the problem was being studied, the minimum time taken by heavy bombers to leave the ground in succession was three minutes. By combined study, training in Britain, and the strictest ground discipline and control, the time was cut to 30 seconds. It was an astonishing feat of efficiency; but it was clear that it was the highest speed that could be attained.

A system was accordingly devised by which the aircraft taking off at thirty-second intervals, flew in the opposite direction to their objective for perhaps 10 miles and then turned on to their true course in formation on a timetable of seconds, which brought them into file ten seconds behind one another. So far so good.

*Military correspondent of the *Sunday Times* and *Daily Sketch*, London.

The next problem was to ensure that the squadron arrived at its objective in exact time and fitted into its proper place in its own stream without jostling anybody else. Obviously, on the basis of one stream per landing area, and the larger the force, the more numerous the streams; and consequently the more numerous the points of departure. For the Eindhoven-Arnhem operation, for instance, 25 airfields in Britain were used as airports of departure. Moreover, the fighter and fighter-bomber escorts had to be considered.

They were planned on a very large scale, for transport machines flying in low are extremely vulnerable, not only from fighters in the air but from flak on the ground. Escorts had to be provided both above and below the air fleets, fighters above and fighter-bombers below. It is not sufficient to attain general or local air superiority in the theater of war. Superiority has to be asserted and maintained during the whole operation.

Accordingly, while fighters accompanied the fleets and patrolled at high altitudes, fighter-bombers not only attacked and silenced the ground defenses before the transports arrived but, weaving in and around during the whole operation, kept the guns silent. Enemy gun crews were not only driven under cover but were kept there. That was why the percentage of loss amongst the air transports during the initial landing was as remarkably low as only 2 per cent.

It can be seen, therefore, what a massive operation the Eindhoven-Arnhem landing was. The British division was given the task of capturing and holding the most advanced point, the Arnhem bridgehead; the supporting forces of the operation were carried out by American and Polish troops. The 9th American Transport Carrier Command and the British 38th and 46th Groups provided the machines. They used 25 airfields, from all of which the streams had to converge like tributaries joining a river until they should flow evenly and punctually onto the landing fields in Holland.

That is a problem with which military staffs are familiar. On land it presents small difficulties when roads are adequate. But the air staffs controlling the air armada were dealing with aircraft of 12 different air speeds. The airfields from which they came covered a large area, in which wind conditions varied. Nor would these conditions be known accurately until the hours of start approached. Schedules had to be drawn up, therefore, accounting for all these conditions. Routes were chosen on to which the streams converged, avoiding enemy antiaircraft defenses, zones in which his fighters might be active, or areas where other Allied air forces might be coming or going on other missions.

On these routes 9 control points, easily recognizable from the air, such as the North Foreland—a promontory on the Kentish coast—were chosen and the hour, minute and second at which each machine should pass the point were tabulated.

At the last possible moment the direction and strength of the wind for each route was ascertained and notified, and the necessary adjustments made to the timetables.

A little thought will show that these tables, on which the accuracy of the whole operation hung, could not be completed until the landing grounds in each zone were known. Those grounds had to be decided in concert with the airborne staffs, for their choice was governed, so far as air technique allows, by tactical considerations. The soldier says how he would like to be landed; the airman explains how far those wishes can be met; the soldier then amends his plans accordingly; and the two staffs begin to work out their orders.

From that moment, some time elapses before the expedition is ready to start. It will suffice to say that it is anyhow more than 24 hours. If any change is made in the army plan after the final conference, confusion and delay may be caused. This preparatory period is longer on the army than on the air side because the army detail is greater and more complex.

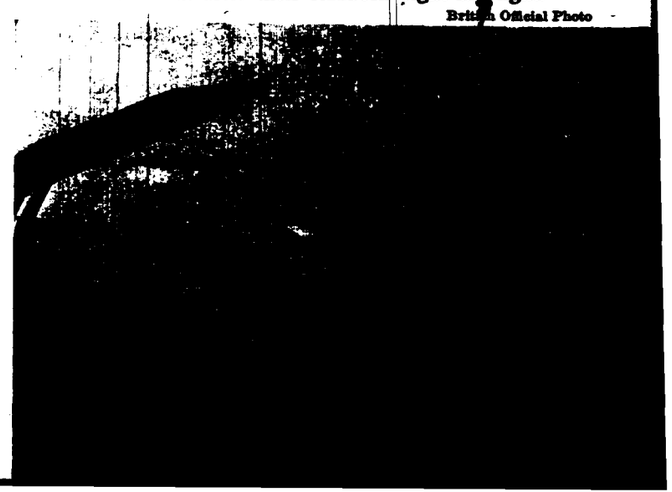
It is essential that every man in the airborne divisions should know exactly what his job is and what his commander's intentions are. Similarly, the briefing of air crews must be so thorough that every member knows all there is to know about the operation.

From this brief survey it is evident that an airborne operation takes time to arrange. Many which have been prepared since the landing in Normandy have been cancelled, either because the land forces overran the objectives before the air forces could arrive, or because of bad weather or some other disturbing cause.

The air staff work has been brought to such a pitch that the orders of a group for an airborne operation can now be produced in 24 hours. But the military side is bound to take longer than that. It is possible, however, that experience will reduce it. In that case the value of an airborne force to an army will be greatly enhanced.

The first two British gliders to touch down at Arnhem September 17. Damage to gliders was caused by wing tips interlocking. In the foreground are a trailer and jeep which have just been unloaded from the glider. Nearly 2,000 British troops of the Airborne Division were evacuated from Arnhem after their stubborn eight-day fight.

British Official Photo



Greece—A Résumé, October, 1940-October, 1944

by George Haniotis

TODAY the Germans are pulling out of Greece as fast as they can, and one Greek city after another again breathes the air of freedom. Another dark parenthesis in the long history of Greece is closed, and the free people of the mountains and valleys, forgetting the miserable conditions in which the Germans left them, are celebrating their new freedom with an enthusiasm touching hysteria.

History will record the resistance of the Greeks to the Axis powers as an outstanding example of patriotism. When Greece was attacked by Mussolini's legions in October, 1940, the situation in Europe was such that any attempt on the part of a small people to defy one of the Axis partners seemed to be sheer folly. Poland, Norway, Belgium, Holland and France were prostrated under the Nazi heel. England was being bombed constantly by the Germans who hoped to break the nerve of the British people, and there was no indication of what the outcome of the war would be. This situation alone would have been enough to make any nation think twice before attempting to defy the armies of Mussolini and Hitler. Greece, with a little less than 8,000,000 inhabitants and with an army, small in number, poorly equipped and inadequately trained for modern warfare, and with almost no hope of getting any substantial help from any quarter, had to face the mechanized might of Mussolini, behind whom stood the German war machine—considered at that time to be unbeatable.

Moreover, the Greeks did not have a wealthy country to defend, nor did they have even a tolerable standard of living. Most of the soldiers who were to fight had no wordly possessions to fight for. A compromise with Mussolini, who demanded bases in Greece for his war against the democracies, could hardly have found any critics if material values alone were to be taken as a criterion. But the Greeks did not stop to ponder on the inequality of the struggle nor to compare war logistics. Their country was attacked and that was a very good reason to fight. It has happened often before in their long history.

This determination to die rather than yield had far-reaching consequences. For several days the Greek forces fought a delaying action until mobilization was completed. Then they counterattacked and rolled the invaders back beyond the Greek frontier and deep into Albania.

The Italian attack was a masterpiece in its conception. Instead of attacking at the northern end of the Greek-Albanian frontier, using Koritza as a base and driving to Salonika (a plan that Greek headquarters had long anticipated) the Italian command chose to attack through the Pindus Mountain Range to reach Metsovo, thence across the plain to the rail center of Larissa, and cut Greece in two. At the same time, sent they another column driving southward toward Jannina.

The bulk of the Greek forces covering the frontiers were up north in the Koritza sector. Thus the forces defending the Pindus were very small. Early on October 28, 1940, Italian columns penetrated into the Pindus region against weak opposition, while in the Koritza section farther to the north they were held at a standstill. According to a high foreign military authority, the Italians had a masterly plan—but no soldiers to put their hearts into it. The Greek headquarters had guessed wrong—but had soldiers who were ready to die in defense of their homes. In the Metsovo and Jannina sectors there were cases of Greek battalions having to face whole divisions.

The most dramatic episode of the war (which has not been sufficiently known) was the penetration, almost unnoticed, of an Italian column through a ravine of the Pindus Mountains to within ten miles of Metsovo. The capture of Metsovo by the Italians would have brought them onto the Larissa plain and would have ended the war disastrously for the Greeks in a very short time.

As the Italians approached Metsovo, however, a miracle occurred. The Greek defenders climbed up the steep mountains around the valley and, flanking the Italian column from both sides, fought for three days without relief, while the women of the near-by villages helped the men by bringing ammunition high up to the peaks where only goats were thought to be able to climb. In view of the danger, a cavalry regiment was dispatched from the northern sector and, after a forced march, arrived in time to support the defenders. The Italian column, which consisted of the Italian Julia Division and other mountain elements, was then ultimately forced to retreat in confusion. *That was the turning point of the Italian invasion.*

Greek sentries guard a vital pass in the Pindus Mountains during the Greek-Italian war. Italians were turned back.

With this precious time won, Greek mobilization was completed. Greek citizens offered their private cars and commercial vans to carry the troops to the front. The Greeks then counterattacked and by November 10th, two weeks after the invasion, the Italians were in full retreat.

By the end of February, 1941, the Greek army had captured many Albanian towns, many thousands of Italian prisoners and abundant matériel. The captured matériel, which the Greeks had needed badly, was used to advantage against the Italians.

It is worthwhile mentioning that when the Italians attacked Greece, the Greek air force did not even number 100 planes and most of them were obsolete. The military achievements of the Greek soldiers were not, as is apparent, the result of preparation, but rather the result of the will to fight for their country.

For six months the Greeks kept their country free from the Italian invaders until the Germans, losing patience, broke through Bulgaria and Yugoslavia into Greece. With the Germans breaking into Greece behind the troops fighting the Italians in Albania, collapse was inevitable. The help sent Greece by the British after the German attack was "too little and too late," and in spite of the gallant fight of the British troops, the last Greek territory was occupied by the Germans by the end of May, 1941. Thus the Greek army had kept the Axis busy for seven months.

The Nazis never forgave the Greeks for upsetting their timetable. Greek resistance to the Italians and the inability of the latter to finish the job obliged the Germans to send their troops to eliminate that small country which was serving as an obstacle to their plans. Military critics believe that Greek resistance gave valuable additional time to the Russians. But one should not forget the moral effect of the determination of a small people to face death rather than accept slavery at a time when the Axis was astounding the world with its military successes.

There were no means of evacuating the Greek forces before the Germans occupied the country. When the Greek soldiers received orders to disband, they took their rifles with them and hid them in cellars and caves, waiting for a chance to use them again in organized guerilla bands. Guerilla warfare has been a tradition of the Greeks since their war of independence against the Turks in 1821.

By using British boats many soldiers managed to escape, and even after the occupation many more slipped through the Nazi lines and reached Egypt, where the nucleus of a new Greek army was being formed by the Government-in-exile. Both inside and outside Greece the fight continued. Two infantry brigades were formed in Egypt. These, together with the Greek air force and the Greek navy have rendered valuable service to the Allied cause in the Mediterranean theater of war. Greek troops fought at El Alamein, in Tunisia, and recently captured Rimini in Italy, and the Greek navy participated in the operations in Italy and southern France.

Greek troops rest in the mountains of Albania in 1940-1941. The picture gives some idea of the physical difficulties of campaigning in the wild snow-covered countryside —further tribute to the magnificent morale of the Greeks in their sturdy, determined resistance to Axis aggression.

Meanwhile, Greek guerillas at home were relentlessly harassing the Germans. The population of occupied Greece, in spite of privations, mass executions, and starvation, kept the fire of liberty burning in their hearts.

On October 12, 1944, the Athens radio station again acquired its own soul and its own voice and announced to the world that "Athens is free." A few days earlier British detachments and air force units had landed to the south in the Peloponnese and had cleared the region. As soon as the situation farther north in the Balkans presented serious threats of entrapping them in Greece, the Germans started concentrating their troops in various centers for evacuation. They were harassed and attacked by Greek guerillas, who by their action precipitated the evacuation.

The sun of freedom which has arisen again over Greece, shines over material ruins. Seldom in history has a people attained in such a short period so much glory in the way they defended their freedom, and so much misery in what they have suffered. The lack of food, the unparalleled inflation, the complete disorganization of transportation, the lack of medicines, and so many other results of the German occupation present a very serious problem. Nevertheless, the Greeks are jubilant over their freedom and hopeful for their rehabilitation.

Christmas Message

To the Officers and Men of the Army Ground Forces:

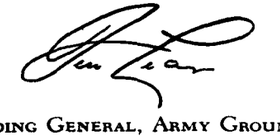
This is our fourth Christmas at war, and I should like now to reassert my pride in our war Army and my gratitude for its splendid accomplishments.

On our first war Christmas, while both our enemies roamed almost unchecked across the lands and seas they had marked for plunder, virtually none of our ground combat forces had yet left the United States. Today the story is happily different. Nearly all our ground forces are arrayed in massed strength in every corner of the world—not as green recruits thrown hastily into a last-ditch defense, but as a well-trained, highly skilled, mighty combat Army dedicated to the destruction of hostile forces, the liberation of conquered nations, and the establishment of lasting peace.

The cost of victory is never small, and we have had to pay a fair price so far. It is the lot of the ground soldier, and particularly of the Infantryman, to come to closest grips with the enemy, and both our enemies—strong, cunning, and resourceful—have clearly shown their intention not to yield without having first exacted all toll possible of our men.

In the campaigns of the last three years, many of our ground soldiers, including General McNair, our great former commander, have given their lives in battle. For them, there can never be another Christmas. For those of us who must carry on the fight for which they gave so much, no Christmas can be truly merry until we have finished the job they started.

I know that you American ground soldiers will finish that job, and finish it well. I have seen you grow old and wise in the ways of war, out-smarting our enemies, winning the admiration of your allies and the everlasting respect of your fellow countrymen. You deserve a fine Christmas. To those of you who are still waiting your turn to meet the enemy and hasten our victory, and to those of you who have already achieved so many great triumphs, I extend my sincerest congratulations and wish you the best Christmas a soldier can have.



COMMANDING GENERAL, ARMY GROUND FORCES.

Our Fourth War Christmas

Our fourth war Christmas finds a war-weary world still embroiled in a titantic struggle—a bitter life and death struggle brought about by a group of maniacs who sought world domination and the enslavement of peace loving nations. Many countries have been ravaged by this ruthless enemy. Cities, towns, and villages have been demolished in wanton carnage.

You in our armed forces overseas have seen the death and destruction in countries there and are making certain that a similar fate will not befall your own home and loved ones. You are doing your utmost to bring the war to a speedy and victorious end. You are imbued with an indomitable spirit and determination to win the fight regardless of the difficulties involved. You will continue to fight and gain that victory because you have something within you that the enemy does not have. It is faith in God—faith in your country, faith in yourselves, and faith in prayer.

So to our fighting forces everywhere we send our Christmas Greetings with a humble prayer to Almighty God to give you continued strength and courage until victory brings you safely home to a "Peace on Earth," resolutely won and firmly established.

Message from Japan

The following 100-word letter from Brigadier General Clinton A. Pierce, received by his cousin Walter E. Blythe on August 10, 1944, is published here as a matter of interest to old friends of this one-time cavalryman.

As a colonel of cavalry, General Pierce commanded the famed 26th Cavalry Regiment (P.S.) during its valiant rear guard action in the Philippines. He was later promoted to a brigadier general during the fighting on Bataan, served with General Wainwright throughout the Philippine defense, and with the surrender of Corregidor became a prisoner of the Japanese.

General Pierce's letter is one of the few received from cavalry officers who are held as prisoners of war in Japan.

13 October 1943.

Dear Cousin:—

Your sketch and note sixteenth April, 1943 received. Many thanks news, wishes, cartoon. Congratulations, Grandpappa—my best Ruth, Clinton.

Health good; climate dry, temperate, working on farm, studying, reading spare time.

Glad Mother well. Are allotments her continuing and sufficient? No mail from her. Have written.

Remember Clark Lee, Luzon and Bataan. Glad he got out. Would like read book.

Nice you contacted Al and Herb. Trust they received my letters Stotsenburg, antebellum. Margaret mentions Herb and Rogan Morrison.

Please circulate. My best Elizabeth, Uncle Gene, you. Chin is up. Plan for happy reunion.

CLINT,
CLINTON A. PIERCE
Brigadier General
U. S. Army.

To Walter E. Blythe,
9123 — 112th Street,
Richmond Hill, New York, U.S.A.

Horses on Leyte

With 6th Army Forces on Leyte, P. I.—Nov. 2—(Delayed)—(AP)—Among the more prominent repatriates on Leyte are 7 army horses. . . .

For almost 18 months since the 1st Cavalry Division came overseas it fought on foot like many an infantry division. . . .

Soon after landing near Tacloban on October 20, the dismounted cavalrymen fought their way across Tacloban's race track, and not a man in the outfit missed the sight of several horses roaming near by.

Even Major General Vernon Mudge cast an appraising eye on that horseflesh. It was not long before Captain Don Walton, commanding reconnaissance troops, received an order to round up all available horses in the area. He delegated the job to 1st Lieutenant Muir Humphrey, whose men picked up several horses in rice paddies near the race course, and much to their amazement found that they were American cavalry horses which had belonged to the 26th Regiment at Bataan.

Filipino guerrillas turned in some ponies and farmers contributed a few more that they had corralled. The natives also brought up all the old saddles they could find, including three regular army saddles which had survived the Japanese occupation.

The above dispatch from the Philippines is interesting not only because of the recapture of several horses of the 26th Cavalry, but also because of the fact that all available horses and saddles were collected from guerrillas and natives for use by the reconnaissance unit.

In his Notes in this issue, General Hawkins comments on a previous experience in 1898—when dismounted cavalry was sent to the Philippines and fought as infantry. When a few horses were sent over the

following spring, the mounted troops proved so valuable that the whole regiment was remounted.

This experience, coupled with the exploits of the 26th Cavalry in Luzon, exemplify the need for *mounted* cavalry in the Philippine campaign.

The 1st Cavalry Division has been and is fighting successfully without its mounts—but may history repeat itself and the need for cavalry become paramount.

Maintenance

I call on each man and woman serving with the Army of the United States to unite in a campaign of Preventive maintenance . . . to abolish the menace of mechanical failures . . . this is your responsibility. . . .

SECRETARY OF WAR STIMSON.

The difference in taking 5 or 10 extra minutes to make sure your vehicle will keep rolling, or letting it go for the maintenance section to repair for 5 or 10 hours may not only cost your life, but may mean the annihilation of a whole regiment or division. Any driver who wilfully or carelessly neglects his vehicle is as guilty of sabotage as though he had actually tried to destroy the vehicle.

LT. TRAVIS CRAMB,
Motor Office of the 30th Cavalry.

The military value of an armored element is directly dependent upon its ability to utilize its inherent speed, mobility, protective covering and heavy firepower. Therefore, it is obvious that preventive maintenance in every unit must be brought to a high degree of excellence . . . maintenance is a factor which all commanders must consider at all times. Where you find excessive breakage, you find faulty leadership . . . the driver of each vehicle is the first echelon of maintenance. He must be fully trained and qualified to perform his maintenance duties promptly and intelligently. A failure on the field of battle usually results in needless risk of life and equipment.

MAJ. GEN. A. C. GILLEM, JR.
Commanding General of the Armored Command.

Hardening of Horseshoes

The following paragraph, recommended by Colonel Albert E. Phillips, will be published as a change in TM 2-220 and filed for inclusion in the next revision of FM 25-5.

"As horseshoes now issued on revised specifications are of 1025 carbon, hardening of the metal through its entire thickness is obtainable by heating to a red glow and cooling in water. The resulting temper gives a reading of 36 Rockwell "C" Test, as compared with a reading of 29 for untreated high-carbon tool steel. With 1025 carbon steel shoes, it is unnecessary and inadvisable to use chemical "case-hardening" methods formerly used with low-grade 1010 carbon steel shoes. The method hardens only .007 inch—a thin-paper shell—and leaves the remainder of the metal annealed or softer than before heating."

Overseas Edition

THE CAVALRY JOURNAL is now available in a special "overseas" edition which, except for size, is the same as the regular CAVALRY JOURNAL publication.

This new edition, approximately 5¾" x 7¾", was adopted to save shipping space and to provide a Journal which can be slipped into a pocket and read at intervals when time is available.

Originally intended only for overseas subscribers, this pocket-size edition is now also available for persons still stationed in the United States. If your assignments keep you on the move, or if you are cramped for storage space, or if for any other reason you would prefer the "overseas" edition, please notify the Cavalry Journal office, and the small edition will be sent to you.

Wrong Addresses!!!

Is your name here? Can you help locate these missing addresses? Send in your correct address, and your CAVALRY JOURNAL will be mailed you at once.

Major Marcus W. Adams	Lieutenant Roy G. Lindloff
Staff Sergeant R. C. Apparius	Lieutenant Chester A. Lindsey, Jr.
Lieutenant Frank H. Barnhart	Lieutenant Frank C. Long
Lieutenant James F. Barrett	Lieutenant William E. Long
Lieutenant Thomas H. Bennett	Lieutenant Wilofard A. McClain
Private Dayton S. Blackford	Captain Joseph A. McCulloch
Lieutenant William L. Braddy	Lieutenant Owen L. McGuiness
Staff Sergeant Robert Buckingham	Major George I. Macleod
Lieutenant Bernard V. Bukowski	Major Roland H. Mapes
Lieutenant Delno R. Burns	Lieutenant John E. Martin
Captain George W. Buser	Lieutenant Wallace B. Martin
Lieutenant William C. Byrns	Lieutenant Jesse N. Maxwell
Lieutenant Virgil L. Campbell	Private First Class John G. Mazur
Lieutenant Donald W. Carlson	Lieutenant Alfred G. Means
Lieutenant John Caton	Lieutenant S. A. Modisett
Lieutenant Thomas K. Chaffee, Jr.	Lt. Colonel George L. Morris
Captain H. L. Clark	Lieutenant Herman H. Morrison
Captain Wallace L. Clement	Corporal Robert W. Neel
Lieutenant Lee J. Colman	Lieutenant William E. Nelson
Major Hal P. Costolo	Lieutenant Sherwood Noll
Warrant Officer James Cotton	Lieutenant Clifford J. Norton
Lieutenant Baalis B. Crozier	Lieutenant Leonard L. Norwood
Captain William J. Cunningham	Lieutenant Edmund Pelletier
Captain J. W. Currier	Lieutenant Robert P. Perry
Lieutenant Byron C. Darling	Captain M. F. Pincetl
Lieutenant V. A. Dennison	Lieutenant Clinton H. Poovey
Colonel Mark A. Devine, Jr.	Captain Graham B. Purcell, Jr.
Lieutenant Kenneth P. Dunn	Lieutenant William D. Quinlivan
Lieutenant David P. Dunton	Major Dale Rader
Lieutenant George F. Dvoracek	Captain Richard E. Raymond
Lieutenant Alton R. Eckman	Lieutenant Russell Read
Lieutenant John E. Elder	Lieutenant E. P. Riede
Colonel F. W. Fenn	First Sergeant Russell Rouh
Lieutenant Louis N. Fenner	Lieutenant Charles S. Sarratt
Lieutenant Henry H. Fick	Lieutenant Carl A. Seiley
Private John F. Foran	Lieutenant Paul A. Shackleford
Staff Sergeant Odell J. Gardner	Lieutenant Harold A. Shields
Lt. Colonel Arthur R. Giesen	Lieutenant Robert L. Sitzenstock
Lieutenant Herbert W. Goodall	Corporal Alfred M. Smallens
Lieutenant Martin A. Gravit	Lieutenant Harry A. Snoddy
Lt. Colonel Brenden McKay Greely	Lieutenant Gayle H. Spencer
Lieutenant Colonel L. M. Grener	Lieutenant Charles Thomas, Jr.
Lieutenant Joseph W. Gresham	Private Edward W. Thomas
First Sergeant Jefrey Hamilton	Captain Lynn G. Thompson
Lieutenant Robert C. Hammond, Jr.	Lieutenant Victor J. Tomei
Major Dale E. Harper	Lieutenant Arthur A. Tritsch, Jr.
Lieutenant Hayden J. Harper	Colonel W. S. Wadelton
Lieutenant Ogden H. Hill	Lieutenant Charles W. Waring
Lieutenant Benjamin H. Holderby	Captain Richard A. Webb
Lieutenant Carl R. Hughes	Lieutenant Claude M. Wells
Lieutenant Jack Hurst	Captain G. A. Wessels
Captain Gordon S. Justus	Private Charles E. White
Lieutenant John T. Kearney	Sergeant William E. Wilkerson
Lieutenant Howard W. T. Lacey	Private J. J. Willard
Lieutenant John R. Langford	Lieutenant Owen O. Wright
Captain Elias F. Liakos	Sergeant Wilbur Wright
Private William R. Lieb	Major Ford E. Young, Jr.
Lieutenant Ralph L. Lindblad	Lieutenant Harry C. Zeskey

Cavalrymen—*Mounted, Dismounted and Mechanized*

Two recent letters from young cavalry officers serving with cavalry reconnaissance squadrons in France and Germany take exception to the statement in my Notes in the July-August issue of THE CAVALRY JOURNAL to the effect that "The United States and England will have no cavalry in coming European operations." They call attention to the fact that many cavalry reconnaissance squadrons landed with the first troops in the invasion of Normandy and have been fighting gallantly and effectively ever since; that in addition to reconnaissance these squadrons have performed all sorts of cavalry missions.

Members of these cavalry reconnaissance units are cavalrymen; they are called cavalrymen and wear the cavalry insignia. Instead of using horses, however, they use armored cars and jeeps. These young men are proud of being cavalrymen, and they want these facts known.

The Cavalry Association, in turn, is proud of these cavalry squadrons, trained in cavalry traditions and cavalry principles. The 1st Cavalry Division also is serving with distinction, in the Pacific theater of operations and without its horses.

This is not the first time that U. S. cavalry has been sent into active campaigns without its horses. A dismounted cavalry division, sent into Cuba in the Spanish-American War in 1898, fought in the Battle of Santiago. Lack of transportation for the horses was given as the reason that they were left behind.

The same year the 4th U. S. Cavalry, dismounted, was sent to the Philippines, and fought dismounted as light infantry during the first few months of the Philippine insurrection which broke out in February, 1899. During the late spring and early summer of that year some troops of the 4th Cavalry were mounted again on their horses which had been shipped from the U. S. They proved so valuable that during the ensuing summer the whole regiment was completely mounted. A little later several other cavalry regiments were sent over, with their horses following in regular horse transports. The folly of not having sent mounted cavalry over to the Philippines originally was responsible for the prolongation of the campaign which carried the insurrection into several years. This fact has been referred to and explained in these Notes in other issues of THE CAVALRY JOURNAL.

