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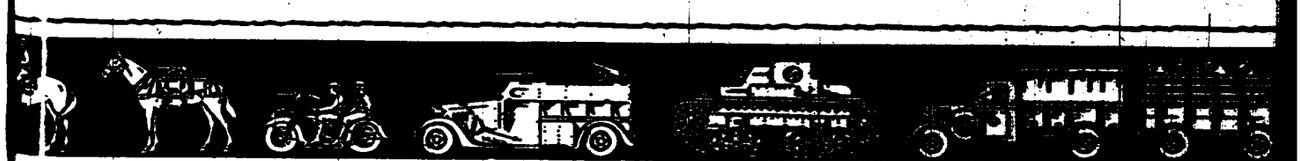
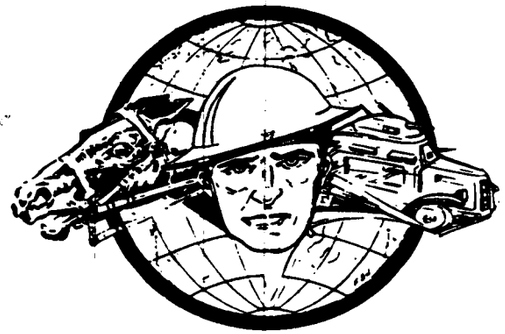


JANUARY-FEBRUARY, 1942

Cavalry Combat



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One can readily foresee the extensive utilization of the horse and the mule in the present conflict. Animal transportation knows no end and goes on forever. The power of an army as a striking force depends on its maneuverability and its mobility, a mobility that is not confined to favorable conditions, a mobility that must be maintained over mangled terrain, shell-torn wastes, and under the worst conditions. From time immemorial, in peace and strife, the horse and mule have given service to man. The horse and mule are a military necessity. The facts are known, concrete, and beyond the necessity of theorizing. The tank, the tractor, the truck, the airplane have complicated war's previous complexities. They have not displaced the horse any more than they have displaced the foot soldier. They have simply been added to the established requirements. All are necessary!

German Cavalry: Rearguard Action.

A tabulation of the returned "proxy" cards for our annual meeting indicated that the majority of requests by our members was for more information about foreign horse cavalry. In compliance with these requests, The Cavalry Journal, to supplement those photos already available, purchased the photos herein presented from commercial photo agencies in New York; i.e., Acme Newspictures, Inc.; Black Star; European Picture Service; Press Association, Inc.; and Sovfoto. Usually, photographs of personnel and animals, equipment and terrain tell a graphic story better than words.

For ethical reasons the following text in support of the accompanying pictures, in substance, was not released for publication prior to the declaration of war against the Axis powers.

--SHOWING ORGANIZATIOMOUNTS, EQUIPMENT, ETC.

German Cavalry

TODAY, Germany maintains approximately seventeen regiments of horse cavalry, plus various other mounted combat units.

All German forces possessing great strategical mobility have been grouped under the heading of Schnellen Truppen. The Mobile Troops include: Cavalry Regiments; Tank Regiments; Motorized Infantry Regiments of the Armored Divisions; Corps Reconnaissance Regiments; Mechanized Reconnaissance Battalions; Motorcycle Battalions; Cyclist Battalions; Divisional Antitank Battalions for all types of Divisions.

Germany has two distinct types of cavalry regiment, each with a title of its own. The "Reiter" regiment approximates the American cavalry in organization and purpose. They are organized and trained to engage in combat as homogeneous units. German Cavalry Doctrine is an almost parallel of our own. (See The CAVALRY JOURNAL, Jan.-Feb., 1941.) The other type known as "Kavallerie" regiment, operates as a unit only occasionally, and are so organized as to be divisible and set up four divisional reconnaissance battalions (Abteilungen) for normal attachment by the corps to which they belong.

The Germans have a Corps Reconnaissance Regiment which is virtually a small force of all arms and can be split up to furnish four reconnaissance squadrons, horse-and-mechanized, for attachment to the infantry divisions of the line of the Army Corps.