Wherever our cavalry has fought, mounted, dismounted, or mechanized—as is now the case in Europe—it has distinguished itself. The exploits of the mechanized squadrons of cavalry now in Europe should not be overlooked, but I am convinced that large forces of cavalry, using horses, could, in combination with mechanized forces, shorten the war there and save thousands of lives.

Undoubtedly, the cavalry reconnaissance units are doing splendid work, but no matter how well trained they may be, however skilful, however gallant, however efficient, they cannot perform ground reconnaissance as well, or as safely, as they could if they were supported and assisted by strong horse cavalry units. The idea that, on any terrain except a desert devoid of trees, creeks, rivers, mountains and other natural obstacles, a unit whose men ride in armored cars and jeeps can explore the country thoroughly and safely is preposterous. A skilful enemy can lay traps and ambuscades for such an outfit. This will not only interfere with effective reconnaissance but will often result in destruction of a large part of the unit. There can be no stealth with noisy motor vehicles. Thick woods, muddy ground, difficult mountains, and plains intersected by creeks cannot be reconnoitered thoroughly except by horsemen.

A proper combination of horse soldiers with mechanized soldiers can be very effective, as shown by the Russians both in reconnaissance and in large offensive attacks against the enemy flanks and rear.

Our cavalry is serving in this war in dismounted and in mechanized units. And many cavalry officers are serving in the infantry and armored forces, various staff groups and high commands. We at home are very proud of them all, and take off our hats to them with great humility.

AN UNSEEN ENEMY—

In Europe today, tuberculosis is raging with epidemic force. It must not happen in America. Yet Americans are dying at the rate of one every nine minutes—right here in this country—from tuberculosis.

Christmas Seals are in the foreground of the fight against this dread disease. Buy Christmas Seals. Use Christmas Seals. Help thwart the spread of a perilous enemy!

RED ARMY COSSACKS

by Major Robert B. Rigg, Cavalry

Equipment Under the Czars

IMPROVEMENTS have been made in Cossack equipment since the days of the Imperial Russian Army when the Cossacks were obliged to furnish their own individual military needs. In Tsarist days when a youth began military service his family had to outfit him with horse, uniform, saddle, bridle and personal accouterments. Prior to accepting *Kazak* youths, Russian army officers used to hold assemblies for the purpose of inspecting equipment. The latter had to meet army standards before the Cossacks were sworn in. If serious defects were found in a Cossack's horse he would have to obtain another mount quickly from a friend or relative.

Earlier in history this system worked well enough, but at the beginning of the 20th Century it showed signs of being outmoded. For one thing it worked a serious handicap on the poorer Cossack families who had to spend a great deal of money on necessary equipment. Training and combat took their toll on uniforms, etc. In the Russo-Japanese War military observers commented on the fact that the Siberian Cossacks failed to "hit the ground" and skirmish dismounted enough because these cavalrymen were trying to conserve their few clothes.

Personal Equipment Today

Soviet Cossacks are now equipped and armed by the Red Army the same as all other Russian soldiers. All Red Army men are taught to take good care of their equipment. Economy is the keynote, and little is wasted. In details, Soviet military equipment will vary, but this is because every available item and weapon is used. In the field discipline is strict on the matter of property responsibility, and even a wounded soldier is not excused for leaving his rifle behind on the battlefield.

Every Cossack carries a saber, even in units such as communications or artillery. The standard Red Army saber is similar to the old U. S. Army cavalry blade except that the Russian model lacks a hand guard. A thong secures the weapon to the wrist when it is unsheathed. Mounted, the Cossack hangs the saber from the left side of the cantle; dismounted, he carries the weapon on his left waist belt.

All Red Army cavalrymen are issued cloth ponchos which have a hood to protect the head. These are carried on the very top of the cantle roll when not in use. Each cavalryman is issued one shelter half, but in combat he is not likely to use it as much as his *burka*.

First-aid kit, emergency rations, soap, a sack with rifle cleaning equipment, extra underclothing, toweling, and personal possessions are normally carried in the saddle bags. Gas mask, canteen, and a pail-like mess kit, plus spoon are other items of individual issue.

Saddle Equipment

There is nothing outstanding about Cossack saddle equipment. In general the same practices and procedure apply to Cossack cavalry as are common to the cavalry of other armies. Extra horseshoe nails are carried. Bridles, bits, feed bags and saddle blankets conform to the average cavalry equipment and warrant no further comment.

Saddles vary between the Cossack saddle, the standard Soviet cavalry saddle, and some miscellaneous types. Cossacks can be seen using Caucasian type saddles as well as occasional English ones. Front and rear saddle bags are used, and there are prescribed items for each pocket. Cossack saddles have the usual cantle and pommel rolls.

The regular *Kazacheski sedlo* has a peculiar pillow seat which is uncomfortable to the horseman who does not ride in Cossack fashion, *i.e.*, considerable weight on the stirrups, no posting at the trot, and a forward, almost standing seat at the gallop. This pillow seat on a Cossack saddle is made of a heavily padded and quartered leather cushion which eventually becomes shaped by the rider. There is a small wooded horn at the pommel and cantle. The stirrups are metal. There is normally a three-strap girth on the saddle which has the usual skirts.

The regular Soviet cavalry saddle is an improvement over the more ancient Cossack saddle, although the latter is used often by non-Cossack elements. The standard Red Army cavalry saddle is somewhat like the English flat saddle except that it has a higher cantle and pommel.

Weapons

The Saber. The only large modern army retaining the saber for combat use is the Red Army. Every line Cossack carries this weapon. Despite its antiquity as an instrument of war the Soviet saber has added many enemy dead and wounded to its present-day record. There is an old Cossack saying, "The saber is always loaded."

Some may wonder if the saber has been successfully used enough in this war to warrant retaining the weapon. The Soviet answer is *yes!* Actually, it must be realized that the saber is the least important and least used of all Cossack weapons, but occasionally it finds a very useful place in the fighting.

The Russians, and particularly the Cossacks, have retained the saber because they are *very* skilful at using it. In the hands of some nationalities the saber is not a particularly effective instrument. One only has to witness a Red Army saber course and the manner in which Soviet horsemen wield this "mounted bayonet" to appreciate the effectiveness of the saber in *Russian* hands. There are *no* half measures in the Russian use of the saber mounted; the blade is slashed to *kill*—not to wound or stab. For generations Russian armymen have related battle instances where bodies were split or halved by a single downward stroke of a cavalry saber. This was always a Cossack goal, and years ago these horsemen set the masterly pattern for the use of the saber.

The Cossack carries either a rifle or a tommy gun with the rifle predominating. Rifle boots are not used as the rifle is simply slung diagonally across the horseman's back. This is not too comfortable for the rider, but his weapon is with him when he dismounts. Russian enonomy may account for the nonissue of a rifle boot, although some armies prefer that their cavalrymen carry the rifles on their backs.

The following weapons are also used by Cossacks, as well as other Red Army cavalrymen:

The Mossin-Nagant M 91/30, 7.62mm (.30 caliber) is the basic rifle. It weighs 9.9 pounds and takes a 5-round clip. The maximum effective range is about 900 yards. There is also a Mossin-Nagant Sniper rifle.

The Tokarevs M 1938 and 40 are practically identical semiautomatic rifles, also 7.62mm. Weighing 10.8 pounds, each has a 10-round magazine loaded by 5-round clips and a practical rate of fire of 15 rounds per

Sovfoto

Don Cossack Guardsmen rest in the foothills of Carpathians on the second Ukrainian front, May 1944. Soldiers clean sabers and firearms, while a Red Army nurse gives first aid to minor wounds. Note length of saber.

Part II—Equipment, Arms, and Armament

← This panorama of the components of a Cossack raiding unit shows weapons carried by Cossack raiding parties, which always have a high proportion of automatic arms. The small raiding party may dispense with the field artillery while a large unit may be augmented with tanks. All raiding units are followed by light trains carrying food, ammunition, etc.

minute. There is also an M 40 Tokarev carbine and a sniper's rifle.

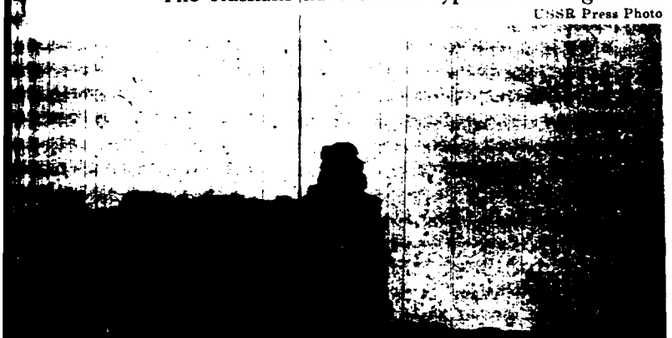
The PPSH, Model M 1941, Tommy Gun, weighing just over 10 pounds, is a handy weapon and a Cossack favorite. The gun is 7.62mm, and takes either a 72-round circular drum, a "half-moon" type, or a straight clip; the latter two clips hold about 22 rounds of ammunition each. The straight clip (such as found on the Thompson submachine gun) has proved to be the most practical, and it has now replaced the large circular drum. Red Army men are devoted to their method of slinging this tommy gun. The sling strap on the weapon allows the gun to be suspended from the neck and left shoulder in a "ready to fire" position. This method of carrying the submachine gun is particularly advantageous to the mounted cavalryman or to the officer whose hands should normally be free to handle maps, field glasses, etc. Thus suspended, the tommy gun can be quickly brought into play.

All officers carry pistols, but the variety of models in use in the Red Army is too great to describe here.

Armament

The Russians have several types of hand grenades ranging from the Mills type to the antitank hand grenade. Details are lacking on the specific models used by Cossacks, but it is believed that they employ almost every type.

USSR Press Photo



Aside from the small weapons carried by individual Cossack soldiers the regiments are equipped with the following weapons:

The Degtyarev Light Machine Gun, Model 1928. This bipod-mounted 7.62mm weapon has a circular ammunition drum that rests horizontally on the top of the gun. A gas-operated weapon, it weighs a little over 20 pounds and is generally comparable to the U. S. BAR. The Degtyarev has a cyclic rate of fire of 600 rounds per minute and is considered effective up to 1,000 yards.

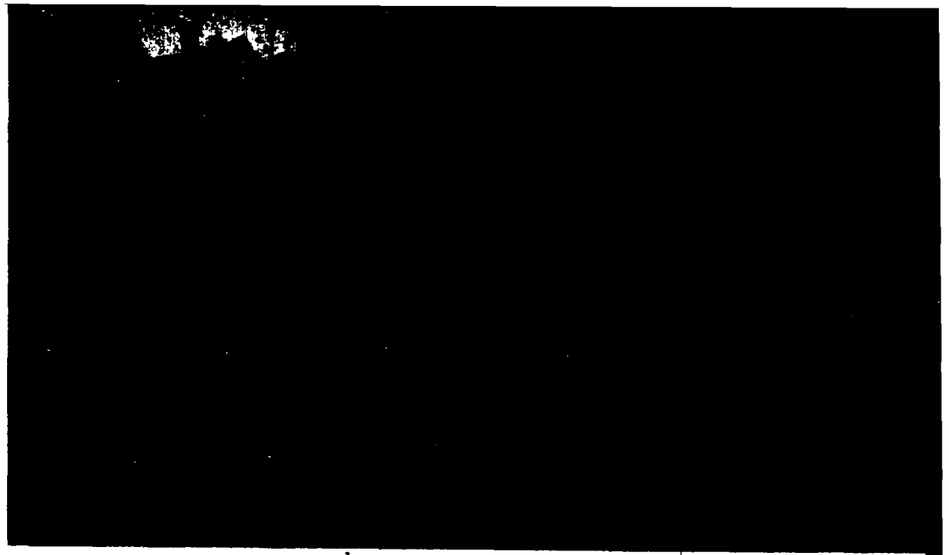
The Maxim Heavy Machine Gun, Model 1910, is a weapon that has proved its practicability and usefulness in two world wars, as well as having been consistently used by both sides during the Russian Civil War. The water-cooled model is on the Sokolov mount, a low pintle frame with two small metal wheels and a trail. On this mount the gun weighs about 135 pounds. The machine gun is a 7.62mm weapon, recoil operated. The Maxim MG can fire 200 to 300 rounds per minute and is fed by a 250-round belt. While sighted up to 3,000 meters (3,280 yards) the effective range is considered to be 1,000 yards. This old, but still practical weapon, with its small metal shield is regularly used on the *tachanki.* In winter a white cloth camouflage sleeve fits over the water-cooled barrel. (See photos 1 and 2.)

The 7.62mm Degtyarev Heavy Machine Gun, Model 1939, has cooling fins on its air-cooled barrel. It is similar in design to the 12.7mm machine gun below, but is mounted on a tripod. Like the Maxim, it can be fitted with large concentric ring sights for AA.

The 12.7mm AA/AT Degtyarev Machine Gun is belt-fed and has a reported range of over 2,500 yards. Its rate of fire is about 600 rounds per minute. The piece is gas-operated and has been used as an AT weapon as well as for its normal AA purpose. It has a three-man crew.

The 14.5mm Degtyarev Antitank Rifle, Model 1941. The Cossacks and Red cavalry have used this AT gun to great advantage. The weapon is one of the outstanding small AT pieces of the Red Army. It is a .57 caliber long-barreled, bolt action, single shot antitank piece which was once nicknamed the "20th Century Lance" by the Cossacks who for a while carried it on horseback in lance fashion. Today, however, the gun is borne on a pack animal. The pack saddle has a special bracket which will permit the gun to be fired from off of the horse at enemy aircraft when necessary. In addition to saddle bags carrying feed for the horse, there are two ammunition bags which hold approximately 100 rounds of ammunition.

Cossack guardsmen man an 82mm mortar (M1941), December 1943. Tommy guns are strapped to backs. Russian Tommy guns now have box magazines, which make them easier to carry and ready for instant action. Note mortar shells in foreground.



Cossack guardsmen haul a 76.2mm gun (M1942). This is a very light field gun with muzzle brake. Carbines are M1924/27.

The 45mm Antitank Guns, Models 1932 and 1937. These weapons are almost identical, and form the AT battery of the cavalry regiment. The guns are horse-drawn and have a small limber. In typical field artillery fashion one or two men ride the limber while another two are atop two of the four horses drawing the gun. Behind the latter, another 4 animals with a limber and caisson complete the gun section.

The 45mm AT guns are rubber-tired and weigh about 1,000 pounds. These closely resemble the German 37mm gun. The weapon fires both HE and AP shells.

Mortars. The 82mm mortars are commonly used by Cossacks and other Red Army cavalry. These weapons have a range of a little over 3,000 yards, and the practical rate of fire is 12 to 15 rounds per minute. There is a crew of 5 Cossacks per mortar, and each of these men is armed with rifle or tommy gun. (See photo 5.) Mortars are transported on a rubber-tired limber and caisson which are horse-drawn.

Artillery. This arm has an extremely important rôle in Cossack-cavalry operations. Without artillery weapons the Cossacks could not exist as a fighting force in modern war.

With each Cossack regiment there is a battery (4 guns) of 76.2mm howitzers. The cavalry division has normally a two-battalion regiment of field artillery. This artillery regiment has both 76.2mm guns and the very practical 122mm howitzers. In actual combat operations, however, Cossack and other Red cavalry units are not limited to their own organizational artillery, for this is usually supplemented by corps and GHQ artillery units.

The 76.2mm Regimental Howitzer, Model 1927, is a short-barreled, squat, box-trail gun with large artillery wheels. A very handy horse-drawn weapon which is used in Cossack and other cavalry units. It fires HE shells (range approximately 7,200 yards) and shrapnel shells which are reported to have a range of about 7,500 yards. This is an important close-support weapon which Cossacks use continually, and if necessary can even pull for short distances by hand.

The 76.2mm Field Guns. There are three modern models, the 1936, 1939 and 1942. The 1936 model is characterized by its 12-foot high-angled barrel; it has been used for AT fire. All models have split trails, and firing the HE shell they have an average maximum range of about 14,000 yards. Armor-piercing shells have a maximum range of about 7,000 yards. Both these and the regimental howitzer are greatly admired by the Germans who have used captured pieces.

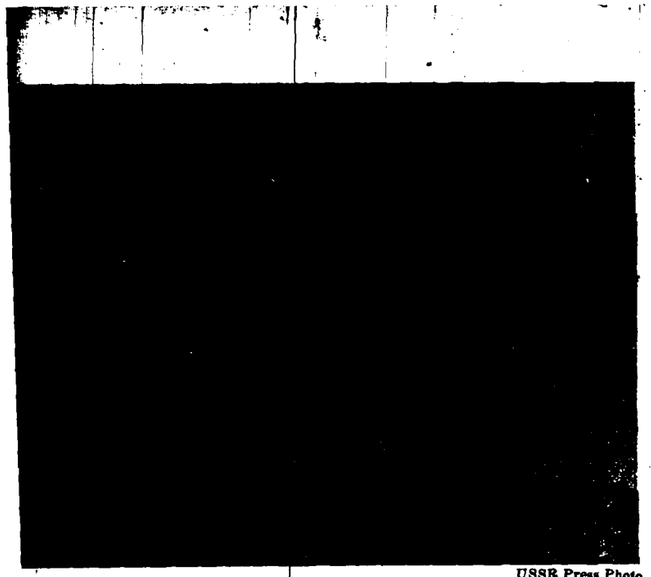
The 122mm (4.8 inches) Howitzer Model, 1910/30 is the normal cavalry supporting weapon. It has a range of 9,900 yards with a 45-pound HE shell. The 122mm (4.8 inches) Howitzer, Model 1938 might be used. It has a maximum range of 12,500 yards.

Early in the war some Cossack and cavalry units were using the old Czarist model 76.2mm field gun (3-inch), both in original and modernized guns, but these have gradually been replaced by the more modern artillery weapons already mentioned.

Organizational Equipment

To date the Cossacks have favored the wagon or horse-drawn vehicle over pack animals and motor transport within the regiment. Thus, within that unit the forage, food, ammunition, etc., are hauled by 4 and 2-wheeled wagons. Their 4-wheeled wagons have the general appearance of U. S. farm vehicles. They are sturdy board-sided wagons and are usually drawn by two horses. Often they carry the less seriously wounded cases back on their return trip from forward echelons.

Field Kitchens or the actual cooking stoves are contrivances on a 2-wheeled carriage, usually drawn by one horse. Water carriers are iron tanks which are likewise mounted on the two-wheeled cart frame. In 1940 there were 125 horse-drawn vehicles in the Soviet cavalry regiment and only 6 motor trucks.



USSR Press Photo

The Red Army .505 Degtyakov 12.7mm machine gun, with which Cossack units are equipped, has a varying rate of fire—low for ground fire, high for AA. Mounted on a high tripod, it is steadied by a stone hanging from the center.

The Tachanki. These 4-wheeled machine-gun carts, developed during the Russian Civil War, have been a great favorite of the Cossacks ever since. Four horses pull these light carts. Harnessed abreast, the two outside animals can be cut away quickly in the event that they become casualties. The Cossacks favor this method of hitching over harnessing the horses in artillery fashion. *i.e.*, in column of twos.

The *tachanka* carries one Maxim machine gun (1910 Model) which is mounted so that the gun fires to the rear. The gun is so arranged that it can be elevated for antiaircraft use. A driver, gunner and assistant gunner make up the crew, all of whom ride on the vehicle. (See photo 1.) Normally, three riflemen on horses follow in the rear of the *tachanka*. While the MG is often fired from off the *tachanka*, it is SOP to dismount the weapon and place the vehicle and horses under cover when possible. Cossacks have on occasions actually mounted two MGs on one *tachanka*.

One of the main reasons that the *tachanka* is so favored by the Cossacks and Red Army cavalrymen is that it can carry a good supply of ammunition. In addition, the vehicle is extremely fast and maneuverable. *Tachanki* are frequently used on Cossack raids as they are not handicapped by having to carry fuel, and for a few days at a time the animals can live off the little forage carried.

The exact number of these light wagons to a Cossack regiment is not known, but one recent combat account mentioned platoons of them.

Communications

The author is not well enough informed on this subject to outline it comprehensively. However, one item is apparent, and that is that the mounted messenger plays a very important part in regimental communications. Before the war the Red Army cavalry regiment had a half squadron (half U. S. troop) devoted to signals and communication. This consisted of a dispatch rider section, one radio section, an air liaison section, and two telephone sections.

The author has seen odd-looking radio carts with Red Army cavalry squadrons. These carts were 4-wheeled, horse-drawn, and the radio was in a high box arrangement that made the whole thing look like a small hearse. The wagon has one advantage over pack transport in that a heavier weight can be carried, and this means more radio.

Cossack cavalry uses field telephones (their own and U. S. Army models), and very often relies on the use of signal flags and pyrotechnics.

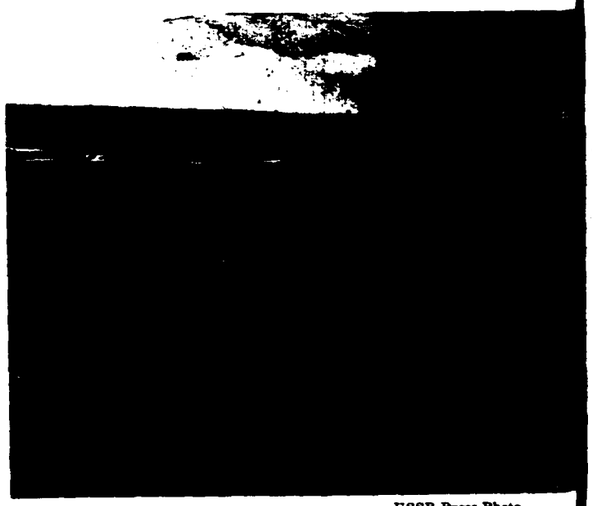
Miscellaneous Comments

Soviet cavalry units have a very practical item in a special food container that a horseman can strap to his back like a pack. This flat pail is used to carry hot food to small cavalry elements which are out of touch with their field kitchens. These containers can carry roughly three or four gallons of stew, or similar semi-liquid food.

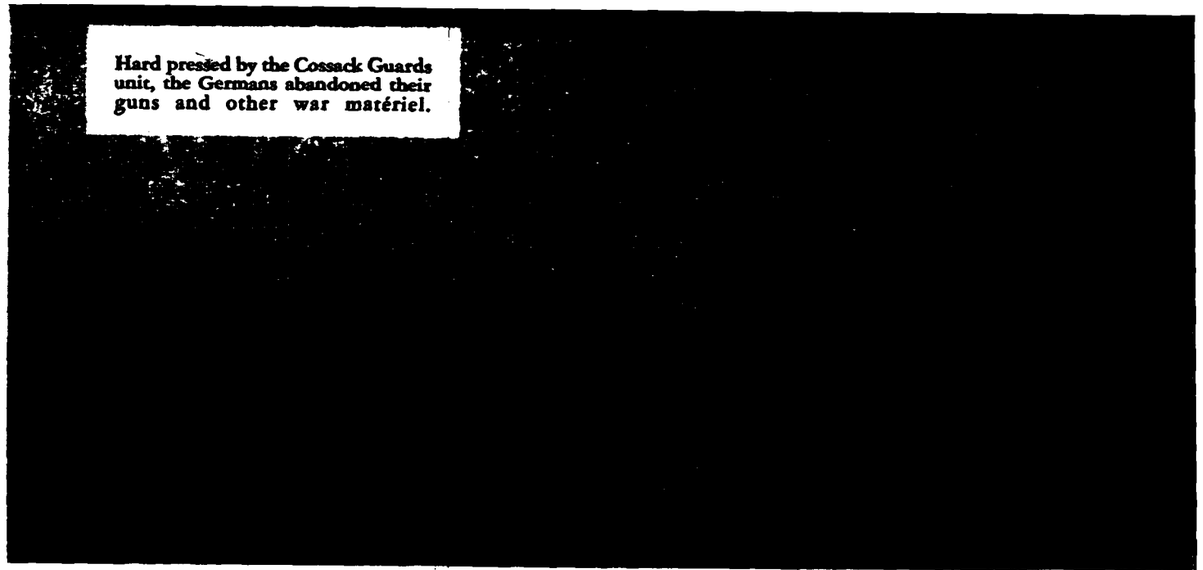
Details are lacking, but Cossack units are now using motor ambulances where possible. It should also be noted that the Red Army has special medical units, and the wounded of a cavalry regiment are not necessarily evacuated by their own medics.

Editor: *The third installment of Major Rigg's article on Red Army Cossacks, which will appear in the January-February* Cavalry Journal, *deals with Cossack organization, training, and combat.*

Close-up of the tachanka shows how the Maxim MG is mounted to fire to the rear. Normally the gun is placed on the ground, but it can be used off of the tachanka. Note how the belt is fed directly out of one of the ammunition cases. Some tachankas are four-wheeled; others, two. This photo of Cossack training was made May 1944.



USSR Press Photo



Hard pressed by the Cossack Guards unit, the Germans abandoned their guns and other war matériel.

Sovfoto

Cavalry Action Near Warsaw

by Major I. Poliakov

As the Germans attempted a withdrawal toward Warsaw in August, they were confronted by the onslaught of Soviet cavalry, which charged through the gap created by the enemy's retreat and, pushing forward in rapid pursuit, forced a number of serious engagements. The cavalry squadrons, trained in making daring decisions and bold assaults, often attacked the enemy dismounted, and, where conditions permitted, on horseback.

At Siedlece, an important railway and highway junction, and a vital point of enemy resistance on the approaches to Warsaw, the Germans spared no effort to hold the town. They covered their retreat to the town by a strong rearguard of tommy gunners, artillery and mortar fire in addition to tanks and self-propelled guns.

The operation developed as follows:

The cavalry squadron commander, ordered to rout the enemy rear guards from one of the villages, first reconnoitered the enemy positions, and, convincing himself that the Germans had no organized system of fire, decided to attack mounted.

During the night the lieutenant prepared his squadron for action. Guns, mortars and machine guns were posted on the flanks. Then on a given signal the squadron, with all its fire power in action, changed from defensive to offensive action. Taking the Germans by surprise, the squadron cut through the ranks of the terror-stricken Germans and began to spread out toward the village. Pressed from the front by the cavalrymen and from the flanks by mortar fire and machine guns, the enemy rearguard was soon routed. Fifty of the enemy were killed and 47 captured.

The cavalry never misses a favorable opportunity to attack in mounted order. On the approaches to Siedlece there were many such examples. Squads, troops and even single horsemen galloped into action with drawn swords. On one occasion a lieutenant, with a small party of men, rushed into a populated locality and annihilated the crew of a self-propelled gun. Another lieutenant with a detachment of horsemen, raced up to a German train and, after killing the engineer captured 40 freight cars with food and armament.

Near Siedlece the cavalrymen encountered increased resistance as the enemy brought up reinforcements of two infantry divisions and one SS tank division. But in coöperation with tank units, the cavalrymen broke the enemy's resistance and cleared Siedlece.

In those battles which were conducted in dismounted order, cavalrymen also made good use of their horses. They maneuvered, changed position, and appeared wherever the enemy least expected them.

When a strong force of Germans broke through the ring and headed for Warsaw, a cavalry troop under Lieutenant Belanovsky leaped into their saddles and hurried forward in a direction parallel to the retreating enemy. The cavalrymen soon outpaced the Germans and after dismounting, established themselves on the Warsaw highway. As the Germans approached they were met with a withering fire from the troop which held its position until the squadron arrived and annihilated the enemy.

*By cable to The Cavalry Journal from War Department, USSR, Moscow, September 14, 1944.

Cavalry Offensives in Winter*

by
Major General M. Smirnov, Red Army

Make thorough Reconnaissance.
Attack suddenly and aggressively.
Attack enemy flanks and rear.
Attack mounted or dismounted, according to situation.

SOVIET CAVALRY has participated in all winter operations of the Red Army. In December, 1941, the I Guard Cavalry Corps was successful in fighting against selected tank, motorized, and infantry divisions of General Guderian's Army which attempted to encircle Moscow from the south. In December of the same year, and in January 1942, the II Guard Cavalry Corps of General Dovator led the pursuit against the enemy retreating from the districts of Moscow, and several times his corps made destructive attacks on the Germans. In the Yelets operation the III Guard Cavalry Corps, also fighting under winter conditions, completed the destruction of an enemy corps.

The winter of 1942-43 provided many additional examples of serious winter fighting by Soviet cavalry—in actions below Stalingrad, in the northern Caucasus, below Valuikâm, Kharkov, and in other regions. During the present (1943-44) winter Soviet cavalry has continued destroying enemy units. During these three winters of war, cavalry has accumulated much experience in offensive actions under winter conditions.

Winter Peculiarities

Winter operations by cavalry are difficult, for during this period of the year it is necessary to overcome not only obstacles created by the enemy but also those created by nature.

Deep snow provides one of the major difficulties. In places where there is little snow an offense can be carried out either by mounted or dismounted formations (depending on enemy fire) with the support of tanks. Under these conditions horse artillery can support the attack and insure its success. On the other hand, where the terrain is covered with deep snow, an offensive is possible only with dismounted formations (on skis or not), *less* the support of tanks. The deepness of the snow often dictates the directions of the main attacks, for which it is always desirable to select terrain where actions by all types of troops are possible.

Areas covered with deep snow are useful for accomplishing encircling and enveloping maneuvers. Under such conditions evidences of the approach can be hidden and the enemy surprised by sudden thrusts to his flanks and rear.

Obviously, in winter there are fewer usable roads than in summer, and although improvised "roads" can sometimes be made by direct travel between two points, in general, winter limits the maneuverability of troops by binding them to a small number of roadways.

The maneuverability of units and sub-units can be increased in winter by placing the men on skis; also, frozen rivers, swamps, and streams become passable. The advance of modern technical arms is considerably complicated by swamps, streams, and intermittent creeks, such as in the wooded and marshy regions of the Ukraine and Belorussia, which are not frozen. In areas like these there must be a well organized engineer reconnaissance over the entire region, particularly in the swamps and non-frozen areas. Experience indicates that in general the smaller reconnaissance units (with MG) on skis are the most suitable for winter action. As a rule, mounted reconnaissance formations are unable to approach the enemy secretly in winter, and for this reason they cannot fulfill reconnaissance aims.

During the period of reconnaissance, the main elements of the cavalry regiment usually hide themselves in forests, villages, and ravines, and do not reveal their presence to the enemy. This is especially important when organizing night offensives.

In either a night or day attack the line of departure should be occupied only a short period before the beginning of the attack, so that the soldiers will not have to lie in the snow for a long time. At night the line of departure must, if possible, be nearer to the enemy than in daytime so as to lessen the casualties from enemy fire. It is useful to move the troops forward via snow trenches made by front line subdivisions.

It is necessary to attack quickly and in a determined fashion. Slow, non-decisive actions are not only unwise but increase losses. The greatest success is attained by sudden attack.

Surprise—Battle for Klekotki

In December of 1941 the tank and motorized divisions of General Guderian's German Second Armored Army began to withdraw from the region of Kashirsk and move south under pressure from Soviet troops. A large motorized column was retreating on the road between Mikhailov and Bogoroditsk.

One cavalry regiment of the Nth Cavalry Division was assigned the mission of cutting the highway Mikhailov to Bogoroditsk in the vicinity of Klekotki and holding it until reinforced by other Red Army units. (See Map 1.)

At 0500 on 14 December 41 the regiment established itself on the east edge of the forest west of Klekotki. It was extremely cold and dark. The heavier weapons and technical necessities (of the regiment) had advanced with difficulty along the snow-covered roads.

Throughout the locality the scouts had learned from the local population that an enemy infantry unit and staff had arrived in vehicles at night, and that they were bivouacked in the vicinity. Also in Klekotki was a group of Red Army prisoners who were kept under guard. Reconnaissance had further ascertained that a small group of enemy soldiers with light machine guns was in the territory south of Klekotki; that an armored car was at the church, and that there were enemy patrols in the village. It was also clearly determined that the hill (estimated to be 200 meters high) northwest of Klekotki was occupied by a group (1st and 2d subdivisions) of infantry who had one machine gun near the crest. To outward appearances the enemy was quite careless, and lacked an organized guard or all around defense of outposts.

Considering all of these things, along with the fact that the somewhat demoralized enemy had been retreating, the regimental commander made an immediate decision to attack and destroy them before dawn.

Deploying the 1st and 3d Squadrons on the east edge of the forest one kilometer west of Klekotki, the regimental commander ordered:

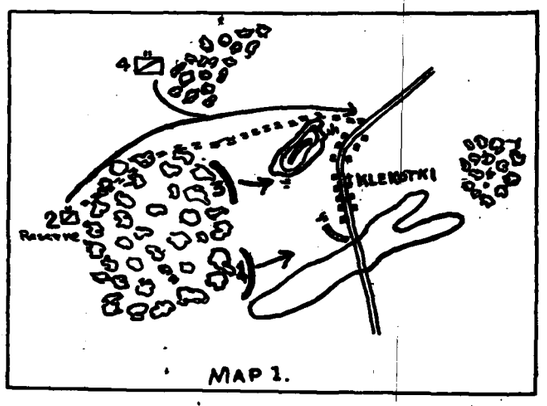
"The 1st Squadron to advance along the south edge of Klekotki, seize the southern portion of the village, and advance up the street to the church.

"The 3d Squadron to advance on the north edge of Klekotki, and then to move south along the street in the direction of the church.

The 4th Squadron, in mounted formation, to advance and seize the highway northeast of Klekotki, so as to prevent any approaching enemy units from entering Klekotki from the northeast.

"The 2d Squadron to remain in reserve, but to advance along the forest road in the general direction of Klekotki."

The 1st Squadron with a point consisting of submachine gunners, advanced east along a ravine. The submachine gunners attacked an enemy outpost on the south edge of the Klekotki and, after destroying it, entered the village and opened fire. Meanwhile, the group of automatic gunners of the 3d Squadron had



MAP 1.

beat off the enemy combat outpost at the hill, 200 to 300 meters west of Klekotki. Very shortly the attack on the village began from the south and north.

Abandoning rifles and machine guns, the Germans ran northeast along the highway where they were met and attacked by the mounted 4th Squadron. As a result many German soldiers and officers were left killed on the field. Following this the 4th Squadron, still mounted, burst into the village from the north and, after attacking a combat outpost released the Red Army men who were prisoners. Within an hour the

*Translated from Soviet Military Journal, *Voennyi Vestnik*.

village of Klekotki was entirely in the hands of the cavalry regiment.

The success of this battle was a result of the following:

- The enemy was careless in its failure to organize good outposts.
- The reconnaissance performed stealthily was successful; the regiment quietly occupied the line of departure, and the troops were well camouflaged.
- The attack was sudden and vigorous.
- The well-directed 4th Squadron prevented the enemy from fleeing northeast and joining other German units.

In winter as in summer, it is important to consolidate a position immediately after driving the enemy out, to organize an all around defense, and to prepare to repulse enemy counterattacks.

Organization of Attack

Attack by a cavalry regiment under winter conditions must be preceded by early reconnaissance. In such circumstances when the regiment is moving, it must have reliable reconnaissance and security elements ahead of it on skis. The reconnaissance element must begin reconnoitering the enemy's defense system before the main body of the regiment approaches.

Preceding the main body of the regiment is the advance guard support which is reinforced by artillery and mortars on sledges and skis, sappers with land mine detectors, and other engineer equipment. Acting energetically, the advance guard support throws back the enemy and attacks his subdivisions on the flank and rear. Usually the advance guard support finds action in the vicinity of the road. Artillery and mortars then form a fire unit post near the road, and furnish fire support for the advance guard. If present and available, ski subdivisions should execute a turning movement and attack the enemy in the flank and rear.

The regiment follows the advance guard support at a distance of from 2 to 3 kilometers (1.2 to 1.8 miles) and is in complete readiness to deploy. Each squadron has technicians* attached to it; they are placed either forward or center of each squadron.

After reconnaissance of the enemy and the surrounding terrain, the regimental commander receives his mission and he then deploys his regiment for battle. Practice shows that it is least advantageous to attack frontally; the enemy should be attacked on the flanks in combination with a thrust to the rear.

Flank and Rear Attack—Battle for Golubovka

This contention is supported by the following analysis of an offense by a cavalry regiment against a well organized and defended German base. (See Map 2.)

In March 1943, after the battle along the railway line, Kursk to Ponyri, the enemy evacuated these points and began to retreat west in the direction of Sevsk. In front of the Nth Cavalry Division was the 108th Hungarian Infantry Division. The snow was so deep that it restricted movements to roads, which were in poor condition. The terrain in this region was an average cross section of land having ravines, gullies, hollows, small forests and some brush.

By reconnaissance and the interrogation of prisoners it was established that the enemy intended to retreat westward to the region of their strongpoint at Golubovka. The prisoners explained that around this strongpoint there were minefields and entrenchments, fortified by 4 to 6 rows of wire obstructions. The northern part of the village of Golubovka had been fortified more strongly than the rest of the perimeter because partisans had been raiding the garrison from the forest north of the village.

The 11th Guardist Regiment, reinforced by a dismounted squadron "Z," was assigned the mission of advancing northwest in the direction of Cherniatki, Big Berezka (these are not on Map 2), Golubovka and Lesnoe, and at 2300 on 5 March to seize the region of Lesnoe and Golubovka. Following that the regiment was to be ready to advance west to the River Desna.

At 1730 on the appointed day, the regiment departed. In front of it were reconnaissance elements and one squadron comprising the advance guard support. The remaining squadrons marched with the main body.

Reconnaissance was unable to determine the strength and disposition of the enemy. As it so happened, the advance guard support (mounted) was protected by close-in patrols as it approached the southeast edge of Golubovka, and because of the darkness these patrols failed to notice the lines of barbed wire on which were hanging empty tin cans to warn the enemy. This noise aroused the Germans who opened up with heavy rifle and machine gun fire. The advance guard support retreated, then dismounted and deployed on the north edge of Promakhovka, while the horseholders led the horses into the grove west of Dubrovka.

After going to Promakhovka to make an estimate of the situation, the regimental commander organized supplementary reconnaissance, which determined that the north and west portions of the Golubovka fortress were the strongest, while the southern side was the weakest. On the basis of this, the commander decided that his main attack would be against the southern portion (see Map 2) and issued the following orders:

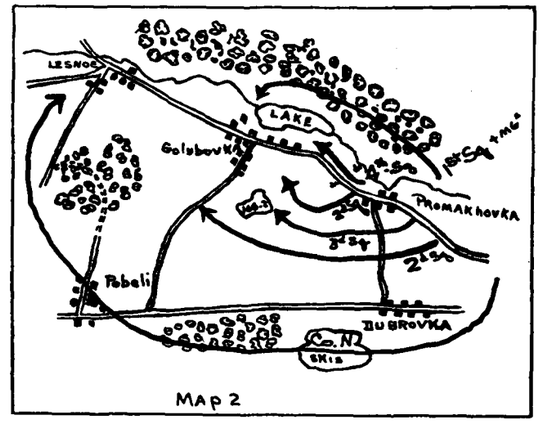
"The 4th Squadron with two light AT guns, to advance from the Promakhovka area along the road on the southeast edge of Golubovka.

"The 1st Squadron with one light AT gun and a platoon of heavy MG's, to outflank the enemy along the south edge of the grove north of Golubovka and to attack the northwest portion of this village.

*An exact translation of the Russian word. These technicians may be combat engineers, or other specialists for use in a particular phase of the contemplated operation.

"The 2d Squadron with one AT gun and a platoon of heavy MG's, to occupy the line of departure along the road at a point one kilometer south of Golubovka, and to attack the south edge of this village.

"The 3d Squadron to occupy a line of departure on



Map 2

the eastern slopes of the Hill 168.2, and also to attack the southern portion of Golubovka.

"The attached Squadron "Z," to advance along the north edge of Hill 168.2, cut the road from Golubovka to Pobeli and prevent any enemy retreat south or southwest."

In coöperation with the regiment, Company N (on skis) detached from a rifle brigade, was to outflank the enemy through Dubrovka, occupy Lesnoe, and place a force in observation on the west edge of the village; the remainder of the company was to occupy a defensive position on the southeast edge of Znobovka and cut off any way of enemy retreat to the northwest.

The attack was to start by a signal from the regimental commander.

Not until 0500 (the following morning) did the Soviet units occupy their respective lines of departure. This delay occurred because three of the squadrons had to march through deep snow and pull their guns by hand. During the first half of the night, the enemy kept up steady fire with rifles and machine guns, but to keep their positions concealed Red Army units were prohibited from returning this fire. Near morning the enemy fire ceased. Afterwards the prisoners explained that the Germans thought an attack was being made by partisans who frequently raided from the Golubovka forest.

At dawn the regimental commander gave the signal for the artillery to open fire on enemy targets. After a ten minute barrage the artillery fire was lifted and the cavalry squadrons moved forward into the attack. Resistance on the south side was weak, and the squadrons rushed straight into the enemy's entrenchments within the village. As the Germans started to withdraw to the north in the direction of Luzhki (not on Map 2), they were attacked by the 1st Squadron. Then as they turned to the southwest in an attempt to retreat to Pobeli, they were met near Hill 168.2 by the fire of the dismounted squadron "Z." After that the Nazis began to rush about from side to side in the hope that they might escape being surrounded. Meanwhile the infantry ski company advanced along the road to Golubovka.

As a result of this coöperative attack from all directions the enemy became demoralized and began to surrender in parts. About 0800 the entire group was smashed. There were 150 Nazis killed and 250 prisoners taken. Captured trophies included 7 heavy and 9 light MG's, a mortar battery, one A.T. gun, 360 rifles, 40 horses, and ammunition an arms depot, 3 radio stations and other military property. The Red Army cavalry regiment lost 12 killed and 20 wounded.

Success in this battle was due primarily to the following:

The enemy stronghold was surrounded on all sides, and the combined attack was well organized.

Artillery and mortars played a big rôle. In spite of the bad roads and deep snow these units were able to provide their own reconnaissance, to pull guns and mortars into position, lay them, and in the morning to have suddenly opened fire on enemy targets.

The suddenness of artillery fire from short ranges contributed materially to the quick occupation of the southern portion of Golubovka village. Even after that the artillery continued in support of the attacking squadrons.

The direction chosen for the main attack was a well selected one. The plan of flanking the enemy on the north and south was also sound. Afterward, it was evident that the infantry ski company might have been better employed had it been *ordered* to advance more aggressively on Golubovka. Actually, during the course of battle the ski company commander advanced toward Golubovka on his own initiative. Because of *poor reconnaissance during the approach march toward the enemy defenses*, the regiment could easily have failed in its mission.

In conclusion, it is necessary to point out that all winter operations demand a well-organized antitank and antiaircraft defense. While it is necessary to concentrate troops in places, the artillery and mortar positions, the reserve and the command post *must* be protected by antiaircraft and machine gun fire plus that of any extra saber or rifle sections available. The weapons of the antitank defense and the regimental artillery must continually be prepared to direct fire at tanks approaching in any direction.

When the action is dismounted the horse holders must lead the animals out of the zone of effective enemy artillery and mortar fire, and hide the led horses in forests, hollows, and other places of concealment.

MOUNTED ATTACK*

by Major V. Donskoi, Red Army

Sovfoto

THE combination of mounted and dismounted actions, and quick changes between these two formations, are the principal battle activities of cavalry.

Experience has shown that when it is expedient, and the opportunity is used, a mounted cavalry can achieve outstanding success. An inappropriate mounted attack, however, can entail useless and unjustified losses; for example, a situation demanding a sudden transition from mounted to dismounted formation wherein the commander deliberately chooses to fight on horseback.

There is the widespread opinion in some foreign armies that attacks by mounted units are impracticable under the present conditions of heavy fire power, but the Red Army retains a different point of view in this matter.

This difference of opinion is explained by the fact that since the period of World War I the armies abroad have changed their cavalry into forces maneuvering on horseback but fighting on foot. Red Army horsemen, however, have been brought up in the best traditions of the old Russian Army, in the epoch of cavalry in the present war, and they have been taught to maneuver on horse before striking with mounted attack, if there is the slightest opportunity. Furthermore, Soviet cavalry was educated to the spirit of brave and audacious mounted actions during the period (of the present war) when it was impossible to organize strong defenses for the purpose of inflicting heavy losses on the enemy.

*Translated from an article which appeared in the January, 1944, issue of the Red Army military journal, *Voennyi Vestnik*. The publication is not the Soviet *cavalry* journal, and therefore is not out to champion any one arm. This journal, "Military News" or "Military Messenger," devotes only a small portion of its contents to the subject of cavalry.

A Cavalry Division In Mounted Attack

An outstanding example of a well-conducted mounted attack can be found during a cavalry division's offensive against German units near Kushchevka in 1942.

After successfully terminating a battle in his favor, the enemy had settled down for a rest in the vicinity of Kushchevka and was not taking measures to ward off a counterattack. Apparently, the enemy was expecting Soviet units to continue their retreat, and the Germans guessed that the Red Army would fall back on terrain more suitable for defense. It should be noted that the Kushchevka region is open steppe with little natural cover and therefore not favorable for a defensive position.

The commander of the cavalry division, assigned the mission of holding the enemy in check and subsequently driving him back, decided to solve this problem in a cavalry manner. All types of reconnaissance had determined the character and disposition of the enemy and his lack of an organized defensive position; the commander decided to attack the enemy with mounted formations.

Making skilful use of the enemy's carelessness, the cavalry commander marched his combined units forward to the line of departure. This movement was accomplished with stealth. Artillery, mortars, and machine guns were concentrated on the flanks of the attacking horsemen.

As the combined fire of all weapons opened up, the cavalry began its attack. This charge caught the enemy by surprise, and in short order the rapidly galloping horsemen had broken through the ranks of the confused Germans.

Supported from the rear by combined machine-gun,

mortar, and artillery fire, the mounted units pressed toward the front and against the flanks and the enemy concentration was disintegrated. As a result of this particular conflict the enemy lost not less than 1,500 men killed; all of the German matériel and equipment was captured. Cavalry losses were insignificant.

No less interesting is a mounted attack by cavalry against an Italian Alpine Corps which was routed in January 1943 near the town of Baluika. Penetrating deep in the rear, Russian cavalry units succeeded in outstripping and surrounding the retreating Italians, who were somewhat demoralized as a result of a previous battle.

Refusing to lay down their arms and surrender, the Italians decided to force their way through the ring surrounding them and then to proceed westward. Thus the battle began. The Italians moved forward immediately, but, meeting the well-organized fire of the cavalry, they were stopped.

The commander of the combined (Red Army) units had correctly evaluated the morale and condition of the enemy elements. He decided not to give them any rest, but to attack them with mounted units with a concentric blow from three sides. Artillery, mortars, and machine guns supported this attack.

Having pinned the hostile forces down by this strong fire, the cavalrymen drew their sabers and plunged into a mounted attack. The enemy, shaken at the sight of this, lost all possibility of counterattack and began to flee.

During the short period before the enemy surrendered, more than 600 Italians were killed. In all, over 10,000 Italian soldiers and officers, plus a few generals, were captured in this battle.

From the examples just given, it would be incorrect to conclude that mounted attacks by divisions are commonplace today. Such a conclusion would be wrong. The attack near Kushchevka, for instance, was not a typical one since the circumstances were extremely favorable to the attack. Such situations as a rule are very rare, for the enemy is usually more cautious.

A Cavalry Regiment In Attack

A mounted attack by a regiment, however, is not unusual. An illustration of such follows:

In November 1942 the commander of a cavalry regiment near the village of Evlampievska was ordered to attack the enemy and seize the village. Following the earlier break-through of the enemy's defenses, the action was taking place in the enemy's rear area. Soviet cavalry had managed to appear in the zone unexpectedly. The garrison in the village of Evlampievska had not prepared a defensive position. Near this village was a German aerodrome with 20 planes. Here likewise, there was no provision for an organized defense.

The general layout of the terrain favored a mounted attack. The presence of many gullies and ravines gave cover for the approach march and permitted the concentration of forces necessary to bring about a sudden attack.

The attack began after a preliminary reconnaissance had determined that a battalion of infantry with tanks was concentrated in Evlampievska, and that the enemy had no knowledge of the presence of Soviet cavalry.

Screened by a large gully, one squadron attacked the enemy on the flank, two squadrons carried out the frontal attack, while the fourth squadron—the reserve—moved to the right and back so as to follow the squadron attacking the flank.

The movement into the attack began under cover of an artillery barrage, but initially no small arms were fired. Nevertheless, the enemy was not taken by surprise. It turned out that the enemy had adapted some near-by heights to his defense, and from these he began to pour machine-gun fire on the attackers. It became obvious that these fire positions could not be suppressed by the attack then in progress.

On seeing that the enemy fire was increasing, the cavalry commander gave the signal for his units to dismount. This was carried out under cover of fire, and the dismounting was performed so quickly and efficiently that the losses proved insignificant.

The horseholders galloped the led horses into the nearest ravine, while the dismounted squadrons, continuing the attack, brought all their fire power into play.

Very shortly the enemy was forced to abandon Evlampievska and retreat.

Note that in the beginning the regimental commander was not well informed about the enemy's defenses, but upon seeing this fault he did not hesitate to improve his position by going into dismounted action.

THE SCOPE AND LIMITS OF MOUNTED ATTACKS IN MODERN WARFARE

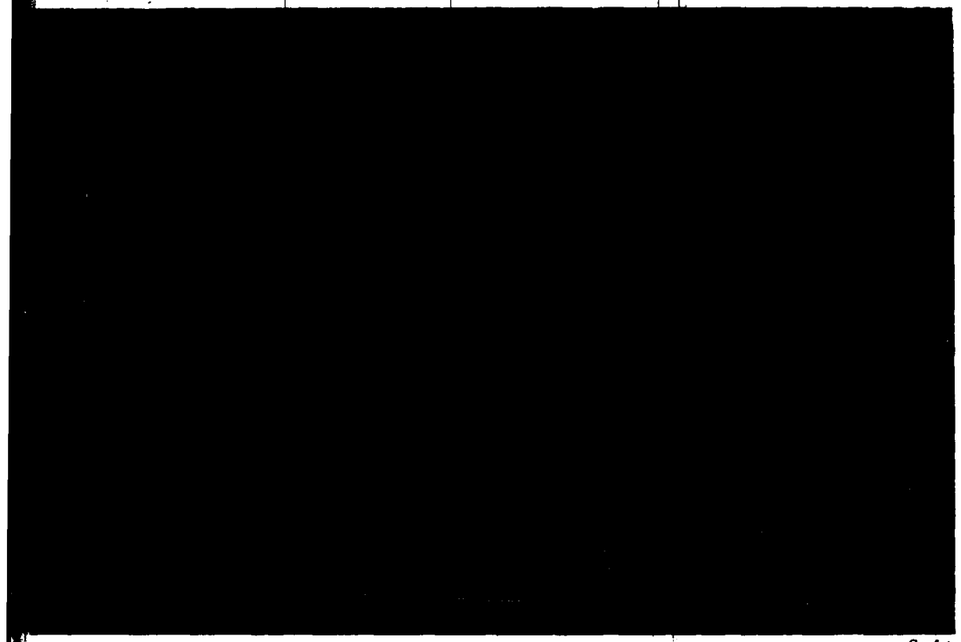
Given the proper opportunity a mounted attack can prove successful, but the circumstances must favor such an attack; the attack must be supported by all cavalry weapons.

The combination of cavalry with tanks produces the most successful "mounted attack"; there should be very little gap between the tank and horse elements in such an attack.

Enemy aircraft is a serious hinderance to mounted pursuit.

A retreating enemy provides one of the best targets for mounted attack.

Accounts of actions by Red Army cavalry present a successful argument to support the contention that mounted attacks have a place in the warfare of this era.



Sovfoto

When a mounted attack is not plausible, a smart commander dismounts his troops, sends his led horses to a place of safety, and attacks as infantry. Led horses are then quickly available for rapid pursuit and annihilation of the enemy as soon as a breakthrough is indicated.

Pursuit

Mounted attacks are extremely successful against an enemy who is retreating. In 1943 many such mounted attacks occurred in the south after the destruction of the enemy at Taganrog. The retreating enemy, clinging to every fortification and height favorable for defense, held onto these points for a certain time, but eventually relinquished them to retreat westward in his vehicles. The cavalry, learning these enemy habits, applied the following tactics of attack: not more than half of a unit body was dismounted, and attacked either the enemy's recently improvised flanks or junctions between his defenses, while the remaining cavalry, in complete readiness for mounted action, was disposed in hiding.

When the enemy's fire began to weaken in the course of a battle, the cavalry commander, supported by all of his fire power, led into action those subdivisions which had been in hiding and awaiting the signal for mounted attack. As a rule, the enemy never had time to withdraw and either surrendered in the field or was annihilated.

Then the cavalrymen, following their reconnaissance, galloped to the next line of defense. Approaching close to the enemy, they dismounted, and pressed on as infantry. When the enemy prepared to retreat, the cavalry unit mounted up and again attacked on horse.

Enemy aircraft is one of the more serious hinderances to cavalry operations during the period of pursuit. However, cavalry is taught to oppose it. Besides taking active measures to ward off enemy aircraft the cavalry makes use of the terrain and near-by objects to camouflage its presence.

Conclusion

From all narratives, it is evident that mounted attacks have not lost their significance, and that they can produce good results if the cavalry is operated in conformity with these modes of action. *Mounted attacks can only be undertaken when the circumstances are favorable, and then it is obligatory that every cavalry weapon supports the attack with heavy fire.*

The combination of cavalry and tanks produces the most effective mounted attack. In such an offensive it is usually the practice to send the tanks forward first as a means of crushing the enemy's fire positions; this is done after the artillery and mortar barrage. The distance between the tanks and the attacking horse formation must be held to a minimum so as not to give the enemy the slightest pause in which to recover and cut off the horsemen from their tanks by fire.

When it is impossible to continue the attack mounted, the best method of sustaining the initial offensive is to dismount and fight on foot. During this phase, however, even when the attack is progressing in his favor, the commander of the dismounted elements must not forget that he can and must finish off the enemy with a mounted blow. When conducting such an action, therefore, the commander is obliged to remember his horseholders in time to bring them forward so that he can mount up and quickly go into action either in pursuit, or to deal a last paralyzing blow at the scattered enemy ranks.

Raid of a Cavalry Squadron*

by Lieutenant Colonel F. Voloshin

THE Polesie area, consisting largely of swamps, has very poor roads. The marshes, stretching along the Belorussian rivers, form a serious obstacle to maneuver and movement of troops. In getting from one village to another, not more than about two miles apart in a straight line, it is often necessary to cover from 9 to 12 miles in a roundabout way.

Lieutenant Foma Tkachenko's squadron of cavalry was stationed in the village of Kozlovka on the bank of the river Berezina. Beyond the dense forest, which surrounded the village, the meadows and soggy swamps were broken by several lakes and intersected from east to west by the small Rudynaka River. The cavalry squadron was to capture the small village of Cherniye located on the important highway three miles from Kozlovka, but between these points was the deep spongy bog of Kachai.

Local inhabitants told the cavalrymen of various people who had been lost in the Kachai quagmire. Only last year it had claimed to Hitlerites who were trying to track down a partisan, and 5 years ago a village hunter had fallen victim to its treacherous but seemingly solid surface.

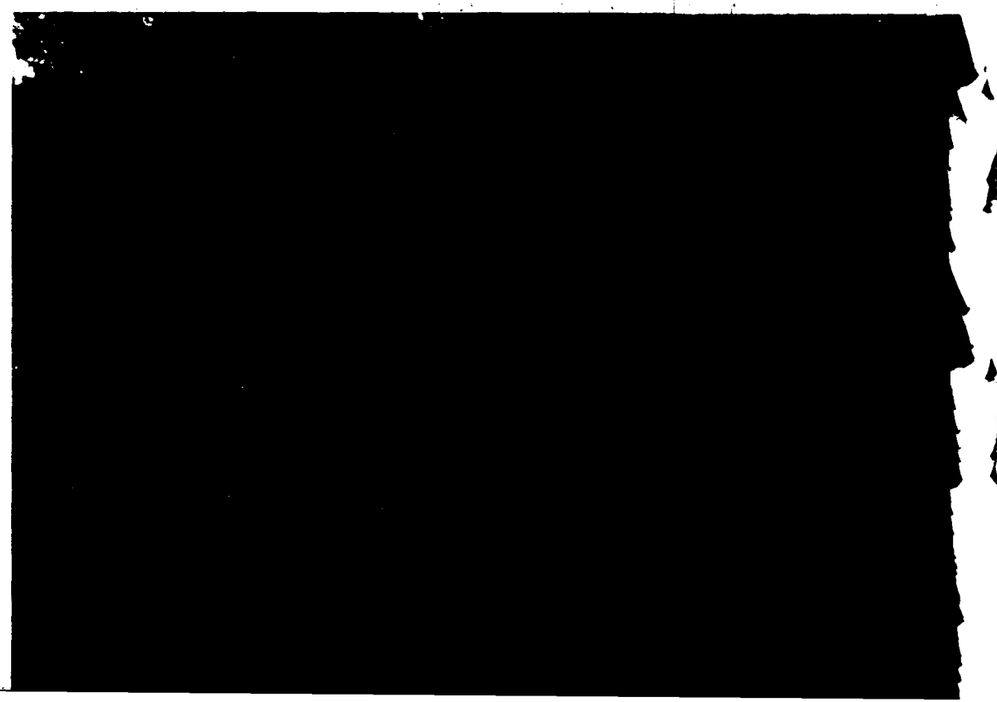
The problem of crossing the marshes greatly disturbed the lieutenant. The brushwood road leading around it was about 11 miles long, and there was no time to lose. Moreover, the road was heavily guarded by Germans, so Tkachenko decided to try to cross Kachai swamp.

With the aid of wide wooden skis, 4 Red Army men, led by a junior lieutenant, went out reconnoitering. An hour and a half later they returned with the discouraging report that Kachai swamp was impassable. The fetid morass was as much as 8 feet deep, and scattered throughout were "windows"—deep, treacherous wells covered with a tenacious growth.

The cavalrymen pondered the situation. This was not the first time that they had found themselves faced with difficulties. Many times since the beginning of the war they had been in dilemmas, but they had always found a solution. Lieutenant Tkachenko studied the map and measured the distance.

The small river of Rudyanka connected the Kozlovka area with Cherniye Brody. *The cavalrymen would swim to their destination!* When the sun went down beyond the forest and a mist settled over the swamp and river, Tkachenko ordered his men to undress, tie their clothes to saddles on their horses, and enter the water. With each cavalryman holding the reins with one hand and paddling with the other, they swam by the side of their horses against the current.

Under cover of darkness the cavalrymen covered about two miles and emerged on the bank not far from the outskirts of Cherniye Brody. After making their way through orchards and gardens into the village, they attacked in dismounted formation and caught the Hitlerites unawares. The entire enemy garrison was wiped out and two artillery batteries captured.



A cavalry unit on the Southwestern front is seen swimming a river to the enemy shore. Germans have been often surprised by the sudden appearance of Cossacks at unexpected points.

*By cable to THE CAVALRY JOURNAL, from War Department, U.S.S.R., Moscow, July, 1944.

Basic Military Facts Cofirmed on Battlefields

Thorough and complete basic training for the individual and for small units.

Offensive spirit and eagerness to close with and destroy the enemy.

Leadership.

Teamwork and coördination in the employment of combined arms.

Physical fitness.

Battlefield technique. All movement on the battlefield is necessarily slow and deliberate.

IN all reports of battle experience the soundness of our tactical doctrines prescribed in War Department training literature has been confirmed. Failures or tactical reverses have resulted from disregard or misapplication of these principles or from lack of judgment and flexibility in their application.

In general the experiences of all commanders may be summed up in the words of one commander who said: ". . . it appeared significant that when principles taught in Field Manuals were followed, good results were achieved, and deviations brought trouble."

The following points are stressed with monotonous regularity—

First: Thorough and complete basic training for the individual and for small units. The training of an efficient military organization is not unlike the training of an athletic team. The prime requisites of each are: first, individual proficiency, and secondly, team play. This includes thorough discipline and training in other basic subjects such as scouting and patrolling, dispersion, camouflage, sanitation, and so forth, but above all, the expert use of individual weapons and perfect team work as part of the crew, squad, and platoon.

Second: Development of the offensive spirit and eagerness to close with and destroy the enemy. A man becomes a good soldier only when he places his duty above his personal safety. This is one of the imponderables, as *no one* can be sure how he will react to combat. It may be assumed, however, that troops will fight as they are trained and led. It is always necessary to inculcate a disciplined fighting spirit and a realization that a price must be paid for success in battle.

If possible, untried units should be eased into their first fight. This will lessen their initial shock of battle and give them confidence. Some units who suffer heavy casualties initially do not recover for a long time. Likewise, replacements should not be rushed into battle. They should be brought in during a rest period and given opportunity to get acquainted, particularly with their teammates and leaders.

Men become tired and battle weary, and this must be recognized and watched. This condition comes earlier to some men than to others, depending largely upon the man's physical condition, training and character—but it comes eventually to all men. Battle fatigue seriously affects combat efficiency and when it becomes prevalent in a unit, then it is better to introduce fresh, eager soldiers, although less experienced.

Third: Leadership. Leadership is a natural gift. Some men have it to a very high degree, and their fellows will follow them practically anywhere, while others do not have it at all. Therefore, the placing of the right men in positions of leadership is the most important safeguard for success in battle.

It is a function of command to select and place the natural leaders in positions requiring their priceless talents and to utilize the others on appropriate staff or administrative assignments out of close contact with the men. In addition to selecting the leaders, it is necessary to earmark and train their logical battle replacements. A military unit works on the same principle as any championship team. Not only must each man know his job, but there must be perfect teamwork and there must be good substitutes available when replacements are needed. Leadership is a question of life or death to the man in ranks. The weak leader must be replaced promptly or the reaction will go down to the last man and the unit will fail miserably in battle.

The chain of command functions well in military organization and, except in emergency, should not be violated, not even on the battlefield. Generals and colonels leading platoons under fire make good copy for war correspondents but, although such acts may win medals they seldom contribute anything worthwhile to final victory.

Success in combat demands the subordination of the individual to the accomplishment of the team or group mission. Teamwork is based on the belief that the team task *can* be accomplished, the knowledge that the leadership *is* competent, and the confidence that each member of the team *will* perform his share of the assigned task.

Our officers as well as our soldiers must know and perform their assigned tasks in combat and none must jeopardize the victory by free lance operations, however heroic these may appear at the time.

Fourth: Development of teamwork and coördination in the employment of the combined arms. Close and effective coördination between the infantry-tank-artillery team is an essential requirement for success in battle. None can do the job alone. None should try. The infantry must not expect the artillery or the tanks to annihilate the enemy; neither should the infantry be committed without the close support of every available tank and artillery piece.

The artilleryman fights effectively from a position well behind the line of contact; the tanker fights behind several inches of very fine steel, but the hairy chest of the infantryman is protected only by his OD shirt. Coördinated team play between these three musketeers of the modern battlefield requires careful training and mutual appreciation. First of all, they each require reliable and instant intercommunication. The artillery must pave the way by smothering the hostile artillery and drive the opposition to cover; the infantry must take out the antitank guns, and the tanks must help take out the enemy infantry and their automatic weapons. It must be a fixed rule and a point of honor that neither tanks nor tank destroyers will permit their infantry to be overrun by hostile armor, no matter what it costs to themselves. This is the rôle of the infantry-tank-artillery team. This team play will engender mutual respect and comradeship on the battlefield which is essential to victory.

Fifth: Physical fitness. The American Army ranks high in physical fitness. Each man must further prepare himself individually according to his job and according to his age. This does not contemplate the spectacle of middle-aged high ranking officers running across country or otherwise competing physically with vigorous young men. The probable injury to health and the resulting loss of experienced leadership is not warranted by the results to be achieved. Each man, however, must prepare himself to go without sleep, to withstand the worry and responsibility of battle, and to remain calm and fit.

The infantry soldier above all others must be developed into a rugged individual. He must be accustomed to long marches with full pack, up hill and down, so that he can carry a burden, withstand fatigue and exposure in cold and wet weather, go several days without hot food or sleep—all this and more without getting sick and still retain his combat effectiveness.

Sixth: Battlefield technique. All movement on the battlefield is necessarily slow and deliberate. Our training problems too often convey faulty concepts by encouraging grandstand moves and by rushing through situations in a few short hours that would require days and nights of heroic struggle in battle. This is probably the most unrealistic feature of an otherwise fine training program, and the one most difficult to correct. Time can be saved by forethought and preplanning, by rapid decisions, and by being prepared for any emergency. The mark of a battle-wise unit is the deliberate and assured way it prepares for battle, checking on every detail and making certain that everything is set and ready for any contingency.

An objective in battle is usually won in the first try, or it is not going to be won at all with the initial set up. Failure initially may indicate the need for a greater concentration or more thorough coördination of artillery or tanks, or exceptionally the commitment of a fresh assault unit under a better leader. Most attacks that fail, do so because they were not coördinated fully. The urgency of the situation may justify a piecemeal attack, but whenever possible, adequate time must be allowed for coördination to include small units.

The author has interviewed many senior commanders and observers overseas as well as studied the mass of combat reports and recommendations submitted from all battlefronts.

---

by Lieutenant Colonel Leo W. Mortenson, Cavalry

Alertness.

The keynote to successful reconnaissance (as well as to personal survival in combat) is constant, studied alertness by every man involved in a reconnaissance mission. No member of a reconnaissance unit can ever afford to relax his attentiveness, his awareness of the immediate situation, or the keenness of his observation, while engaged in his specialty.

Aggressiveness.

When confronted with an impasse or an unknown situation full of danger, *do something*. Don't be foolhardy and employ the bull-in-the-china-shop solution. (Reconnaissance units don't make line bucks.)

Seize the initiative and employ every element of available force to gain the needed information about the enemy or to avoid him and continue on your way.

Don't be timid. Take calculated risks, but always remember that in reconnaissance it is the end run that pays and not the power play through the line.

Battle Play.

Develop your battle play in your own vehicle, team, platoon, or troop. SOP for all contingencies that can be foreseen will relieve the necessity of having to plan details in a crisis when there is no time to lose.

Study the recently issued Cavalry School manual, "Battle Drill." Adopt its formations, or adapt them to the particular circumstances.

Three Teams.

Be a *three team* platoon leader. Many platoon leaders attempt to solve a situation by the use of their lead team only, or waste precious time in slow, tedious personal reconnaissance while two other complete teams remain idle, often without even having been informed of the situation. There is always more than one thing to do, more than one direction to be searched. Don't hesitate to employ your teams on separate missions. When the lead team is stopped, make it SOP to seek the hostile flanks with the other two or to find that bypass which almost always exists.

Reserves.

It is normal to hold a portion of the reconnaissance force initially as a *reserve*, although this procedure is not obligatory for formations smaller than a troop. Usually this reserve amounts to one-third of a reconnaissance command—a team for a platoon, a platoon for a troop, a troop for a squadron. Many commanders seem to have the idea that the reserve has the sole function of providing security for the CP and, therefore, hang onto it desperately until all forward reconnaissance elements are hopelessly bogged down. This is a fatal mistake.

Use that reserve!

The purpose of any reserve is to influence the action at the decisive moment, to *win the crisis*. So don't hoard it but when the forward reconnaissance elements are stopped or slowed down to a snail's pace, without hesitation *commit the reserve* to assist in forcing patrols through, to intensify the reconnaissance, or to renew it in another direction. There is no value in having a reserve follow the CP around interminably the way the tail follows the dog. If necessary, constitute CP security from among troop mechanics, clerks, and cooks until some combat element can be withdrawn from the front to form a *new reserve*.

Be alert.

Roads.

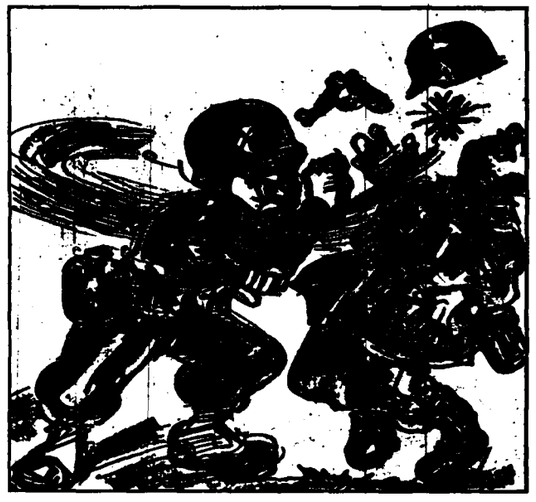
Utilize *roads for movement* until hostile contact becomes imminent. Then wherever and whenever the terrain allows, *move off roads*—keeping under observation at all times the road which is your axis.

For wheeled vehicles, cross-country travel is slow, damaging, and treacherous, so use those roads whenever the situation permits.

Move by bounds.

Cover that "lead bug" when it dashes forward. Send it to a definite spot and before the "bug" darts out of its cover, point that 37 on the selected spot or on the most suspicious piece of terrain.

Each bound has for an objective a point of observation or a spot beyond which the lead vehicle can no longer be protected. A point of observation may be a hill, a crossroad, a tree line, the entrance to a defile, the near side of a bridge, a bend in the road. Cover them all. If necessary, dispatch both bugs of a team or two teams of a platoon if the distance from the axis of march warrants.



Be aggressive.

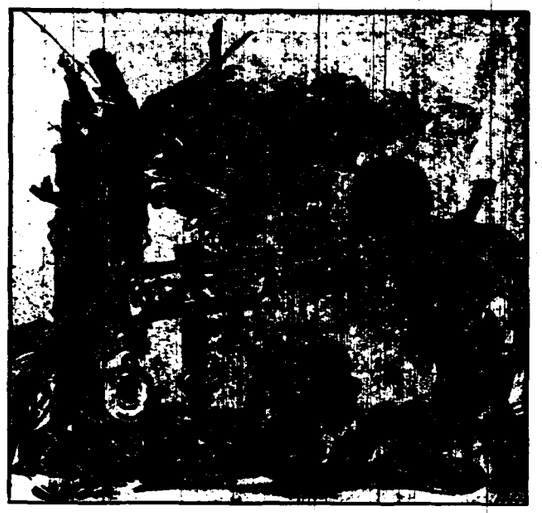
Neglect no vantage point for observation to the front or the flanks, and move from vantage point to vantage point by *bounds*.

Terrain.

Learn to appreciate terrain. Never fail to investigate cautiously and thoroughly the piece of ground, the patch of woods, the ravine, that may harbor an ambush. Never pass a hill, a crest, or any commanding ground that affords a vista of observation without taking advantage of it. Either make a personal observation or dispatch a team, a vehicle, or a scout to observe. Make this so habitual as to become instinctive.

March Outposts.

When halted, establish march outposts. At all halts, especially at phase lines, provide all around security and observation. In other words, move something (even if just a dismounted trooper) one bound in each direction from your command car—front, right, left, and rear.



Use your reserve.

Phase Lines.

Limited objectives are specified in order to effect lateral coördination between units in movement. Usually they apply only to the forward elements in an advance or to the rear elements in a withdrawal and do not affect the movement of CPs or reserves.

Choose phase lines for the following characteristics:

1. The distance between phase lines must conform with the desired rate of advance.
2. Phase lines should connect terrain features readily recognizable both on the map and on the ground, or should consist of a feature such as a highway, a stream line, a railroad, or an imaginary line connecting a series of road junctions, cross roads, villages, ridge lines, etc.
3. They should be on the forward side of features, the possession of which would be of advantage, such as rivers, ridge lines, lateral roads, or the far ends of defiles.

SOP for patrols upon arriving at phase lines is:

1. Effect lateral contact (only if time permits or the situation demands).
2. Establish march outposts and OPs.
3. Cross to continue reconnaissance at the indicated hour unless specifically directed to the contrary.
4. Use the halt at a phase line to plan the movement to the next phase line and inform all members of the patrol of the details of that movement.
5. Make a thorough check of all administrative de-

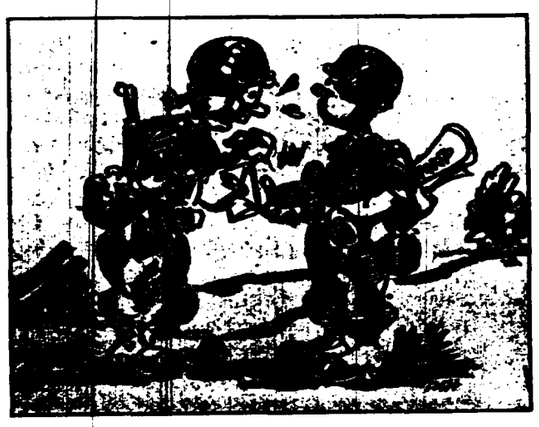
Investigate.

tails such as fuel and ammunition, of supply and condition of all vehicles of the patrol.

Defiles.

Secure the exits of defiles before committing your unit. Once your main force has entered a defile you are fixed to the road and powerless to maneuver to fight, or sideslip to escape. If the defile is a bridge, prepare to cover the far bank with fire, and then send your scouts forward on foot to determine if it is passable. If it is not mined and will carry your vehicles, send the scouts, either mounted or dismounted, to the other side to discover an ambush or a lurking enemy.

Mere road reconnaissance is not enough to insure a fair degree of safety. Only when you receive the "all clear" from your forward scouts can you prudently send your main body across. If the defile lies between two hills or embankments, push your scouts through to the far end first and secure the exit before entering with your main body. When assured that all is clear, have your main body move rapidly through.



Send messengers.

If the defile is continuous for many miles, as a passage through a forest, you will have to enter it before your scouts clear the far exit. In this case, do not close on your scouts but move rapidly by bounds from one vantage point to another in their rear. Maintain contact by radio or visual signal with them throughout.

Lateral Reconnaissance.

Don't neglect lateral reconnaissance. Cover the roads and trails, and investigate to the limit of your resources all suspicious or advantageous terrain features in your assigned zone. Upon arrival at phase lines make contact with the units on your flanks if time permits and lateral routes are accessible. The extent of lateral reconnaissance depends upon the rate of reconnaissance, the road net, the breadth of assigned zones, and the mission in general.

Use map, compass, odometer and common sense.

Messengers.

When radio fails, do not wait indefinitely for radio contact to be reëstablished. Use messengers. Brief your messenger carefully before dispatching him and be sure that he has a map, knows his location and destination, and is familiar with the general contents of his message. When there is extreme danger of your messenger being intercepted, send an alternate messenger by a different route. Get that information back immediately by any means available.

Location.

Coördinate these four: your map, your odometer, your compass, and your common sense. There have been far too many instances of teams, platoons, and even higher echelons, becoming lost and wandering in circles, accomplishing nothing.

Seize the initiative.

Develop your sense of direction, orientation, and distance; read your map accurately; but put your faith in your odometer and your compass. If you do get lost, don't lead your entire team or platoon on a wild goose chase but stop where you are, get under cover, and send vehicles or scouts in several directions to find landmarks.

Know where you are at all times. Constantly compare your map with your odometer and with terrain features, but bear always in mind that no map is absolutely without error. No single feature of reconnaissance is more important than this: *Every man of a reconnaissance unit must know his location at all times.*

Axis of Advance.

Reconnoiter thoroughly your assigned axis or route of advance. When your axis, however, is blocked either by enemy or terrain obstacles, report the cimcumstances, and leave it temporarily in order to bypass and continue on your mission.

If the enemy denies advance along your axis and forces you to leave it, do not abandon it completely but leave a portion of your force in contact unless you are relieved of such responsibility by your higher headquarters. Always, when you leave your assigned axis, return to it as soon as conditions will allow, and always report your action.

When the accomplishment of your mission conflicts with advance along your axis, your mission wins.

Contact.

Once gained, contact is maintained at all costs, but this applies only to the contact you have been dispatched to establish.

Don't fritter away your force and don't waste valuable time in an attempt to maintain contact with every trifling little hostile patrol you encounter. Save your strength to gain and maintain contact with the specific enemy *your mission* requires you to locate. Then hang on like a bull dog with every means at your disposal and report every shred of information you can uncover about it—its composition, strength, attitude (whether it wants to fight, sit tight, or whatever), its location, its flanks, *everything* about it.

Let your mission be your guide and when it requires you to maintain contact, be a leech, but elude those small enemy patrols and keep them guessing.

Orders.

Make your orders *clear, concise, complete.* In issuing orders make the following SOP.

1. Follow implicitly the Five Paragraph Form.
2. Delete all extraneous matter without specific application to your own mission and your own immediate situation.
3. Do not repeat instructions that are matters of SOP or of elementary training.
4. Plot as much as you can on your map and place that map where it can be seen plainly and its information copied easily by those who receive your orders.
5. Do not attempt to issue definite instructions covering a situation that is vague or distant in space or time or that is contingent upon an undetermined chain of circumstances.
6. Insure that in substance your orders penetrate to every man in your command and that every man knows exactly his place and his part.
7. Question your subordinates upon the context of the order, particularly that portion which applies specifically to each one of them.
8. Leave no room for misunderstanding. Do not issue an order that can merely be understood; issue one that cannot be *misunderstood.*

In any doubtful situation, *seize the initiative!*

Report your actions.

REALISTIC RECONNAISSANCE TRAINING

by Captain H. V. Douglas

ONE big reconnaissance lesson which a careful reading of reports from many battle-seasoned American intelligence officers emphasizes is that the great similarity of mistakes, errors in observation and judgment which have been repeated in one action after another, gives positive indication of *faulty collection and relay of vital information.* This fault can and must be eliminated by thorough practical training previous to actual combat.

Reconnaissance personnel must somehow be trained to observe accurately and to relate both accurately and swiftly, just what they see and hear. Their minds must be made to register camera sharp pictures of what lies before them, or of what may be concealed from sight. They must be drilled by *incessant practice* to absorb details of a developing combat situation quickly, but not so fast that important facts are overlooked in the process. Finally, they must forever be warned that speed in sending that information back is absolutely essential.

It is well known that when several eyewitnesses are permitted to view a sudden, distracting or startling event, subsequent interrogation will produce as many versions of the event as there were eyewitnesses to it. The fact remains, however, that the purely factual data obtained from verbal or written reports of these several observers is basically identical when stripped of the qualifying phrases used in the different accounts—phrases which cloud the true significance of what happened—a dangerous business on reconnaissance.

The important thing is to train reconnaissance men to relate accurately what they observe. There must be no mistaking haystacks for tanks or towed trailers for artillery pieces. Overseas combat commanders report that these common mistakes have occurred repeatedly, and they urge thorough and practical training now, on this side of the water, before additional units going into battle pull the same "boners."

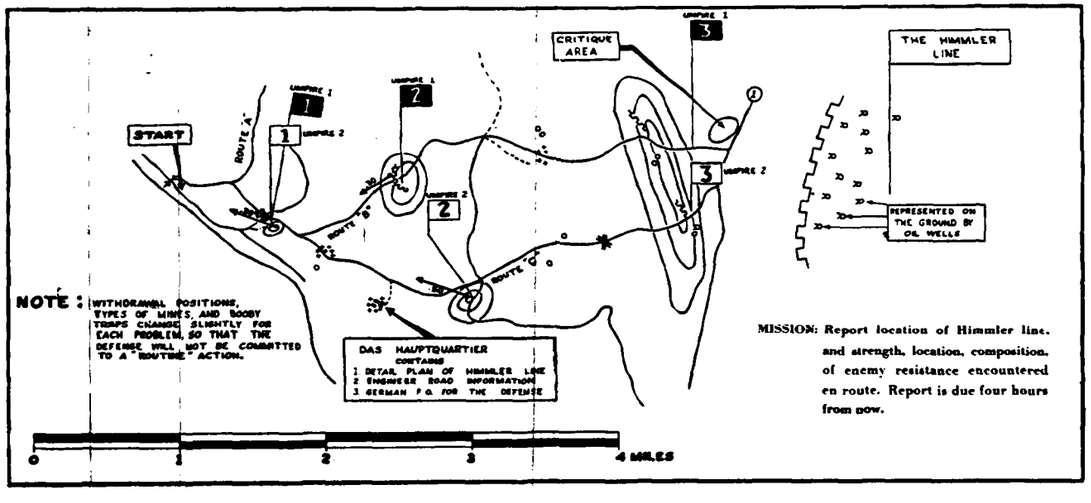
There is no doubt about the vital need for additional reconnaissance instruction through well-planned situation classes and exercises. A command in the field that does not have swift, capable and dependable reconnaissance is habitually hampered and forced to grope blindly in ignorance of the true tactical situation. At best, its commander may be forgiven for halting at a given place, but lack of information does not excuse him in the Army's view, for he is guilty of that unpardonable military sin, "inertia."

How can this purpose be accomplished? One answer lies in the establishment during training of a practical observation post course—the setting up of realistic, complicated and combat-tested situations designed to test intelligence and reconnaissance platoons and cavalry troops in time-limit zone reconnaissance, both day and night.

The intelligence section of a division can meet this need for additional scout training by staging a series of close-in zone reconnaissance problems.

One recent problem was a four-hour, four-mile zone reconnaissance, which six division intelligence and reconnaissance units and four troops of mechanized cavalry tackled during a 10-day period. In separate day and night actions, the men, going through mine fields and over mined and booby-trapped roads, bridges and by-passes, met tough opposition from an "enemy" clad in the authentic field-gray Nazi uniform.

Snipers and machine gunners had to be liquidated, mines buried under roadways and by-passes disarmed and removed, and road blocks by-passed or demolished. Meanwhile, a constant stream of enemy intelligence was kept flowing back to S-2's by radio. Umpires in radio equipped ¼-ton trucks kept a complete record of all transmissions. These umpires had complete control of the problem at all delaying points and unit intelligence officers followed the individual platoon and troop commanders in half-tracks as they forged ahead in the developing action. Putting the S-2 well up front is far from normal procedure, but in this case he was given a forward position so that he could get a better understanding of the capabilities of his agency.



One important feature of the instruction problem was that all S-2 section records, situation maps, journals and work sheets, were kept by enlisted men. This permitted each intelligence officer to check accurately his particular responsibility. The S-2 officer of a participating combat command likewise was on hand to check incoming reports from the field.

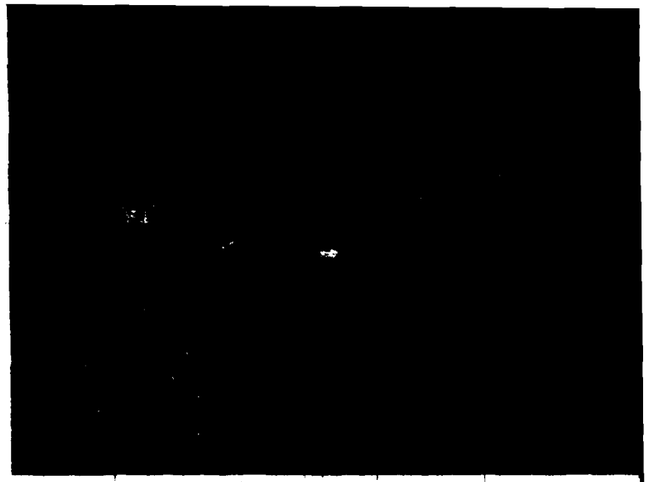
Officers of the engineer platoon, which simulated the enemy in the continuing problems, reported on the technical and tactical mistakes that each unit had made, and at the conclusion of the problem, the ability of each unit's reconnaissance was determined by the amount of accurate information which it had sent back to its S-2 section.

The mission was based upon studies of actual situations calling for aggressive close-in reconnaissance by U. S. forces in the Italian theater. No written material, "canned messages," or "assumed" conditions were employed. Various types of fire power were represented by blank ammunition and pyrotechnics. Credit for eliminating fire from a position was denoted by the firing of explosives in that position at the proper time, and live "smoke" mines and booby traps were used extensively. Flares were employed during night phases.

The problem situation presupposed a German infantry regiment and battalion of field artillery in position to protect the "Himmler" line of oil wells. In a previous battle, the main "Nazi" army had been defeated and, now in full retreat to the north, had left behind "suicide" units to carry on a delaying action. The mission was to make a complete reconnaissance of the intervening four-mile zone and report back to G-2 the strength, composition and location of enemy elements encountered, so that contact with the main Nazi force could be reëstablished.

Realism was emphasized throughout the problem. Casualties were promptly eliminated from the action and vehicles which were disabled by mines were "winched" out to preserve the tactical situation. One unit even lost the vehicle in which its communication radio was installed.

A novel test of initiative came midway through the terrain when advancing intelligence and reconnaissance platoons stopped to investigate a well booby-trapped cabin, complete in setting even to Hitler's picture hanging on the wall. On a table in the center of the cabin was a Nazi military folder containing among other documents a scaled map of the oil field objective and a German field order containing three defensive plans.



Members of a reconnaissance unit probe a short defile which cannot be by-passed during realistic training.

Anyone attempting to pick up this folder would set off the booby trap, but resourceful reconnaissance men solved this dilemma by pulling the document from the loose-leaf folder. Upon comparison with a panoramic sketch of the German oil field stronghold, the map proved to be an accurate one and the unit whose men took the trouble to verify and amplify their reconnaissance in this manner received high rating in the test.

Flagrant violations of basic reconnaissance principles were not tolerated. In such cases, the unit participating was halted and required to start the course again from the beginning. During one problem 15 men went to work on a mine field without first eliminating enemy snipers on a dominating hill 50 yards to their front. The snipers opened fire and all 15 men were designated as casualties. Since this was too gross an error merely to mention at a critique, the men were required to retrace their steps and do the job properly. They did.

Excerpts from umpires' reports indicate clearly in just what phase of reconnaissance the various units needed additional training. "Began work on mine field without knocking out snipers,"—"Not impressed with necessity of being watchful for enemy antipersonnel devices"—such were the remarks passed on to the men involved.

In the belief that reconnaissance personnel should know what becomes of their information after it is transmitted by radio to the rear, they were permitted to inspect S-2 journals and work sheets at the critique held after each problem. Round-table discussions led by umpires and participated in by the men of the intelligence and reconnaissance units served to clarify the subject and to remove reconnaissance reports from the realm of mystery to matter-of-fact news gathering.

THE TANK COVERING DETACHMENT

by Captain William M. Delaney, Cavalry*

FRONTAL security for armored units in motion is provided by an advance guard or a covering detachment. The advance guard secures the front of a unit moving in march column along roads, while the covering detachment protects the unit's front as it moves in approach march formation, usually cross-country when contact is imminent or has been gained. The actions of a covering detachment are comparable to those of the scouts in the infantry rifle platoon.

Mission

The covering detachment provides frontal security for a larger unit by observation, attack, defense, or any combination of these methods. The primary mission is that of security; the secondary mission is reconnaissance.

Specifically the duties of a covering detachment are to:

(1) Guard the main body from frontal surprise, and obtain information by observing to the front and flanks.

(2) Push aside small enemy patrols, outposts, or detachments, and offer resistance to larger forces until the main body attacks.

(3) Guide the main body over the best terrain available.

(4) Provide the unit being covered with battle reconnaissance by determining the disposition of the enemy.

(5) Develop the situation.

(6) Provide protection for the main body commander in his personal reconnaissance of the forward area.

(7) Cover a larger force in the approach to the line of departure.

(8) Support the main body in the attack, when it (the covering detachment) is sufficiently strong.

Use

The covering detachment may be used:

(1) In the advance from the assembly area to the attack position.

(2) From the attack position to the line of departure.

(3) Beyond the line of departure, in unusual cases when the situation is undeveloped, and the unit commander desires frontal security and more battlefield reconnaissance before committing his unit.

(4) In any attack over previously unreconnoitered terrain as would be the case in a pursuit, unplanned flanking maneuver, or hasty attack.

Composition

The covering detachment will ordinarily come from the unit whose movement to the objective is being covered. It is rarely reinforced except for reconnaissance vehicles, but it is normally supported by assault gun and mortar fire from the head of the main body.

The size of the covering detachment will vary with the size of the unit protected, the terrain, and the frontage desired developed. Normally, the covering detachment of a tank platoon will be from one tank to one tank section; of a company, one section to one platoon; of a battalion, one to two platoons; of a combat command, two platoons to one company.

Because of their mobility, light tanks are specially suited for this work.

Communication and Control

Communication and control between the main body and the covering detachment are normally maintained by radio, tanks, and ¼-ton trucks.

The commander of the unit being covered, from a position between the covering detachment and the main body, controls the direction and speed of the entire covering detachment, by prescribing limits (terrain objectives) of bounds to be made. (Sketch A.)

When the commander of the main body issues his order that paragraph pertaining to the covering detachment should contain the following information:

(1) The general route to be taken.
(2) The frontage to be covered.
(3) The limit (terrain objective) of the first bound, and tentative subsequent bounds when practicable.
(4) Tentative orders for the conduct of the covering detachment when its mission is completed.

Communication and control are normally maintained within the covering detachment by the use of radio, flag signals, and, occasionally, ¼-ton trucks.

The covering detachment commander also prescribes limits of intermediate bounds to be made by the covering detachment. (Sketch A.)

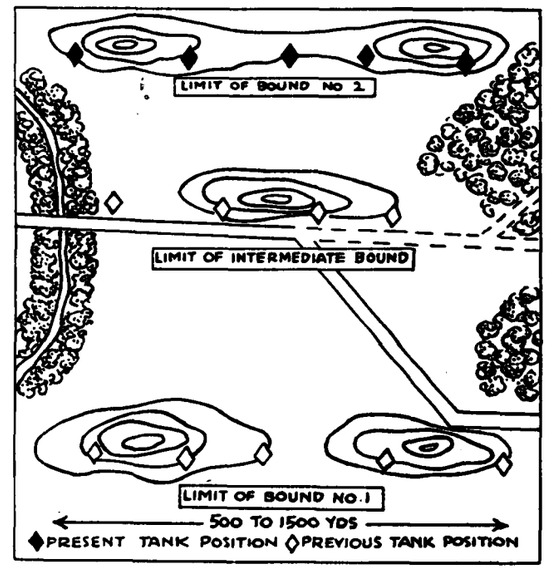
Operation

Using line formation with 100–300 yards between tanks, the covering detachment moves forward as a unit within limits of the intermediate bounds set up by the covering detachment commander. (Sketch B.)

Each tank, moving forward in its respective zone and taking advantage of cover and concealment, examines suspected localities, and searches its entire zone by observation and reconnaissance by fire. (Sketch B.)

When the covering detachment meets resistance on any section of the front covered, it is supported by *fire* and *limited maneuver* of nearby tanks. Should the enemy be too strong for the tanks in that area to overcome, the covering detachment commander calls for supporting fire to neutralize the position, while the tanks *in that sector* maneuver to destroy it. For this purpose, the assault gun and mortar platoons are normally placed at the head of the approach march column.

If the resistance is still too strong, the tanks affected may be ordered to contain the enemy in that area, to withdraw, or to bypass the resistance.



Sketch A
Bounds of the Covering Detachment

The covering detachment commander at all times attempts to sweep and probe the entire area to the limit of the bound prescribed by the main body commander. When resistance is met on the right flank, the center and left flank continue to advance. When casualties occur, each vehicle takes on additional frontage. If a position is ordered by-passed, the entire frontage is resumed as soon as possible. Only by this method can the main body commander receive a clear picture of enemy dispositions upon which to base his attack.

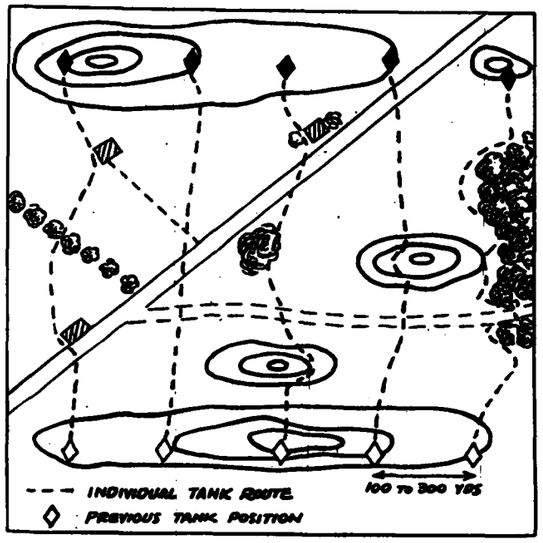
Upon arrival at the forward limit of each bound, the covering detachment takes cover, reports pertinent terrain or enemy information, observes to the front and flanks, reorganizes, picks tentative routes for the next bound, and awaits orders to move forward.

The main body guides upon and follows the covering detachment. Based upon the information passed back, it follows the best terrain, by-passes, or attacks small enemy groups not cleared by the covering detachment, and, in most cases, attacks through the covering detachment when the enemy positions are fixed. The distance at which it follows depends upon available frontal cover. Normally this distance is from 500-1,000 yards.

When its mission has been accomplished, the covering detachment may furnish flank and rear security, follow in reserve, or, if exceptionally strong (medium tanks), may constitute the assault or support wave in the attack.

Training

In order to employ a covering detachment successfully, prior training in control and selection of individual routes must be given to the troops. Such flag signals as *"all clear"* (green flag), *"enemy in sight"* (red flag), and *"out of action"* (orange flag) help in the former. The latter, selection of individual routes, takes considerable time in terrain study and teamwork. Without this training, the covering detachment will move so slowly that it will be unable to fulfill its mission—namely, to enable the unit to advance safely and quickly over doubtful terrain without deploying until sufficient resistance is encountered.



Sketch B
Individual Tank Routes in the Covering Detachment

*Formerly with 1st Armored Division, North Africa.

"TELL THEM WHY"

The following S.O.P., designed and effectively employed in an armored division, prescribes an efficient, thoroughly organized Orientation Program.

THE mission of army orientation is "to create and maintain in every officer and enlisted man a feeling of individual responsibility for participation in the war, and to strengthen his efficiency as a soldier by increasing his understanding as to why we fight." A properly conducted orientation program should keep the soldier informed of the course of the war and news of the world, and give him an opportunity to add to his effectiveness through off-duty study, either individual or group.

The feeling of personal responsibility for participation in the war is developed by making clear to the individual his place in "the big picture"—the *importance of his job to his squad*, and its relationship to the mission of the unit, the division, and the army. The soldier must understand exactly the manner in which the mission of the armed forces—"utter defeat of the war machines of Germany and Japan"—is vital to him, his home, his family, and his personal interests, both now and in the future.

The Orientation Hour

Conduct.

A meeting by the company commanders should be conducted for a minimum of one undivided hour weekly, both in garrison and in the field. Where tactical circumstances make it impracticable to assemble the company, the discussion may be conducted by platoon or squad leaders.

Procedure.

The lecture method should be avoided, a conference system developed in such a way as to afford the greatest possible opportunity for maximum participation on the part of all personnel.

Conditions.

a. Informality. Smoking should be allowed if possible. The orientation hour is the men's hour—for their benefit and participation.
b. Visibility. Informality should be stressed, but it must not be forgotten that good visibility is imperative. The room should be cool and well lighted.
c. Visual aids. Maximum use should be made of maps, both in garrison and in the field. These should be of such scale as to be clearly visible to all participants. Other visual aids will include blackboards and charts, when available.
d. Seclusion. Outdoor discussions should be in secluded positions, in the shade if possible, away from traffic and other distracting influences.

Subjects

General.

a. Know why we fight. (See Fact Sheets 1, 6, 7, 8, 14, 16, 22, 24. Fact Sheets are issued in Orientation Kits by Information and Education Division, A.S.F.)
b. Know the enemy. (See Fact Sheets 2, 7, 9, 17, 18, 25.)
c. Know our allies. (See Fact Sheets 3, 7, 10, 27, 28.)
d. Know the news and its significance. (See Fact sheets 5, 7, 12, 15, 23, 26.)
e. Know and have pride in outfit. (See Fact sheets 4, 7, 11, 21.)
f. Know and have faith in the United States and its future. (See Fact sheets 7, 13, 19, 20, 29.)

War News and Analysis.

Discussion should include the latest strategic developments on world battle fronts, the significance of all major operations, and their relationship to each other. Particular emphasis should be placed on the strategic mission of the division concerned, its components and the larger units of which it may be a part.

Nonmilitary News.

Covering general news, subject matter may range from developments of world and national significance in all fields to information of interest to troops (even of a minor nature) such as sports and personal items from the home front.

Explanation of Policies.

Policies of all echelons from company to War Department should be included in discussions. Every individual should know the reasons behind everything he is required to do, insofar as is consistent with military security. The practice of "telling them why" should be a continuous process carried on at all times in regard to all policies, but part of this period may be used for the explanation of policies not otherwise covered.

Local Information.

Information about the area occupied by the unit—data about geography, terrain, people, language, customs and general conditions—can be made available under appropriate circumstances.

Function of the Company Commander

Discussion Leader.

The company commander should preside at the weekly orientation hour insofar as tactical conditions permit, but he should not carry the entire burden of the discussion himself. He is not expected to be an expert on all phases of world developments or their meaning. He may call upon individuals who, by reason of their experience or education, are particularly fitted to supply information on special subjects. When such subjects arise, it is the company commander's function as discussion leader to draw upon the knowledge of all those in the organization who are well informed. Maximum participation should be encouraged.

Preparation.

Although the discussion or conference method lessens the immediate burden on the leader, it in no way diminishes the amount of preparation necessary. The discussion leader must be sufficiently informed to insure that all aspects of the subject under discussion are adequately presented. He should first read any material to be discussed, then make use of the questions supplied with the material (or draw up his own) in order to stimulate audience participation. At the end of the period, he should summarize the discussion.

Opportunity.

The orientation hour provides for the company commander the opportunity to contact all of his men in a more direct, personal manner than is the case during normal training routine. It is his chance to stimulate them, to exert his proper function of leadership and to show them the "big picture" and their part in it. The way in which the meeting is conducted will be a direct reflection of the leadership qualities of the company commander. A well-planned, conscientious, capable handling of the meetings will make a lasting impression on the enlisted men, and increase their respect, loyalty, and confidence in the commanding officer.

Personnel

Assistants.

As many commissioned and enlisted orientation assistants in each company should be assigned as are needed to aid the company commander in carrying out his orientation duties. A minimum of four individuals should be so designated. Each should cover a separate theater of war (Western and Southern Europe, Eastern Europe, Pacific, Asia). Each will be thoroughly and constantly informed about all phases of the strategic situation in his assigned theater. These individuals must possess requisite qualifications of knowledge and interest. Preferably they should be college men of high (110 or more) AGCT score, thoroughly informed about world events, able to express themselves clearly before a group, and well qualified to lead discussions. They must be allowed adequate time for preparation.

Meetings.

Officers and enlisted men engaged in orientation should attend regular meetings to be conducted by the division orientation officer for purposes of preparation and instruction in orientation procedures and materials and for dissemination of information issued by the Information and Education Division.

Materials

Maximum use should be made of all orientation materials, maps, books, pamphlets, and mimeographed materials issued by the Orientation Office and carried as organizational equipment. They should be carried separately in such manner as to be available at all times, in garrison, in transit, or in the field.

Situation Maps.

Strategic situation maps of all major fighting fronts should be kept in such a manner as to reveal progress made during the daily news period and the orientation hour.

Maps of the following areas have been issued to all organizations in the orientation kits; they should be maintained currently and available at all times in garrison or field.

a. Europe and the world.
b. Pacific and the world.
c. France and southeast Asia.
d. European invasion coast and Balkans.

Care of Maps.

Maps of battle fronts should be covered with Duraseal to preserve them and to make possible maintenance of the situation. For transportation, maps may be folded and carried in regular flat map cases, or, preferably, rolled together. Expended cardboard shell cartons make excellent containers for rolled maps. Detailed diagrams of field expedients for posting maps and other orientation materials will be issued by the Orientation Office.

Newsmaps.

These weekly War Department releases, issued to each organization, contain valuable current maps and visual aid materials. Back copies of *Newsmap* should be maintained in a file for reference use.

Daily News

Summary and Discussion.

Not less than 15 minutes a day (as far as consistent with tactical conditions) should be devoted to summary and discussion of the news of the day, as distributed by division or as compiled by designated company orientation personnel from official radio reports or news bulletins.

Daily News Bulletin.

This bulletin should be posted daily as soon as it is received.

a. In garrison, it can be posted in the dayroom adjacent to maps and other orientation materials.
b. In the field, it should be posted in such a location as to be conspicuously available to all personnel. (If this procedure is tactically impracticable, other suitable methods of distribution to all personnel should be used.)

Miscellaneous

Displays.

In garrison, orientation materials should be displayed in dayrooms. Situation maps should be coördinated with news bulletins, current *Newsmaps*, clippings and pictures of action on each front, and maintained by a designated officer or enlisted man. In the field, materials should be displayed as indicated in field expedient diagrams to be issued.

Company Correspondents.

At least one enlisted man should be designated as correspondent for unit newspapers for the purpose of supplying information to be used in newspapers and facilitating distribution of such publications.

Off-Duty Education.

The off-duty education program of the United States Armed Forces Institute (USAFI) should be thoroughly publicized. All personnel should be informed of opportunities for off-duty education, and full assistance given to individuals who desire to enroll. The USAFI catalog and enrollment blanks are available at all times, and orientation assistants in each company should be familiar with all phases of off-duty education and available for consultations.

Continuity.

It should be emphasized that *orientation is a continuous process.* It cannot be limited to one hour a week. It must be carried on constantly. Every man should know why the job he is doing at that moment is important to his outfit, and to winning the war. "Tell them why" should be the motto and constant job of every officer.

"Smoke Gets In Their Eyes"

by
Major George O. Gillingham,
C. W. S.

Early Use of Smoke in Warfare

FOR centuries artificial smoke has been produced by one means or another for military purposes.

That smoke tactics were known to ancient India is indicated in translations from Ramayana (2000 B.C.), such as:

> "And clouding the whole sky with smoke that effulgent one . . . hid himself from their gaze. And in that terrible darkness of clouds, began to make a downpour of arrows. . . ."

In 50 B.C., firing of damp straw to smoke out enemy positions was common. The Bible speaks of the Israelites being protected in their march to the Promised Land by a miracle smoke cloud. History records that Caesar and Pompey used smoke in landing operations.

Cavalrymen have long appreciated that dust clouds raised by horses' hoofs help conceal movement and give protection against hostile fire. Gustavus burned wet straw to provide the makeshift smokescreen that covered his crossing of the Lech in the face of Tilly. In 1704 the Blenheim Mist was utilized by Marlborough to surprise the superior-numbered French.

Introduction of firearms and their initial use of black powder enveloped battlefields in so much haze that special smoke operations were futile, but advent of smokeless powder again cleared the fighting atmosphere. During the American Civil War, Professor Shepherd of Yale University suggested the use of screening smoke to President Lincoln but the suggestion was not adopted.

Use of Smoke in World War I

World War I spurred the development of smoke as a troop screening agent. Early in that conflict a small British unit was enabled to withdraw from the La Basse canal defense by the old and simple expedient of burning a haystack. By 1916 some artillery smoke shells were in use, but it was not until the Battle of Arras, a year later, that the value of smoke screens for modern warfare became obvious. Smoke provided a flanking shield for an operation of the 15th Division, A.E.F. Artificial smoke figured in the Meuse-Argonne offensive. In one instance, Marines of the 2d Marine Division crossed the Meuse by resorting to a smoke ruse. Mortars established a screen upon which the Germans concentrated their fire while the "Devil Dogs" spanned the stream at another point. The British also combined smoke with gas shoots to confuse the enemy further.

Use by Germans in World War II

The Germans demonstrated the value of smoke in the current war when they blitzed the Low Countries. The Belgian fort of Eben Emael was taken in May 1940 with the aid of man-made fog. The Germans moved up smoke battalions which blanketed that stronghold so effectively that the aimed fire of the defending guns was disorganized. Under this cover, Nazi pioneer troops advanced close to the walls and employed flamethrowers to breach the ports.

The "impregnable" Maginot Line was cracked between Saaralben and St. Avold when the Germans screened a whole line of fortified hills, slopes, and even a nearby fortified village and totally obscured French observation. From a distance of a mile and a quarter, the Germans established a smoke barrage more than two miles long and about 30 feet high. The screen was maintained for two hours while assault troops worked up under the defenders' guns and around in back of the steel and concrete fortifications.

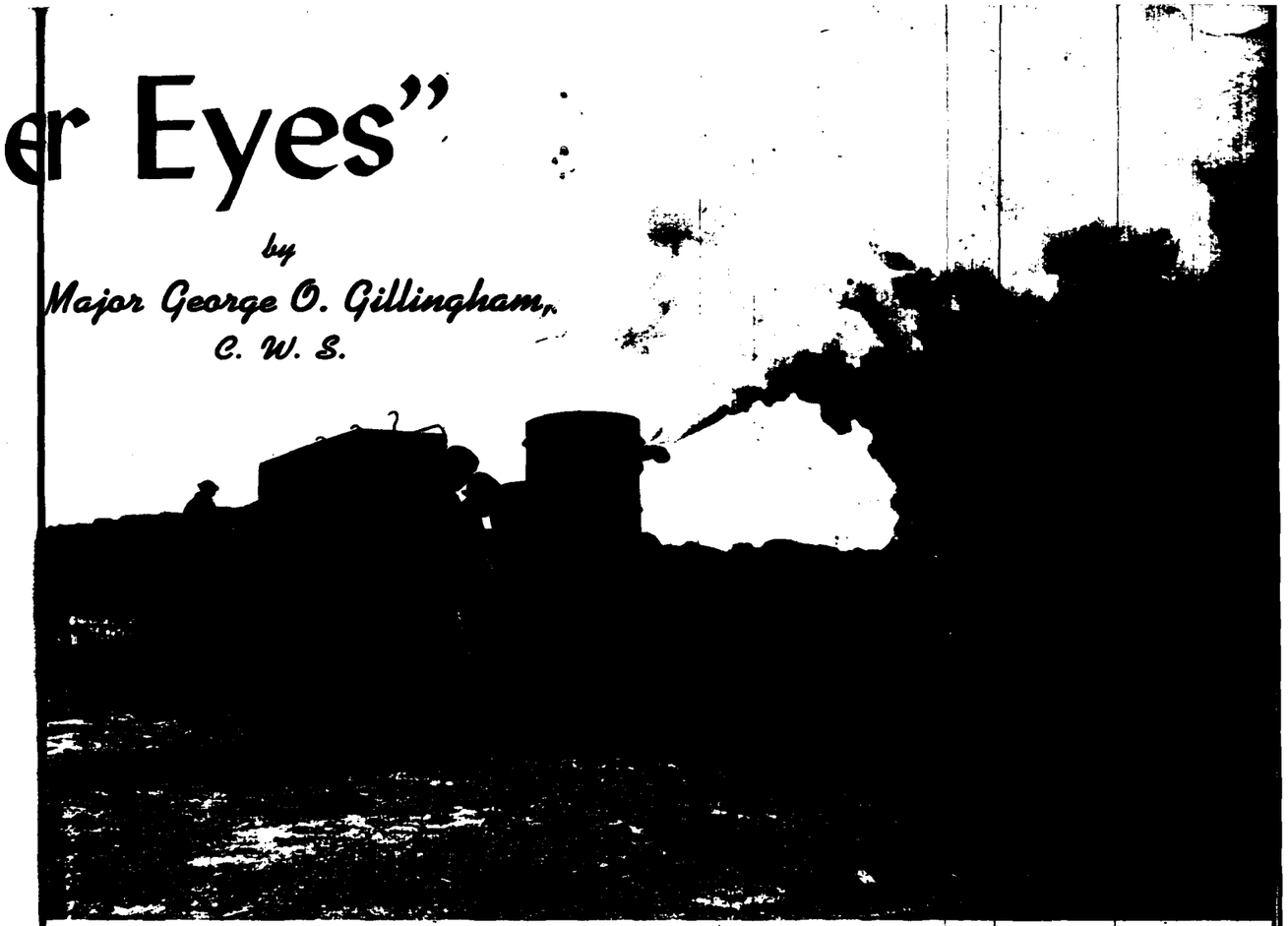
When the Germans reached the Marne in June 1940 the French were organized and prepared for stiff resistance. Suddenly the Germans opened up with two smoke battalions, and the startled French soon found their whole line of observation posts blinded. Believing they were subjected to gas attack, the French donned their gas masks. Meanwhile a German bridgehead was established, and extended. Within two hours resistance had ceased and the Germans were freely crossing the Marne. Even the Nazi assault troops who were first to cross suffered only negligible losses.

Area Smoke Screens—German, British and U. S.

It took the present conflict, with its development of the long-range bomber, to introduce the art of smoke camouflage for area protection. Besides hiding production facilities, this supplemental antiaircraft device also protects troop concentrations and communication centers, highways, waterways, and ports and cities.

The Germans early recognized the effectiveness of area screens. Between June 1941 and April 1943 they placed smoke over vital ports in Germany, France, Norway, Italy, and North Africa. They also screened targets in Poland and Russia. They made good use of smoke to hide their warships *Gneiseau* and *Scharnhorst* before those vessels made their spectacular channel dash. In a raid on the battleship *Tirpitz* in Norwegian waters on December 16, 1942, Allied flyers noted that "smoke trails rose from antitorpedo booms projecting from the *Tirpitz*—presumably from generators attached to the boom floats." Smoke was also used to screen the French battleship *Jean Barte* at Casablanca, but a wind blew rifts through the clouds which exposed the vessel and permitted it to be shelled.

In the desperate days after Dunkirk, when the *Luftwaffe* offered its greatest menace to England, the British utilized smudge pots burning crude oil, such as those used by fruit growers to ward off killing frosts. Later they developed smoke pots and smoke machines similar to American smoke-producers.



The Army's biggest smoke producer is the Mechanical Smoke Generator M-1, which can screen a square mile area in 10 minutes. The artificial smoke is made from oil spray mixed with steam, is harmless to eyes, skin, lungs and clothes.

British smoke came into prominence when the war shifted to the Middle East. Their first screen in this area was raised over Malta on May 10, 1942. It is significant that this was the day that aerial supremacy over that island passed from German to British hands. Benghazi was successfully screened with captured German and Italian smoke equipment. The British used smoke bombs dropped from aircraft to permit destroyers and landing craft to remain close inshore during the Dieppe raid.

Smoke has furnished the modern armor for many operations in North Africa, Italy, the Pacific and other areas. Because this war has proved beyond all doubt that smoke screens are a definite factor in reducing casualties as well as being effective for accomplishing various missions, the call for smoke and more smoke is keeping pace with the mounting tempo of the Allied offensive. It is interesting to note that the first Chemical Warfare Serviceman decorated in North Africa was cited for a smoke operation.

Smoke in Italy—Salerno, Volturno, Naples

At Salerno the worth of smoke for hiding beach landings was so pronounced that from that time on it has been ordered in increasing quantity. As a result, "Make smoke!" is a recurring order sounded from the Italian theater to those Pacific islands now being liberated.

A brilliant yellow moon shown on the Volturno River Valley of Italy on the night of October 13-14, 1943. General Mark Clark's Fifth Army was on the south bank of the river, facing crack German units organized in depth on the other shore. Every Nazi gun along the 40-mile front was trained on the stream, for the enemy knew what was coming.

As H-hour drew near, our soldiers took up positions in the fringe of woods bordering the flat ground along the south bank. At 1:59 A.M., the tornado of shellfire

which constituted the American artillery preparation ceased. There came a moment of deadly silence, which ended with a burst of American fire. The whole stretch of the northern bank resounded with bursting smoke shells, each belching a blob of white smoke like a string of blossoming cotton balls. The lazy billows, dead white under the frosty moon, rose to form tall pillars. The smoke gradually thickened in the chill north wind to impose an opaque curtain between the two forces.

Behind that cover an initial wave of American assault troops made their way to the river, and waded, swam or paddled to the German side 100 yards away. At other points combat engineers spanned the stream with bridges built under cover of other smoke screens to carry the main body of men across. Thus did white phosphorus shells from artillery, from 4.2-inch chemical mortars, and from floating smoke pots set adrift in the current make it possible for the Fifth Army to cross the Volturno with a minimum of casualties.

An alert smoke crew so effectively blanketed Naples one day last November that a wave of enemy bombers, unable to spot their targets, jettisoned their loads at random, and most of the bombs fell harmlessly into the sea. When our "smoke gets in their eyes," the foe cannot see to bomb with precision. After a fruitless raid on an Allied port, one enemy airman was heard to radio back to base that he couldn't locate the target because of that "damned smoke," or German words to that effect.

Smoke in the Pacific

On the other side of the world the first recorded American paratroop assault under cover of smoke took place in the Markham River Valley, near Lae, New Guinea, on September 5, 1943. Spraying smoke from tanks, fighter planes walled off the Japanese forces. Three 4,000-foot screens were released along wooded areas where the Japanese might be lurking. The smoke settled to the ground, then mushroomed up to a height of 400 feet. Following the smoke planes came transport planes which disgorged paratroops on three sides of their objective. By the time the smoke dissipated, the parachute troops had organized for a successful attack on the airfield.

Japanese shipping at Rabaul, New Britain, was successfully attacked with the aid of smoke. Bombs from planes marked off the harbor with two dense smoke walls, each three-quarters of a mile long. These formed a large artificial arena in which the air assault on the marine targets was conducted with little interference from shore batteries.

Methods of Making Smoke

The Chemical Warfare Service makes smoke in four ways. One is by smoke pots, which use heat to vaporize chemical mixtures. Another method is by mechanical smoke generators, which mix oil spray with steam. A third is liquid chemicals sprayed from tanks attached to the underside of planes; and the fourth embraces shells, bombs and grenades filled with white phosphorus which reacts on exposure to the air to form dense white smoke.

The Army's biggest smoke producer is the mechanical smoke generator, which was non-existent five months before the invasion of North Africa. The truck-mounted type, resembling a "Gay Nineties" fire engine, can within 10 minutes screen a square mile area. The mechanical generators are operated by chemical smoke generator companies, deployed around an area in accordance with wind and other factors. The port of Algiers, for example, was so well protected by this apparatus that for a period of 14 months, although convoys were entering and leaving almost daily, no serious damage was done by enemy bombers.

Paratroops landing at Lae, New Guinea, September 5, 1943, were protected by massive smoke walls sprayed from tanks attached to fighter planes. This airborne attack, which netted a Japanese air strip was a highly successful undertaking.

Chemical Warfare troops trundle the 4.2 chemical mortar through a smoke screen. Mortar, which has been nicknamed the "goon gun," can fire 20 rounds a minute up to two and one-half miles; fires either smoke or explosives.

A newer type fog machine is no larger than a foot locker, weighs only 180 pounds, and can produce almost half as much haze as its larger brother. With favorable wind conditions, this bantam generator can set up a screen 4 or 5 miles long and 200 yards wide at the far end. It is capable of being operated in jeeps, scout cars and other light vehicles, and can be hand-trundled over rough terrain.

"If any apparatus could be decorated, I think it should be the CWS smoke pot!" declared one officer in North Africa. He referred to the pail-like smoke contrivances which come in several sizes, from the 11-lb. pot, which burns about 6 minutes, to the 30-lb. pot, which burns about 20 minutes. They are used by themselves or in conjunction with mechanical smoke generators. These small pots have been particularly useful in marking off beachheads for landings in the Pacific theater. There is also a floating smoke pot, not unlike a 5-gallon pail in appearance, which weighs 27 pounds and burns for from 10 to 15 minutes.

In one engagement a chemical weapons battalion set out hundreds of smoke pots which produced a screen 6 miles long and 2 miles high to mask the movement of supplies along a critical highway in Italy. Another chemical weapons battalion, operating 170 tons of smoke pots, kept a smoke blanket on 12 square miles of territory for 3 consecutive days.

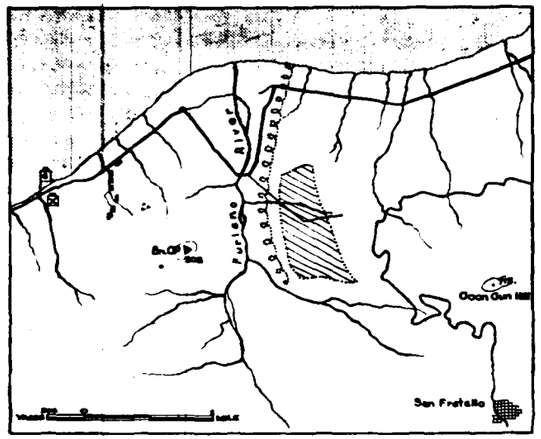
Smoke grenades—or "canned smoke"—weigh less than 2 pounds and burn for 2 minutes. The white phosphorus grenades, besides having antipersonnel effect, can be used for establishing small screens and for plugging holes in larger ones. Then there are grenades which give off smoke in various colors for signaling purposes, to designate targets, mark off vehicle routes, etc.

Smoke-producing white phosphorus is used in aerial bombs and artillery shells. The most effective WP weapon, however, is the versatile 4.2 chemical mortar, which can fire 20 rounds a minute at ranges up to two and one-half miles. This mortar is, in effect, a 3-edged sword. It fires smoke or high explosive with remarkable accuracy. This muzzle-loading rifled mortar was affectionately dubbed the "goon gun" by chemical troops who first used it in Sicily. The chemical mortars functioned so effectively at Mount Fratello, Sicily, in August 1943 that this engagement is popularly referred to as the "Battle of Goon Gun Hill."

Gunner of a chemical weapons battalion on Bougainville adjusts elevation and deflection of a "goon gun" with adjustable bronze sight. Faint wisps of smoke from previous round can be seen curling from rifle barrel. The mortar has sunk deep into Bougainville's volcanic soil under impact of constant firing. Sandbags on baseplate give stability.

A chemical weapons battalion can lay three and one-half tons of phosphorus in 2 minutes. Smoke from "goon guns" have thrown enemy tanks into confusion, covered bayonet charges and withdrawals, and blinded enemy observation posts. These mortars are so accurate that their users claim they can "hit a dime" with them. In fact, one gun did drop an HE shell into a German tank for a "hole-in-one!"

One mortar screen in Sicily, lifted only occasionally to permit strafing by Allied dive bombers, was maintained along a thousand-yard front for 14 consecutive hours. On another occasion two chemical mortar pla-



SMOKE FEST AT GOON GUN HILL

This section of Sicily's north coast shows (left to right) 2d Chemical and regimental CP's, 4.2 positions, battalion OP, Furiano stream bed, and Goon Gun Hill from which Nazis looked down on whole terrain. Black lines are roads. Dotted loops near river represent 3,500-yard screen that rolled up Goon Gun Hill morning of 6 August. Shorter screen over most of the same line protected two battalions pinned down that afternoon on German side of river. OP for this screen is shown by triangle near mortars. Shaded area represents smoke-mass; for 14 hours on 7 August, mortars pumped WP into Nazi positions in this area.

toons set up a "leap-frog" screen for 43 minutes to cover an infantry advance. When two infantry battalions became trapped in Sicily, smoke made by a chemical battalion enabled the infantrymen to shift position and avoid annihilation or capture. It was for operations such as these that chemical weapons personnel here received many decprations and citations, personally and as units.

Value of Smoke in Warfare

While the use of smoke in battle is almost as old as history, its skilful employment in enormous quantities is a startling development of World War II. The implication of this form of military protection in terms of effective action, of lives saved and wounds avoided, is a constant spur to the Chemical Warfare Service of the Army Service Forces to develop ever better materials and procedures.

Tests have shown that the aimed fire of men blinded by smoke is only one-fourth as effective as the aimed fire of men in the clear firing into smoke. It was found that riflemen under ideal conditions scored approximately 55% hits. With their targets obscured by smoke, they obtained only 12 hits, and when the firing range was blanketed with smoke their hitting average dropped to 3%.

Thus, smoke which is the bane of peacetime atmosphere has become a life and property saver in war. The same inventive genius which worked to curb its nuisance to communities and industrial plants in peacetime has adapted it to protecting soldiers and their supplies in battle.

Through collective scientific effort, military smoke furnishes the modern armor for many troop operations. By the same token, man-made fog supplies a cloak of invisibility for men and matériel which minimizes enemy bombing or renders it ineffective. "What you can't see, you can't bomb" is the basis of this antidote to the long-range bomber.

The practicability of smoke blanketing is summed up in the fact that while airplanes can look *behind* a smokescreen, they cannot look *under* it. For this reason, smoke has become a new type of camouflage for important objects and areas far behind the front lines as well as providing a protective cover for troops in action.

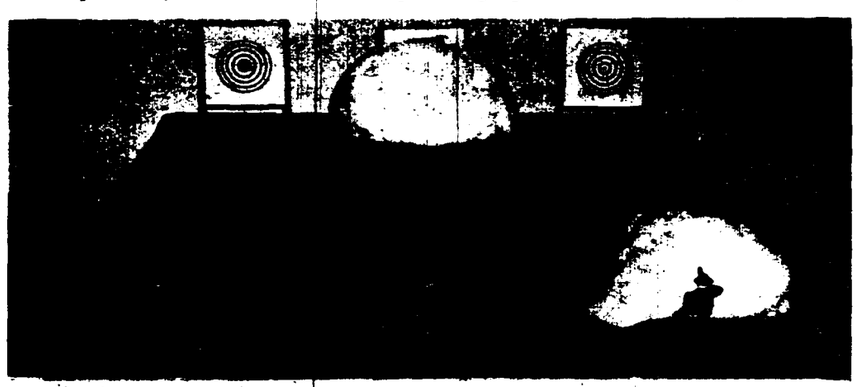


Chart forms a graphic presentation of the results of rifle tests conducted with and without smoke hazards at one CWS installation.

PRINCIPLE OF SMOKE DECREASING HOSTLE FIRE POWER
AT 300 YDS. EXPERT RIFLEMAN GETS 90% HITS
NO. 2 SMOKE ON TARGET 14% HITS
NO. 3 SMOKE ON RIFLEMAN 2% HITS

Something New in Tank Smoke

by Captain Arthur L. Paddock, Jr.

THE use of smoke by mechanized cavalry and tank troops to influence tactical maneuver is laid down in official War Department field manuals, but because of variations in matériel, tank troops need to understand a few fundamental facts.

For some time the standard smoke shell for tank guns contained white phosphorus, a chemical which has both an incendiary and a screening effect. Experiments have shown that the white phosphorus shell is more effective than HE against dug-in infantry. It is safe to say that high-trajectory weapons—mortars, howitzers, and the like—have a greater potential value than flat-trajectory tank guns when firing white phosphorus shells. This is true partly because of the physical properties of white phosphorus and partly because of the ballastics of the shells concerned.

The principal objection to WP shell for tank guns is that it "pillars." The shell is easy to control for range and deflection, but the screen which originates from the shell does not form low enough to the ground to effect adequate, prompt screening. The screen develops in billowing clouds some twenty or thirty feet above the target.

The new Shell, Smoke, HC, BE (base emission), M89, for 75mm tank guns, is an improvement over the WP shell. The smoke is a hexylchlorethane mixture and does not pillar. The shell has a blunt nose with no ogive and a muzzle velocity of about 800 feet a second, as compared with the 2000 feet a second muzzle velocity for Shot, APC, M61. Because there is no ogive, the shell bounces on firm terrain from 100 to 300 yards away from the point of strike. The soldier learns more about how difficult it is to control as he fires more M89 shells, for they are as skittish as a yearling colt.

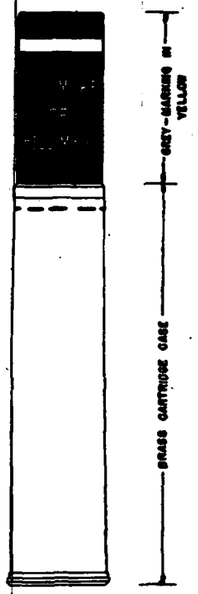
Smoke shell is a weapon of the unit commander. Used indiscriminately (present stowage calls for about 10 rounds per medium tank) it is soon wasted. The shell should be fired by the section or platoon, preferably the latter. About three or four rounds per gun fired in about one and one-half to two minutes develops a satisfactory screen over a frontage of from 400 to 500 yards. The shell cannot be fired accurately at ranges much over 1,600 yards. Each round burns for about 3 minutes.

The technique of fire in various winds is dictated by common sense. In a head wind, fire into or just behind the target. In a flank wind, fire so that the screen will drift onto and just in front of the target. Tankers have found that a crosswind of from 3 to 5 miles an hour velocity gives best results. When the wind velocity is high (over 10 mph) the gunner fires faster than when it is low (3 to 5 mph).

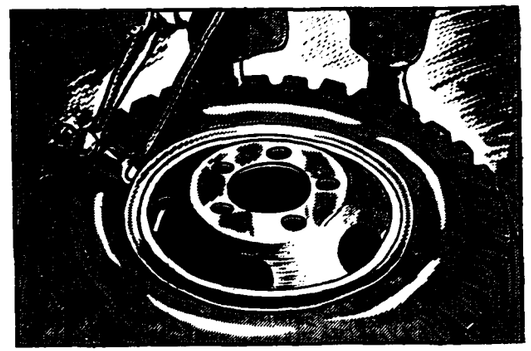
The ballistics of the shell clearly direct that M89 smoke shell be fired by the section or platoon and *not by a single tank.* To build up a screen requires at least two minutes. Therefore, smoke should not be used against antitank guns which have already opened fire on attacking tanks.

The M89 smoke shell is not the only screening agent available to the tank soldier. In mechanized cavalry squadrons the assault gun troop can fire smoke missions. In the tank battalion, the 81mm mortar platoon, which carries a preponderance of WP shell, is available to the commander for smoke missions. Experiences in Africa, Sicily, Italy, and on other fronts have proved its worth. Commanders may request the firing of smoke missions by supporting artillery.

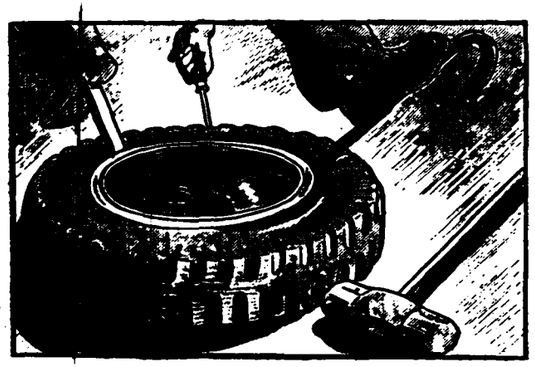
For the use of the individual tank commander there is the 2-inch smoke mortar. This is a British-developed weapon which is mounted in the medium tank turret. The mortar is used when the tank needs a quick, close-in smoke screen to conceal its movement in an emergency or to permit its crew to dismount from a disabled vehicle without being seen. The mortar is fired by the cannoneer (loader) with fire orders issued by the tank commander. He may fire at short (20 yards), medium (60 yards), or long (120 yards) range, depending on the adjustment of the gas pressure regulator. TC 20, War Department, 31 March 1944, covers the weapon in detail.



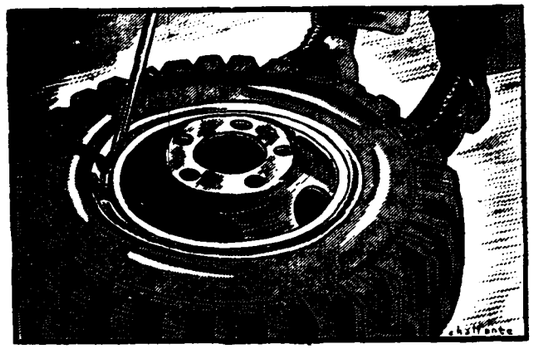
It is clear that tank troops have a great variety of smokes available. Smoke properly used with initiative and dispatch may not win the battle, but it can get you there in time to pour in the HE without stopping some carefully aimed armor-piercing projectiles from an 88.



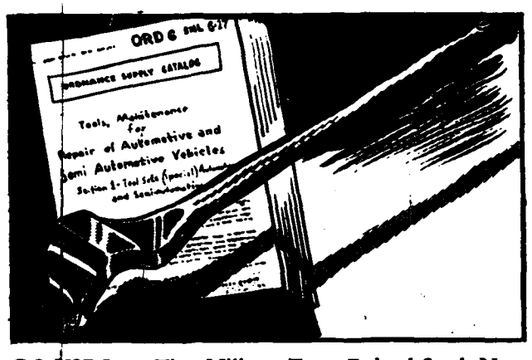
The military type tire iron can be used for almost every tire changing operation. Here it is being used to free a tire casing from the rim.



DON'T USE broken spring leaves, pry bars, screwdrivers or sledge hammers to remove or install tires. They can damage tires and tubes beyond repair.



The tire iron is a specially designed, universal tool. It is safer for both the user and the tire. Here it is being used to remove a split lock ring.



DO USE Iron, Tire, Military Type, Federal Stock No. 41-1-774 which is authorized (2 per tool set) by SNL G-27 and SNL G-347.

Removing a divided rim, like all other operations, is simple and safe with this tire iron. If you do not have this better tire iron, requisition now.

Centralized Training

For the Cavalry Reconnaissance Troop

*by 2d Lieutenant Ross S. Hadfield, Cavalry**

THE cavalry reconnaissance troop of an infantry division has a very definite and difficult job to perform, both in training and in combat. Whereas many soldiers have a very specialized job, the cavalryman of a reconnaissance troop must be proficient in many duties. Besides being trained in cavalry tactics and mechanized warfare, he must be trained also in infantry tactics, engineer problems, radio, intelligence, and ranger tactics—with a knowledge of artillery firing included.

The training of the individual cavalryman within the reconnaissance troop involves many problems. Beside the diverse schedule, training is made more difficult by the setup of a single troop, with no aids from a squadron or regimental headquarters, in the training schedule. Practically all training aids, as well as instructors, are from the troop itself. This setup of instruction is further complicated by the number of meetings called by the division staff. Although essential in the operation of the division as a whole, these meetings necessitate the absence of troop and platoon officers from their organization.

Such factors present strong arguments for centralized training in the training schedule. If centralization is not carried out, it results, in many instances, in very uninteresting and inefficient instruction. This type of class does not necessarily mean that the platoon or troop officer is lacking in instructional ability, but usually is because he is given no time in which to prepare the many different subjects called for in the training schedule.

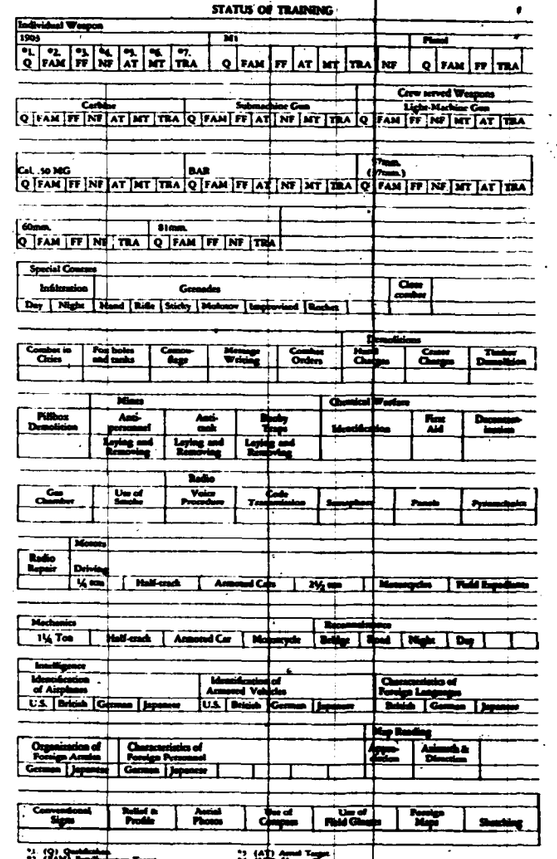
If, on the other hand, centralized training is maintained within the troop, each officer has fewer subjects to prepare and should have more time in which he can secure those training aids so necessary to present an interesting and efficient class. The results are a better trained troop in a given time.

It may be argued that all officers should be equally proficient in teaching all subjects, and that this training is for the officer as well as the enlisted man. That all officers have equal ability in all subjects, is never the case. So, the individual officer should be given those subjects in which he is best qualified to teach, and his own training in other subjects supplemented during officer's school, which in most units is held in the evenings.

It is the opinion of foremost educators, and it is brought out in all military schools, that to present a subject efficiently more time is required for the preparation than the actual presentation. This condition is not possible with the majority of training schedules found in most of the reconnaissance troops in an infantry division.

If centralized instruction is to be used in the training schedules of the troop, the executive officer must take into consideration the objective of the training schedule, the state of training, subjects to be taught, time to teach them, equipment and facilities available, and the ability of the different officers to present different subjects. He then bases his assignment of the training subjects to be presented on those instructors available for any given time.

A valuable aid for the instruction of the troop can be found in a "Status of Training" chart. It must be remembered, however, that any chart maintains its value only as long as it is kept up to date. The following chart is presented as an example, although it is not complete because several basic subjects and some specialized subjects not applicable to each particular troop, are not shown.



*81st Cavalry Reconnaissance Troop.

THE ART OF WAR. By Sun Tzu. Military Service. $1.00.

FREDERICK THE GREAT, INSTRUCTIONS TO HIS GENERALS. Military Service. $1.00.

REVERIES ON THE ART OF WAR. By Marshal Maurice de Saxe. Military Service. $1.00.

Since September Military Service Publishing Company has added three books to their shelf of valuable *Military Classics*.

The Art of War by Sun Tzu, written about 500 B.C., is the oldest military treatise in the world. The tactics and strategy of the author place a high value on maneuver. His writings, based on principles, have retained their original importance for military men for 2,400 years.

Copies of Frederick the Great's *Instructions to His Generals* were given to those fifty officers in his army who were considered models. The recipients were bound by oath not to take these orders into the field. The violation of this oath by General Czetterliz resulted in the capture of his copy by the Austrians in 1761 and its subsequent publication in German, French, and later in English

Frederick's tactics were based on mobility. Among the innovations attributed to him are: the division of armies so that they could march in a number of columns with less fatigue; the use of flank marches; the oblique order; the lightening of the cavalry; increased mobility of artillery and the development of horse artillery.

Reveries on the Art of War, published posthumously in 1757, was written by Maurice de Saxe, not for publication but to "amuse and instruct" himself.

Marshal de Saxe was far in advance of his time in tactical conceptions and technical vision. He took into account the influence of the human heart on battles, and recognized the need for many reforms in the handling of military personnel as it existed at that time. He was particularly interested in reorganizing the armies after the Roman fashion, modernized, with legions and smaller units. His scheme was the forerunner of our present division organization.

NORMAL LIVES FOR THE DISABLED. By Edna Yost in collaboration with Dr. Lillian Gilbreth. Macmillan Company. $2.50.

For 20 years Dr. Gilbreth was an industrial engineer who practiced in partnership with her husband. Together they wrote *Motion Story for the Handicapped* during the last war.

This new book, *Normal Lives for the Disabled*, is written *to* the disabled, not *of* them. Its philosophy is based on the premise that "Whether he has two arms or no arms, the man himself is more important than any of his parts. . . . That man had a certain attitude toward life. He still has it, even though it may be hidden by depression or by the scoffing crust of "What's the use? that so often accompanies shock. . . . Only that deep inner attitude, in the vast majority of cases, is capable of crippling a man permanently."

In order to illustrate their points the authors have drawn on actual cases of men who have readjusted, and nothing is so encouraging to men as to know that others have trod a path before them.

There is no sentimentality here, no crutch to lean on—but facts which, when faced frankly, will be of permanent value.

LEE'S LIEUTENANTS, VOLUME III. By Douglas Southall Freeman. Charles Scribner's Sons. $5.00

With the publication of this volume, Dr. Freeman concludes his monumental *Study in Command of the Confederacy*. Volume I covered the corps and divisional commanders of the Army of Northern Virginia from Manassas to Malvern Hill; Volume II, from Cedar Mountain to Chancellorsville; and Volume III tells the tragic story from Gettysburg to Appomattox.

One of the most complete military studies in command ever written, *Lee's Lieutenants* not only recreates the men and the operations in which they participated, but analyzes the military lessons involved. Thirty years of research in this period have revised some established views and reappraised men in the light of unpublished papers.

Dr. Freeman's work, with its voluminous maps, appendices and bibliography takes its place among the most important biographical and military books yet published.

GREAT SOLDIERS OF WORLD WAR II. By Major H. A. DeWeerd. W. W. Norton. $3.75.

Major DeWeerd's collection of interesting little biographical sketches is more notable for its omissions than its inclusions. The author's defense of his exceptions of Stalin, Tito, and Marshall merely substantiates the fact that selections of outstanding characters in an era cannot justly be made until the era is completed.

The reader is constrained to ask—if Churchill—why not Roosevelt? If Gamelin, with his refusal to accept criticism, was a "great" soldier, what of Lord Louis Mountbatten, whose able coördination of all services has been one of the innovations of this war? Where are Shaposhnikov, Rokossovsky, Alexander, Stilwell, Wingate, and many others? Can an author classify civilians as "soldiers" and not include the air and naval men who have played no small part in this war's military operations?

Although this book offers some interesting comparisons of the superficial differences between some of the better known figures in this war, it could hardly be considered an authoritative analysis of the fundamentals of military science.

BRAVE MEN. By Ernie Pyle. Henry Holt & Co. $3.00.

That Ernie Pyle's books are as eagerly awaited by his reading public as his daily columns is amply evidenced by the tremendous pre-publication sales of *Brave Men*. The demand for copies to go overseas was so great that a number of the books were released more than a month before the publication date in order to meet the October 15th mailing deadline.

Ernie Pyle has lived in the mud, listened to the artillery barrages, seen the dead and dying, gone unwashed, unshaven and hungry in the war that he hates with the men he loves and understands. The highest praise that can be given his latest book is that it continues to tell the story of these men from Sicily to Normandy with the same fidelity that *Here Is Your War* told of them in the earlier campaigns.

To miss reading Ernie Pyle's books is to miss a vital part of the experience of living in this era.

PARTNER IN THREE WORLDS. By Dorothy Duncan. Harper & Brothers. $2.75.

As a biography, the story of Jan Rieger's reactions to life in "three worlds"—Austro-Hungarian domination, Czech independence, and American democracy—presents important lessons in the psychology of middle-Europeans. Few Americans have even a superficial knowledge of the vast difference in thinking that lies between ourselves and the inhabitants of the little Czech democracy fathered by Wilson. That this gap be bridged is of supreme importance if we are to be of real assistance to these people in the future.

Partners in Three Worlds is as fascinating as a novel. Miss Duncan has used the first person to great advantage in telling the vivid story of a life that developed to a high pitch in an era that lent itself to full living.

NODS AND BECKS. By Franklin P. Adams. McGraw-Hill. $2.00.

With his usual wit, Mr. (Information Please) Adams rambles on about many subjects familiar and unfamiliar. Compiled of excerpts from the *New Yorker, Diary of Our Own Samuel Pepys* and *The Coning Tower, Nods and Becks* provides amusing light reading from which, incidentally, the reader will probably absorb some of the author's store of useful and useless information.

THE AMERICAN RIFLE FOR HUNTING AND TARGET SHOOTING. By C. E. Hagie. Macmillan Co. $1.95.

The American rifle has been an integral part of our history. It has served in founding, protecting and expanding the nation. Dr. Hagie has written a basic standard book to instruct those unfamiliar with the many uses of the rifle. Separate chapters describe the various types of rifles and ammunition and the purposes for which they were designed. One chapter deals with the care of game in the field.

Military Law

FOR

The Company Commander

$2.50

By

JULIAN J. APPLETON, B.S., LL.B.
Assistant to the Staff Judge Advocate
Camp Sibert, Alabama

C-33 on The Cavalry Journal book list.

FIFTH PRINTING

Military Law and Court Martial Procedure

"ARMY OFFICER'S' BLUE BOOK"

By

F. GRANVILLE MUNSON, LL.B.
Colonel, Judge Advocate General's Office
and
WALTER H. E. JAEGER, Juris. D.
Lieutenant Colonel, Inspector General's Department

FOREWORD BY

The JUDGE ADVOCATE GENERAL OF THE ARMY

$1.50

Ernie Pyle's "BRAVE MEN"

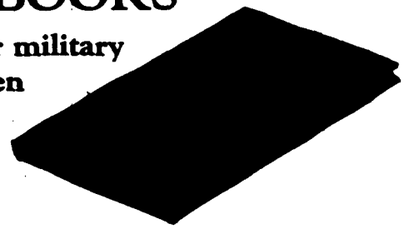
A sequel to *Here Is Your War*, this second book of the inimitable Ernie Pyle has already sold its first printing. The second printing will be ready as soon as possible after January 1st. Have your order on file.

$3.00

New, authorative

BOOKS

for military men



ELEMENTARY TOPOGRAPHY AND MAP READING

An elementary book covering the fundamentals of map reading. Includes information on problems of map making, distance, direction, elevation and relief, contour lines, profiles, construction of maps, aerial photographs, and special maps, explained in an easy-to-follow form using only simple arithmetic. By Samuel L. Greitzer, $1.60.

MILITARY APPLICATIONS OF MATHEMATICS

Brings together the problems in all branches of the armed forces which can be solved with a background of high school mathematics. Explains practical military problems by means of examples and exercises, and shows how the various activities involved are related to each other in combat operations. By Paul Hanson, $3.00.

THE THERMODYNAMICS OF FIREARMS

The first book in English to place interior ballistics on a sound theoretical basis by means of thermodynamics. Covers the behavior of propellant explosives in firearms in an elementary manner geared to the practical problems of the interior ballistician today. By Clark Shove Robinson, $2.50.

PERSONAL LEADERSHIP FOR COMBAT OFFICERS

A concise manual of objectives and methods for leaders of tactical elements, combat teams, and fire units. Provides a comprehensive framework for an officer's attitude and gives him the methods he will use in his work. By Prentiss B. Reed, $1.50.

MILITARY CORRESPONDENCE AND REPORTS

Brings together regulations and directives of the Army regarding written forms, including the presentation of reports, writing of letters and messages, and preparation of orders, bulletins, and memoranda. An authoritative pocket guide-book and style manual on Army writing practices. By A. C. Howell, $1.50.

MAP INTERPRETATION WITH MILITARY APPLICATIONS

A clear, concise treatment, requiring no previous knowledge of geology, of the geologic fundamentals underlying the most effective military interpretation of maps and aerial photographs. Explains the characteristics of contour maps and aerial photographs, describes landforms of all varieties, and shows how they appear on maps and in photos, and points out significant military features. By William C. Putnam, $1.25.

THE MILITARY STENOGRAPHER

Offers practice material for military stenography, with Gregg shorthand outlines for military terms and phrases, solid-matter dictation, and glossary. Covers, with definitions and outlines, court-martial proceedings and terminology, military ranks and functions, and complete service phraseology. By Queena Hazelton, $1.00.

Order these books from

The Cavalry Journal

1719 K Street N.W. WASHINGTON 6, D. C.

THE ISLAND. By Captain Herbert L. Merillat. Houghton Mifflin Co. $3.00.

The Island is a history of the 1st Marine Division on Guadalcanal from August 7 to December 9. Guadalcanal was our laboratory of jungle warfare and its conquest set the pattern for the subsequent island campaigns.

Captain Merillat accompanied the 1st Marine Division when it left Norfolk for New Zealand. He landed on the beach of Guadalcanal with Major General Vandegrift and left when the division was relieved on December 9. The time and care that has been expended on this excellent and detailed account of the action in this critical campaign makes it a valuable contribution to the history of military tactics.

Readers of The CAVALRY JOURNAL will recall the excellent article, "Landing Operations" by the then Lieutenant Merillat, published in the September-October, 1943, issue of the JOURNAL. This article described the training for amphibious operations that bore fruit in the Guadalcanal landings.

INVASION JOURNAL. By Richard L. Tobin. E. P. Dutton. $2.00.

In the last few months a number of books have been published on the Allied invasion of France, although it is too early to suppose that this event can be covered in any detail at this time. Mr. Tobin does not endeavor to give a day-to-day account of military activity, but confines himself rather to incidents and commentaries. As a journal of the invasion, the result is a disappointment. However, for the reader who enjoys enlightening conversation and salient observations on conditions and trends of opinion, there is much interesting material.

NAVIES IN EXILE. By A. D. Divine. E. P. Dutton Co. $2.75.

A. D. Divine, author of *Firedrake,* and better known to American readers as David Rame, has written the magnificent saga of the navies of the conquered countries.

With a quiet determination the seamen of Poland, Norway, Holland, France, Yugoslavia, Belgium, Denmark and Greece refused to yield their ships to the conquerors of their land. The story of each of these navies, its rebirth and growth in the service of the Allied Nations, makes interesting reading, particularly for those who love the sea.

THE BATTLE AGAINST ISOLATION. By Walter Johnson. University of Chicago Press. $3.00.

Isolationism was born of reactionary elements following the last war. It is from 1918 forward that Walter Johnson carries his history of the fight against the philosophy that America could live immured from the rest of the world. In the belief that this philosophy is still a dangerous factor, Walter Johnson calmly and intelligently presents his facts. His book will appeal to those who are not attracted by a sensational exposé, but are willing to be convinced by facts and logic.

THE SECOND CHANCE. Edited by John B. Whitton. Princeton Press. $2.50.

This book on America and the peace seeks to establish the basic principles which will govern America's relation to the rest of the world and a structure of world peace—whether the effort to maintain peace is primarily through a formal world organization or through other means. A historian, three political scientists, an economist, an authority on the measurement of public opinion, and a religious philosopher have worked together on the volume.

These scholars have not only contributed chapters written from their several points of view, but also have subjected each chapter to the illuminating criticism of the entire group. The authors do not agree on all points—and the nature of their varying opinions is one of the most interesting and valuable aspects of the book.

GONE AWAY WITH O'MALLEY. By M. O'Malley Knott with Page-Cooper. Doubleday, Doran. $3.00.

Wherever you are, if a frosty morning calls to mind and senses the recollection of shadbelly pink, the quivering hounds and the impatience of hunters to be away, you will thoroughly enjoy this story of 70 years with horses, hounds and people.

At the age of 10, Middleton O'Malley Knott was so thrilled by a race horse that he determined to become the greatest gentleman jockey in Ireland. He never did this, but he did become a professional horseman, and succeeded in founding recognized hunts in New York and New Jersey similar to those long established in Virginia and Maryland.

Paul Brown has caught the spirit of hunting and horses in his attractive sketches liberally scattered throughout the book.

CAVALRYMEN OUT OF THE WEST. By George F. Brimlow. Caxton Printers. $5.00.

The life of General William Carey Brown spans an interesting period of American history. After graduating from West Point in 1877, he was commissioned in the cavalry and served in the U. S. Army until his retirement in 1918. He participated in the later Indian campaigns, the Spanish-American War, the Philippine Insurrection, the Mexican War and many of the skirmishes that still enlivened the West of that day. Mr. Brimlow has written a most sympathetic biography which will interest many readers.

Modern Military Dictionary

By GARBER and BOND

C-7 on The Cavalry Journal book list.

Horse Magazines

	Year	Copy
American Albino, q.	$1.00	$.25
American Horseman-Sportologue, m. (Show horse breeding and exhibiting)	4.00	.50
Bit & Spur, m., horsey	1.50	.15
Bloodhorse, w., thorobreds	5.00	.15
Cavalry Journal, b. m.	3.00	.75
The Chronicle, w. (Breeding, fox hunting, racing, shows)	5.00	
The Eastern Breeder, m.	2.00	.25
Harness Horse, w.	4.00	.10
Hoof Beats, m.	3.00	.35
Hoofs & Horns, m., rodeos, west	1.50	.15
The Horse, b. m. (Breeding, schooling, training, horse sports)	5.00	.50
Horse & Jockey, m., systems	2.50	.25
Horse Lover, b. m.	1.00	.25
Horseman & Fair World, w., turf, 2 yrs.	6.00	.10
Horsemen's News, m., B. & P. A.	1.00	.10
Midwest Horseman, m.	2.50	.25
Maryland Horse, m.	2.00	.25
Morgan Horse Magazine, q.	1.00	.25
National Horseman, saddle, m. (Esquire size, many illustrations of fine saddle horses.)	5.00	.50
NRA Roundup, m., rodeos	.50	.10
Palamino Horse, m.	2.00	.20
Percheron News, q.	1.00	.25
Racing Calendar, m.	4.00	.35
Rider & Driver, m., sport, pleasure	3.50	.35
Saddle & Bridle, m. (Horse breeding, shows)	4.00	
Spokesman & Harness World, m.	1.00	.10
Thoroughbred Record, w.	4.00	.10
Turf & Sport Digest, m.	3.50	.35
Western Horseman, b. m.	1.50	.35
Wisconsin Horseman, q.	1.00	.25

MAGAZINE MART

Dept. C-J

P.O. BOX 1288 PLANT CITY, FLA.

Send for free catalog

The United States Cavalry Association
1719 K Street, N.W.
Washington 6, D. C.

Gentlemen:

Please send me ..... copies of MODERN RECONNAISSANCE @ $1.50 per copy.

Name.....

Address.....

City and State.....

I enclose check for $..... in full payment. ( )

Please bill me when books are mailed. ( )

Books — Manuals — Texts

As a result of inquiries received in our Book Department THE CAVALRY JOURNAL *is starting a new service. Readers of the* JOURNAL *are invited to write to the Book Department and give subjects on which they would like lists of authoritative books. Lists containing recognized and new publications, with brief summaries of the text, will be sent at once. Lists of fiction will also be compiled. Books may be selected from these lists for immediate shipment, or at stated intervals.*

Any order amounting to $10.00 or more; regardless of when or where shipped, will be given the 10% discount deduction.

INDIVIDUAL ORDER FORM

THE CAVALRY JOURNAL,
1719 K Street, N.W.
WASHINGTON 6, D. C.

Please send me the following checked items:

A — 1 2 3 4 5 6 7 8 9
B — 3 5 7 8
C — 1 2 3 4 5 6 7 9 10 11 12 13 14 15 16
18 19 20 21 22 23 24 26 27 28 29 30 31 32
33 34 35 36 37 38
D — 2 3 4 5 9 10 11 12 13 15 16
19 20 26 27 28 29 30 31 32
E — 1 6 8 9 10 12 13 14 15
H — 1 2 3 4 5 6 7 8
J — 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24
O — 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26

OTHER BOOKS

$_____

☐ I inclose remittance in the amount of $_____

☐ Send bill to { Co. / Troop Fund _____ (For unit orders only)

_____
Name (Please Print)

_____
(Street address or box number)

_____ _____
(Town — Post) (City and State)

G. P. O. MANUALS

CAVALRY:

A- 1 (2- 5) Cav. Drill Reg., Horse .50
A- 2 (2- 7) Cav. Drill Reg., Mecz. .15
A- 3 (2- 15) Employment of cavalry .30
A- 4 (2-220) The Horseshoer .25

BASIC AND TECHNICAL:

A- 5 (25- 5) Animal Transport .25
A- 6 (25- 10) Motor Transport .20
A- 7 (100-5) FSR, Operations .35
A- 8 (100-10) FSR, Administration .25
A- 9 A Manual for Courts-Martial, U. S. Army 1.00

THE CAVALRY SCHOOL DEPARTMENTAL TEXTS

B- 3 Horsemanship and Horsemastership 1.25
B- 5 Seats, Gaits, Reactions (Translated from the French) .80
B- 7 The Gaits—The Horseman (Translated from the French) .80
B- 8 Horseshoeing, *Churchill*, 1933 1.20

STANDARD GUIDES

C- 1 R.O.T.C. Manual, Basic, CS & MS. (2 vols.)
Paper, each vol. 2.25
Cloth, each vol. 2.75
C- 2 R.O.T.C. Manual, Adv., MS.
Paper 2.50
Cloth 3.00
C- 3 Officer's Guide, 1943 edition 2.50
C- 4 Officers' Manual, *Moss* 2.50
C- 5 Company Administration and Personnel Records, *Virtue* (Paper), 14th edition 1.50
C- 6 Company Administration and Personnel Records, *Virtue* (Cloth), 14th edition 2.00
C- 7 Modern Military Dictionary (Cloth) 2.50
C- 9 Combat Communications, *Allen* .35
C-10 Reconnaissance, *Allen* .35
C-11 Combat Intelligence, *Schuein* 2.00
C-12 S-2 in Action, *Thomas* 1.50
C-13 Soldier's Handbook .50
C-14 Courts-Martial Practical Guide 1.00
C-15 Machine Gunner's Handbook .50
C-16 The Soldier and the Law (1944 edition) 2.00
C-18 Mass Physical Training, *Roycroft* 3.00
C-19 Medical Soldier's Handbook 1.00
C-20 Insignia of the Services, *Brown* 1.50
C-21 Army Food and Messing 2.50
C-22 Practical Manual of Martial Law 2.00
C-23 Map and Aerial Photos Simplified 1.00
C-24 State Defense Manual 1.00
C-26 The Fourth Horseman, *Doherty* 1.00
C-27 U.S.A. Second Lieutenant's Handbook, *Craf* 1.00
C-28 Going to O.C.S. 1.00
C-29 Heavy Weapons Manual 2.50
C-30 Basic Manual of Military Small Arms 2.00
C-31 Modern Reconnaissance 1.50
C-32 Handbook to Army Regulations, *Sczudlo* 2.50
C-33 Military Law for the Company Commander, Appleton 2.50
C-34 Articles of War Annotated, *Tillotson* 2.50
C-35 Map and Aerial Photos, Complete 1.00
C-36 Chemical Warfare, *Wachtel* 4.00
C-37 Gas Warfare, *Waitt* (1944 Edition) 2.75
C-38 Get Tough, *Fairbairn* 1.00

STANDARD BOOKS ON WAR

D- 2 Leadership for American Army Leaders, *Munson* 1.00
D- 3 Infantry in Battle 3.00
D- 4 American Campaigns, *Steele* (2 vols., Texts and Maps) 8.00
D- 5 World's Military History, *Mitchell* 3.00
D- 9 Maneuver in War, *Willoughby* 3.00
D-10 Allenby, by *General Wavell* 3.00
D-11 America in Arms, *Palmer* 2.00
D-12 Generals and Generalship, *Wavell* 1.00
D-13 U. S. Army in War and Peace, *Spaulding* 6.00
D-15 Roots of Strategy, *Phillips* 3.00
D-16 Technique of Modern Arms, *Muller* 2.50
D-19 Engineers in Battle, *Thompson* 1.50
D-20 History of the United States Army, *Ganoe* 5.00
D-26 The Axis Grand Strategy 3.50
D-27 Story of the Little Big Horn, *Graham* 2.00
D-28 Mechanized Might, *Raborg* 2.50
D-29 Lee's Lieutenants, *Freeman*, Vols. 1, 2, and 3, *each* 5.00
D-30 The Red Army, *Berchin and Ben-Horin* 3.00
D-31 Great Soldiers of Two World Wars, *DeWeerd* 3.50
D-32 War of 1812, *Adams* 3.00

BOOKS FOR THE HORSEMAN

E- 1 A Horseman's Handbook on Practical Breeding, by *Colonel John F. Wall*, U.S.A., Retired (3d Edition) 4.00
E- 6 More About Riding Forward, by *Littauer* 3.00
E- 8 Position and Team Play, *Devereaux* 1.50
E- 9 Riding Forward, *Captain W. S. Littauer* 2.00
E-10 School for Riding, *Captain Serge Kournakoff* 2.50
E-12 Be a Better Horseman, by *Littauer* 10.00
E-13 Horses, *Self* 3.00
E-14 The Western Horse, *Gorman* 2.00
E-15 Training and Gaiting, *Schart*, 2 volumes 4.00

MILITARY CLASSICS

H- 1 Principles of Warfare, *Clausewitz* 1.00
H- 2 Defense, *von Leeb* 1.00
H- 3 Surprise, *Erfurth* 1.00
H- 4 Armored Warfare, *Fuller* 1.00
H- 5 Napoleon and Modern War, *Lanza* 1.00
H- 6 The Art of War, *Sun Tzu* 1.00
H- 7 Frederick the Great—Instructions to His Generals 1.00
H- 8 Reveries on the Art of War, *de Saxe* 1.00

WORLD WAR II

J- 1 How Japan Plans to Win, *Matsuo* 2.50
J- 2 Report From Tokyo, *Grew* 1.00
J- 3 The Dyess Story, *Dyess* 2.00
J- 4 They Call It Pacific, *Lee* 3.00
J- 5 Guadalcanal Diary, *Tregaskis* 2.50
J- 6 Wingate's Raiders, *Rolo* 2.50
J- 7 Tarawa, *Sherrod* 2.00
J- 8 The Island, *Merillat* 3.00
J- 9 War Below Zero, *Balchen, Ford, and La Farge* 2.00
J-10 Gravediggers of France, *Pertinax* 6.00
J-11 American Guerrilla, *Smith and Carnes* 3.00
J-12 Battle Is the Pay-Off, *Ingersoll* 2.00
J-13 Here Is Your War, *Pyle* 3.00
J-14 Invasion Diary, *Tregaskis* 2.75
J-15 Brave Men, *Pyle* 3.00
J-16 Invasion! *Wertenbaker* 2.50
J-17 Journey Among Warriors, *Curie* 3.50
J-18 Our Army at War, Official photographic record 3.00
J-19 I Never Left Home, *Hope* 2.00
J-20 The Navy's War, *Pratt* 2.75
J-21 Combined Operations, *Saunders* 2.00
J-22 Airborne Invasion, *Hetherington* 2.50
J-23 They Fly to Fight, *Ayling* 2.50
J-24 We Jumped to Fight, *Raff* 2.50

CURRENT LIST OF NEW BOOKS

O- 1 The American Rifle for Hunting and Target Shooting, by *C. E. Hagie* 1.95
A basic guide.
O-2 The Battle Against Isolation, by *Walter Johnson* 3.00
As the United States moved toward war.
O- 3 Cavalryman Out of the West, by *George F. Brinlow* 5.00
A biography of General William Carey Brown.
O- 4 Chinese Self-Taught, by *J. Darroch* 2.00
The Marlborough series.
O- 5 Chinese In Thirty Lessons, by *Yu-Feng Sung and Robert Black* *Paper* 1.98 *Cloth* 2.98
Designed for practical use by students, travelers, and men in the service.
O- 6 Dogs at War, by *Clayton G. Going* 2.50
Deeds of America's first war dogs, with photographs.
O- 7 Europe, *by Marthe Ratchman* 2.00
An atlas of human geography. Maps, charts, graphs, and diagrams which give the social, political, and technical background for Europe.
O- 8 Fighting Joe Hooker, by *Walter H. Herbert* 3.50
With the Army of the Potomac.
O- 9 "First With the Most" Forrest, by *Robert Selph Henry* 4.00
Study of the great Confederate cavalry leader.
O-10 Flying Leathernecks, by *Richard G. Hubler* 2.50
Complete record of Marine Corps Aviation, 1941-1944
O-11 French Dictionary for the Soldier, by *Frank Henius* .50
A dictionary for military use.
O-12 Great Soldiers of World War II, by *H. A. De Weerd* 3.75
The leaders in the present war.
O-13 Gone Away With O'Malley, by *M. O'Malley Knott and Page Cooper* 3.00
Seventy years with horses, hounds, and people.
O-14 Guerrilla, by *Lord Dunsany* 2.50
Nazi occupation.
O-15 Invasion Journal, by *Richard L. Tobin* 2.00
Prelude, D Day robots.
O-16 Military Occupation and the Rule of Law, by *Ernst Fraenkel* 3.50
In the Rhineland, 1918-25.
O-17 Navies in Exile, by *A. D. Divine* 2.75
Poland, Norway, Holland, France, etc.
O-18 Nazi-Deutsch, by *Heinz Paechter* 2.50
Glossary of contemporary German usage.
O-19 Nods and Becks, by *Franklin P. Adams* 2.00
Selections from a columnist's work.
O-20 Normal Lives for the Disabled, by *Edna Yost and Lillian M. Gilbreth* 2.50
Help for the handicapped.
O-21 Partner In Three Worlds, by *Dorothy Duncan* 2.75
Story of a Czech.
O-22 Please Don't Streamline Mother While I'm Gone, by *Technical Sergeant Philip Reisman, Jr., U.S.M.C., and Donald McKay* 1.50
A defiant protest, in verse and cartoon, against a too-streamlined postwar world.
O-23 The Second Chance, edited by *John B. Whitton* 2.50
America and the peace.
O-24 Spanish Dictionary for the Soldier, by *Frank Henius* .50
A pocket pronouncing dictionary.
O-25 War Through the Ages, by *Lynn Montross* 5.00
From 500 B.C. to the present.
O-26 Your Kids and Mine, by *Joe E. Brown* 2.00
The story of the boys he entertained on a 150,000-mile trip from the Aleutians to Italy.

Books not listed can be supplied upon request.

10% discount on orders of $10.00 or more.

Order Through

The Cavalry Journal

1719 K Street, N.W. WASHINGTON 6, D. C.

Books — Manuals — Texts

As a result of inquiries received in our Book Department THE CAVALRY JOURNAL *is starting a new service. Readers of the* JOURNAL *are invited to write to the Book Department and give subjects on which they would like lists of authoritative books. Lists containing recognized and new publications, with brief summaries of the text, will be sent at once. Lists of fiction will also be compiled. Books may be selected from these lists for immediate shipment, or at stated intervals.*

Any order amounting to $10.00 or more; regardless of when or where shipped, will be given the 10% discount deduction.

INDIVIDUAL ORDER FORM

THE CAVALRY JOURNAL,
1719 K Street, N.W.
WASHINGTON 6, D. C.

Please send me the following checked items:

A — 1 2 3 4 5 6 7 8 9
B — 3 5 7 8
C — 1 2 3 4 5 6 7 9 10 11 12 13 14 15 16
18 19 20 21 22 23 24 26 27 28 29 30 31 32
33 34 35 36 37 38
D — 2 3 4 5 9 10 11 12 13 15 16
19 20 26 27 28 29 30 31 32
E — 1 6 8 9 10 12 13 14 15
H — 1 2 3 4 5 6 7 8
J — 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24
O — 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26

OTHER BOOKS

$_____

☐ I inclose remittance in the amount of $_____

☐ Send bill to { Co. / Troop Fund _____ (For unit orders only)

_____
Name (Please Print)

_____
(Street address or box number)

_____
(Town — Post) (City and State)

G. P. O. MANUALS

CAVALRY:

A- 1 (2- 5) Cav. Drill Reg., Horse ..... .50
A- 2 (2- 7) Cav. Drill Reg., Mecz. ..... .15
A- 3 (2- 15) Employment of cavalry ..... .30
A- 4 (2-220) The Horseshoer ..... .25

BASIC AND TECHNICAL:

A- 5 (25- 5) Animal Transport ..... .25
A- 6 (25- 10) Motor Transport ..... .20
A- 7 (100-5) FSR, Operations ..... .35
A- 8 (100-10) FSR, Administration ..... .25
A- 9 A Manual for Courts-Martial, U. S. Army 1.00

THE CAVALRY SCHOOL DEPARTMENTAL TEXTS

B- 3 Horsemanship and Horsemastership 1.25
B- 5 Seats, Gaits, Reactions (Translated from the French) .80
B- 7 The Gaits—The Horseman (Translated from the French) ..... .80
B- 8 Horseshoeing, *Churchill*, 1933 ..... 1.20

STANDARD GUIDES

C- 1 R.O.T.C. Manual, Basic, CS & MS. (2 vols.)
Paper, each vol. 2.25
Cloth, each vol. 2.75
C- 2 R.O.T.C. Manual, Adv., MS.
Paper 2.50
Cloth 3.00
C- 3 Officer's Guide, 1943 edition 2.50
C- 4 Officers' Manual, *Moss* 2.50
C- 5 Company Administration and Personnel Records, *Virtue* (Paper), 14th edition 1.50
C- 6 Company Administration and Personnel Records, *Virtue* (Cloth), 14th edition 2.00
C- 7 Modern Military Dictionary (Cloth) 2.50
C- 9 Combat Communications, *Allen* ..... .35
C-10 Reconnaissance, *Allen* ..... .35
C-11 Combat Intelligence, *Schwein* 2.00
C-12 S-2 in Action, *Thomas* 1.50
C-13 Soldier's Handbook ..... .50
C-14 Courts-Martial Practical Guide 1.00
C-15 Machine Gunner's Handbook ..... .50
C-16 The Soldier and the Law (1944 edition) 2.00
C-18 Mass Physical Training, *Roycroft* 3.00
C-19 Medical Soldier's Handbook 1.00
C-20 Insignia of the Services, *Brown* 1.50
C-21 Army Food and Messing 2.50
C-22 Practical Manual of Martial Law 2.00
C-23 Map and Aerial Photos Simplified 1.00
C-24 State Defense Manual 1.00
C-26 The Fourth Horseman, *Doherty* 1.00
C-27 U.S.A. Second Lieutenant's Handbook, *Craf* 1.00
C-28 Going to O.C.S. 1.00
C-29 Heavy Weapons Manual 2.50
C-30 Basic Manual of Military Small Arms 2.00
C-31 Modern Reconnaissance 1.50
C-32 Handbook to Army Regulations, *Szczudlo* 2.50
C-33 Military Law for the Company Commander, Appleton 2.50
C-34 Articles of War Annotated, *Tillotson* 2.50
C-35 Map and Aerial Photos, Complete 1.00
C-36 Chemical Warfare, *Wachtel* 4.00
C-37 Gas Warfare, *Waitt* (1944 Edition) 2.75
C-38 Get Tough, *Fairbairn* 1.00

STANDARD BOOKS ON WAR

D- 2 Leadership for American Army Leaders, *Munson* .. 1.00
D- 3 Infantry in Battle 3.00
D- 4 American Campaigns, *Steele* (2 vols., Texts and Maps) 8.00
D- 5 World's Military History, *Mitchell* 3.00
D- 9 Maneuver in War, *Willoughby* 3.00
D-10 Allenby, by *General Wavell* 3.00
D-11 America in Arms, *Palmer* 2.00
D-12 Generals and Generalship, *Wavell* 1.00
D-13 U. S. Army in War and Peace, *Spaulding* 6.00
D-15 Roots of Strategy, *Phillips* 3.00
D-16 Technique of Modern Arms, *Muller* 2.50
D-19 Engineers in Battle, *Thompson* 1.50
D-20 History of the United States Army, *Ganoe* 5.00
D-26 The Axis Grand Strategy 3.50
D-27 Story of the Little Big Horn, *Graham* 2.00
D-28 Mechanized Might, *Raborg* 2.50
D-29 Lee's Lieutenants, *Freeman*, Vols. 1, 2, and 3, *each* 5.00
D-30 The Red Army, *Berchin and Ben-Horin* 3.00
D-31 Great Soldiers of Two World Wars, *DeWeerd* ... 3.50
D-32 War of 1812, *Adams* 3.00

BOOKS FOR THE HORSEMAN

E- 1 A Horseman's Handbook on Practical Breeding, by *Colonel John F. Wall*, U.S.A., Retired (3d Edition) 4.00
E- 6 More About Riding Forward, by *Littauer* 3.00
E- 8 Position and Team Play, *Devereaux* 1.50
E- 9 Riding Forward, *Captain V. S. Littauer* 2.00
E-10 School for Riding, *Captain Sergei Kournakoff* 2.50
E-12 Be a Better Horseman, by *Littauer* 10.00
E-13 Horses, *Self* 3.00
E-14 The Western Horse, *Gorman* 2.00
E-15 Training and Gaiting, *Scharf*, 2 volumes 4.00

MILITARY CLASSICS

H- 1 Principles of Warfare, *Clausewitz* 1.00
H- 2 Defense, *von Leeb* 1.00
H- 3 Surprise, *Erfurth* 1.00
H- 4 Armored Warfare, *Fuller* 1.00
H- 5 Napoleon and Modern War, *Lanza* 1.00
H- 6 The Art of War, *Sun Tzu* 1.00
H- 7 Frederick the Great—Instructions to His Generals 1.00
H- 8 Reveries on the Art of War, *de Saxe* 1.00

WORLD WAR II

J- 1 How Japan Plans to Win, *Matsuo* 2.50
J- 2 Report From Tokyo, *Grew* 1.00
J- 3 The Dyess Story, *Dyess* 2.00
J- 4 They Call It Pacific, *Lee* 3.00
J- 5 Guadalcanal Diary, *Tregaskis* 2.50
J- 6 Wingate's Raiders, *Rolo* 2.50
J- 7 Tarawa, *Sherrod* 2.00
J- 8 The Island, *Merillat* 3.00
J- 9 War Below Zero, *Balchen, Ford, and La Farge* 2.00
J-10 Gravediggers of France, *Pertinax* 6.00
J-11 American Guerrilla, *Smith and Carnes* 3.00
J-12 Battle Is the Pay-Off, *Ingersoll* 2.00
J-13 Here Is Your War, *Pyle* 3.00
J-14 Invasion Diary, *Tregaskis* 2.75
J-15 Brave Men, *Pyle* 3.00
J-16 Invasion! *Wertenbaker* 2.50
J-17 Journey Among Warriors, *Curie* 3.50
J-18 Our Army at War, Official photographic record... 3.00
J-19 I Never Left Home, *Hope* 2.00
J-20 The Navy's War, *Pratt* 2.75
J-21 Combined Operations, *Saunders* 2.00
J-22 Airborne Invasion, *Hetherington* 2.50
J-23 They Fly to Fight, *Ayling* 2.50
J-24 We Jumped to Fight, *Raff* 2.50

CURRENT LIST OF NEW BOOKS

O- 1 The American Rifle for Hunting and Target Shooting, by *C. E. Hagie* 1.95
A basic guide.
O-2 The Battle Against Isolation, by *Walter Johnson* ... 3.00
As the United States moved toward war.
O- 3 Cavalryman Out of the West, by *George F. Brinlow* 5.00
A biography of General William Carey Brown.
O- 4 Chinese Self-Taught, by *J. Darroch* ..... 2.
The Marlborough series.
O- 5 Chinese In Thirty Lessons, by *Yu-Feng Sung and Robert Black* ..... *Paper* 1.98 *Cloth* 2.98
Designed for practical use by students, travelers, and men in the service.
O- 6 Dogs at War, by *Clayton G. Going* 2.50
Deeds of America's first war dogs, with photographs.
O- 7 Europe, *by Marthe Rajchman* 2.00
An atlas of human geography. Maps, charts, graphs, and diagrams which give the social, political, and technical background for Europe.
O- 8 Fighting Joe Hooker, by *Walter H. Herbert* 3.50
With the Army of the Potomac.
O- 9 "First With the Most" Forrest, by *Robert Selph Henry* 4.00
Study of the great Confederate cavalry leader.
O-10 Flying Leathernecks, by *Richard G. Hubler* 2.50
Complete record of Marine Corps Aviation, 1941-1944
O-11 French Dictionary for the Soldier, by *Frank Henius* .50
A dictionary for military use.
O-12 Great Soldiers of World War II, by *H. A. De Weerd* 3.75
The leaders in the present war.
O-13 Gone Away With O'Malley, by *M. O'Malley Knott and Page Cooper* 3.00
Seventy years with horses, hounds, and people.
O-14 Guerrilla, by *Lord Dunsany* 2.50
Nazi occupation.
O-15 Invasion Journal, by *Richard L. Tobin* 2.00
Prelude, D Day robots.
O-16 Military Occupation and the Rule of Law, by *Ernst Fraenkel* 3.50
In the Rhineland, 1918-25.
O-17 Navies in Exile, by *A. D. Divine* 2.75
Poland, Norway, Holland, France, etc.
O-18 Nazi-Deutsch, by *Heinz Paechter* 2.50
Glossary of contemporary German usage.
O-19 Nods and Becks, by *Franklin P. Adams* 2.00
Selections from a columnist's work.
O-20 Normal Lives for the Disabled, by *Edna Yost and Lillian M. Gilbreth* 2.50
Help for the handicapped.
O-21 Partner In Three Worlds, by *Dorothy Duncan* 2.75
Story of a Czech.
O-22 Please Don't Streamline Mother While I'm Gone, by *Technical Sergeant Philip Reisman, Jr., U.S.M.C., and Donald McKay* 1.50
A defiant protest, in verse and cartoon, against a too-streamlined postwar world.
O-23 The Second Chance, edited by *John B. Whitton* .. 2.50
America and the peace.
O-24 Spanish Dictionary for the Soldier, by *Frank Henius* .50
A pocket pronouncing dictionary.
O-25 War Through the Ages, by *Lynn Montross* 5.00
From 500 B.C. to the present.
O-26 Your Kids and Mine, by *Joe E. Brown* 2.00
The story of the boys he entertained on a 150,000-mile trip from the Aleutians to Italy.

Books not listed can be supplied upon request.

10% discount on orders of $10.00 or more.

Order Through

The Cavalry Journal

1719 K Street, N.W. WASHINGTON 6, D. C.

Cavalry Journal Index — Volume LIV, 1945

AUTHORS

	No.	Page
Anderson, Captain John D.	6	37
Anderson, 1st Lt. Lyman C.	3	12
Astey, Brigadier E. C., D.S.O.	1	8
Applegate, Major Rex	1	66
Barry, Captain James P.	1	65
Batley, 1st Lt. Robert B.	5	10
Bent, Corporal Frank R.	4	2
Bierman, Lt. Delfred	6	32
Bottomley, Cliff	4	26
Brett, Major Thomas J. No. 5, p. 24	6	18
Bridgewater, Lt. Col. F. Clay	3	46
Burke, Lt. Col. Paul L.	3	12
Carson, Col. Marion	2	52
Cocke, Major James W. No. 3, p. 18; No. 5, p. 18	6	39
Cohn, Major Aaron	4	28
Collier, Major John T.	3	38
Corotneff, Nicholas	2	66
Curzon, Captain Myron W.	4	69
Danilov, Major P.	1	60
Deaderick, Captain Richard O.	6	22
Demuth, Colonel H. C.	1	62
Denisov, Colonel N.	1	58
De Sotto	2	70
Devers, General Jacob L.	6	28
Dobbins, Lt. Col. G. J.	6	17, 18
Dostal, Captain Ferdinand A.	6	59
Drayton, Evelyn S.	5	37
Ellis, Lt. Col. Charles A.	3	28
Emery, S/Sgt. Harry L.	6	52
Fernley, 1st Lt. Thomas J.	1	18
Fiori, Captain Thomas	6	15
Fleeger, Major H. J.	6	6
Forrard, "Hank"	6	54
Font, Major Glenn E.	5	5
Gillett, Captain Charles	5	65
Gillingham, Major George O. No. 4, p. 62	5	66
Gottschall, Lt. Richard K.	1	29
Grow, Maj. General R. W.	6	35
Hainfeld, 1st Lt. Charles No. 4, p. 65	5	63
Hastings, Major Lewis	5	47
Hatt, Lt. Col. Reginald L.	3	54
Hickok, Tech. Sgt. Holland	4	6
Hill, 2nd Lt. Robert M.	4	36
Horton, Captain Frank C.	5	5
Hoy, Lt. Col. Charles J.	4	57
Hudson, Major W. E.	5	8
Iryzk, Lt. Col. Albin F.	4	34
Jones, Captain Carleton P., Jr. No. 3, p. 26	4	31
Jones, Major Morton McD.	6	14
Kleitz, Lt. Col. Anthony F.	5	13
Kostrov, Major Nicolai	3	64
Kournakoff, Captain Sergei N.	5	52
Kraft, Major William R.	6	11
Krucker, Lt. Col. Herbert F.	2	22
Lafayette, Lt. Col. Kenneth F.	5	55
Lanza, Colonel Conrad H.	5	69
Larson, Captain Clark R.	5	5
Laundon, Captain Arthur S.	2	20
LaVove, Major Arthur	6	48
Lindsay, Captain S. A. No. 2, p. 17	5	20
Lochner, Louis P.	3	24
Loewinthan, Captain Lawrence	2	35
Marshall, General George C.	6	31
McCarthy, Sgt. Robert F.	2	26
McGeevar, Commandant	1	73
McGraw, Tec. 5 Ralph C.	4	2
McGuire, Captain James M.	6	13
Maltby, 2d Lt. Pierre V.	3	8
Menefee, Selden	2	54
Mohri, Colonel Ralph W.	5	42
Moore, Arthur	3	50
Murland, Major R. W. No. 5, p. 74	6	64
Netterblad, Captain A. T.	2	68
North, Major John No. 1, p. 2; No. 3, p. 2; No. 4, p. 52; No 5, p. 72	6	66
Paddock, Captain Arthur L., Jr.	2	58
Perry, 1st Lt. Stephen C.	4	13
Petrov, Major V.	5	54
Phillips, Colonel Albert E. No. 4, p. 20	5	39
Popowski, Lt. Col. Michael, Jr.	1	34
Pronin, Colonel I.	4	44
Radanovich, T/Sgt. J. C.	2	24
Rennolds, Major William G.	3	16
Ribavok, Colonel Peter	3	65
Rigg, Major Robert B. No. 1, p. 52; No. 2, p. 60, 65	3	58
Rogers, Lt. Col. James L.	1	5
Shoenfeld, Lt. Clarence A.	4	17
Seborer, Captain Stuart J.	5	16
Semmes, Lt. Harry H.	3	30
Shock, 1st Lt. Charles V.	3	41
Steward, Captain Harold D.	4	10
Stithem, Captain Dale D.	2	15
Studler, Colonel Rene R.	5	41
Tincher, Major Robert R.	1	15
Trant, Captain Reuben F., Jr.	2	12
Vermeulen, Captain C.	4	15
Voorhies, Captain Don W.	5	18
Watkins, Captain Ernest	2	2
Whitehead, Major Arthur K.	1	51
Williams, Douglas	3	6
Williams, Capt. Robert Willoughby. No. 1, p. 20; No. 2, p. 6	4	59
Woods, Sgt. David F.	6	61
Woods, 1st Lt. Robert W.	4	37
Woodward, Major Henry C.	4	23
Yost, Edna	6	69

TITLES

	No.	Page
A		
Airborne Supply, Anstey	1	8
Ambush in Brittany	5	3
Ammunition Supply During Rapid Movement in Combat, Krucker	2	22
Amphibians in Leyte Operation	3	38
Amtanks, Collier	3	38
Amtanks at Saipan, Semmes	3	26
Amtracs, Shock	3	38
Animal Transport Training in India, Woodward	4	23
Armor and its Place in the Future, North	1	2
Armored Command Post, Gillett	5	65
Armored Forces, Lanza	5	69
Army Educational Program	6	70
Artillery Cover for Shipping, Danilov	1	60
Artillery with Reconnaissance, Barry	1	65
Assault Guns, Irzyk	4	34
Assault Guns as Attachments and in Battery	2	17
Atom, The, Drayton	5	37
Aussie Horses Join U. S. Army, Bottomley	4	36
B		
Battle Reconnaissance, Cocke	3	18
"Box" Strategy in Burma, Moore	3	50
Book Reviews No. 1, p. 77; No. 2, p. 76 No. 3, p. 75; No. 4, p. 74; No. 5, p. 76	6	74
Bridge Laying by Armor, North	5	72
Brief Regimental History 26th Cavalry, Fleeger	6	6
British Air Support System, The, North	6	66
Burma Boat, The	3	46
C		
Cavalry—1945, Kostrov	3	64
Cavalry and Infantry at St. Malo, Dobbins and Fiori	6	15
Cavalry Communications in Combat, McCarthy	2	22
Cavalry Group in Delaying Action, A. Cocke	6	39
Cavalry in Dismounted Action, Kraft	6	11
Cavalry School—1945, The	3	66
Cavalry Secures a Beachhead, Hudson	5	8
Cavalry Tank Force in the Defense of a River Line, Cohn	4	28
Cavalry Troops on Los Negros in Unique Operation, Carson	2	52
Cavalrymen Re-enter Manila	2	44
"Challenger"—Heavy Cruiser Tank, The, Murland	5	74
Christmas Message, Devers	6	28
Chronology of World War II	5	75
Command Control of an Armored Amphibian Battalion, Rogers	1	5
Comments From Combat No. 1, p. 24; No. 2, p. 22; No. 3, p. 26; No. 4, p. 34; No. 5, p. 18	6	32
Conversion of Information to Intelligence, McGeevar	1	73
C.R.T.C. in World War II, The, Woods	6	61
D		
Demolition Obstacles to Reconnaissance, Ellis	3	26
Do's and Don'ts on the Care of Tools	4	73
Drama at Headquarters, Anderson	6	37
E		
Editorial Comment. No. 1, p. 42; No. 2, p. 38; No. 3, p. 34; No. 4, p. 40; No. 5, p. 33	6	29
81st Reconnaissance Squadron Fights Way to Rome, Popowski	1	34
Employment of Regimental and Divisional Artillery, Rigg	2	65
Enlisted Man in Operations Section, Radanowich	2	22
Epitome of Leadership	4	66
F		
Facing Eastward with Horse Cavalry, Phillips	4	20
Fiery Calling Cards, Gillingham	5	66
15th Cavalry Group: Part I	5	2
15th Cavalry Group: Part II	6	10
First Cavalry Division, The, Steward	4	10
1st Cavalry Division in the Admiralty Islands: Part II	1	46
1st Cavalry Division in the Admiralty Islands: Part III	2	45
1st Cavalry Division in Leyte Campaign	6	2
1st Cavalry Division on Leyte (Picture Layout)	1	44
Flying Animals Over the Burma "Hump," Mohri	5	42
Forward Observation Training—Notes from 106th Cavalry	2	22
14th Cavalry at Remagen Bridgehead	3	15
4th Cavalry in Diverse Rôles, Maltby	3	8
France, December '44 (Picture Layout)	1	11
From Escherhausen to Einbeck, Seborer	5	16
From Normandy to Germany with the 3d Armored Division	2	28
From Paris to Belgium (125th Rcn. S.), Trant	2	12
From the Book, Deaderick	6	22
From the Rorer to the Rhine	3	22
G		
G-2 Operations in a Pacific Campaign	6	56
General Hawkins' Notes No. 1, p. 38; No. 2, p.42; No. 3, p. 32; No. 4, p. 42	5	32
German Cavalry (Picture Layout)	1	57
German Bastion—Of Water, North	3	2
Group Supply Problems, Font	5	5
Guerrillas of the Indies, Menefee	2	54
H		
Hair—Wheels—Or Tracks, Peery	4	13
Help Wanted: A Cavalry Rifle Troop, Voorhies	5	18
I		
Incendiaries on Tokyo	5	68
Incident on the Rhine, Jones	3	26
India Remount Depot	6	50
Intelligence in the Cavalry Group and Squadron, Williams	4	59
J		
Jap Defenses in the Pacific, Vermeulen	4	15
Jap Doctrine of Armor, Paddock	2	58
K		
Know Your Fuels and Lubricants	3	74
L		
Light Tanks in Pursuit, Cocke	5	18
Little Cannae, Brett	6	18
Live Storage	6	68
M		
Maneuver Formations for the Cavalry Division Artillery, Demuth	1	62
Mechanized Cavalry Group in Defense, Batley	5	10
Medical Evacuation with a Reconnaissance Squadron, Loewinthan	2	35
Meet the "Goon Gun!", Gillingham	4	62
Mixed Cavalry Regiments, De Sotto	2	70
Mobile Groups with Air in Hungary, Denisov	1	58
Mongolian Cavalry, Petrov	5	54
Mopping Up an Enemy Pocket, Dobbins	6	17
More Power for Cavalry, Phillips	5	39
Mountain Goat, M-4, Gottshall	1	29
Mounted Attack in West Bataan—1942, Whitehead	1	51
Mounted Attack, Mechanized, Jones	4	81
Mounted Combat, Grow	6	35
N		
Nazis Go Underground, The, Riess	3	23
Normandy to Brest, Fernley	1	18
Notes on the Japanese Army	4	19
O		
124th Cavalry Regiment in Burma (Picture Layout)	3	49
Operation Pluto	4	55
P		
Pack Operations on Guadalcanal	6	45
Packing Along Salween Trails, Hatt	3	54
Patrol Across the Rhine, Bierman	6	32
Patrol 106th Cavalry in Dismounted Action (Picture Layout)	3	17
Patrolling the Siegfried, Burke	3	12
Pegasus, LaVove	6	48
Prize of Antwerp, The, Watkins	2	2
Protecting the Peace, Marshall	6	31
R		
Radar	3	27
Radio Guerrillas, Hickok	4	6
Raid by 3d Platoon, 104th Reconnaissance Troop (Mecz), Laundon	2	20
Recoilless Rifle, Studler	5	41
Reconnaissance on Guam, Bridgewater	3	46
Reconnaissance in Normandy	1	12
Reconnaissance in the Philippines, Hill	4	34
Reconnoitering an Enemy Position, McGuire	6	13
Red Army Cossacks: Part III, Rigg	1	52
Red Army Cossacks: Part IV, Rigg	2	60
Red Army Cossacks: Part V, Rigg	3	58
Remount Depot in Italy, Lafayette	5	55
Retire in Time	1	76
Retire in Time	4	72
S		
S-2 In Action, Dostal	6	59
Scouting and Patrolling, Applegate	1	66
Screen for Infantry, Rennolds	3	16
Seizing and Holding a River Line, Jones	6	14
Seizing Strategic Installations	5	7
Sergeant Miyoshi	5	56
Slant-Eyed Viewpoint	5	61
Soviet Cavalry, Kournakoff	5	52
Soviet Cavalry in World War II, Pronin	4	44
Soviet Night Attacks	3	64
Spitfire Tanks, Hainfeld	5	63
Straight Talk for Disabled Veterans, Yost	6	69
Straw and the Camel	6	71
T		
Tactical Air Power in Europe	4	46
Tactical Employment of a Provisional Mounted Squadron, Netterblad	2	68
Tactics of Red Army's Mobile Team, Corotneff	2	66
Tank Dozer Tips	2	73
Tanks, Ribakov	3	64
Tank Flame Thrower, Hainfeld	4	65
Third Army Reconnaissance, Williams	1	20
35th Reconnaissance Troop Drives to Rhine, Woods	4	34
Training Against Jap Enemies, Schoenfeld	4	17
Trains Have to Fight Too, Larson and Horton	5	5
Trends in Mechanized Cavalry, Hoy	4	57
Turning the Siegfried Line, North	4	52
U		
Universal Military Training, Curzon	4	69
U. S. Experiment in the Horse-Mechanized Regiment—1941	2	72
U. S. North Flank, The, Brett	5	24
V		
V-3 Launching Sites, Williams	3	6
Victory in Burma—The Full Story, Hastings	3	47
Von Rundstedt on German Defeat	3	24
W		
War Dogs, Emery	6	52
Wasp and Crocodile, Murland	6	64
We Met the Russians, Kleitz	5	13
We Were First in Manila, McGraw	4	2
Will German Horses Be Used to Pay Part of Bill for Reparations?, Forrard	6	54
With the Unicorn West of Bastogne, Williams	2	6
Y		
Yanks Met Cossacks in Historic Link-Up	5	12
Z		
Zeiko Falls	6	33
Zhukov's Successes	2	66
Zone Reconnaissance for the 30th Division, Lindsay	5	18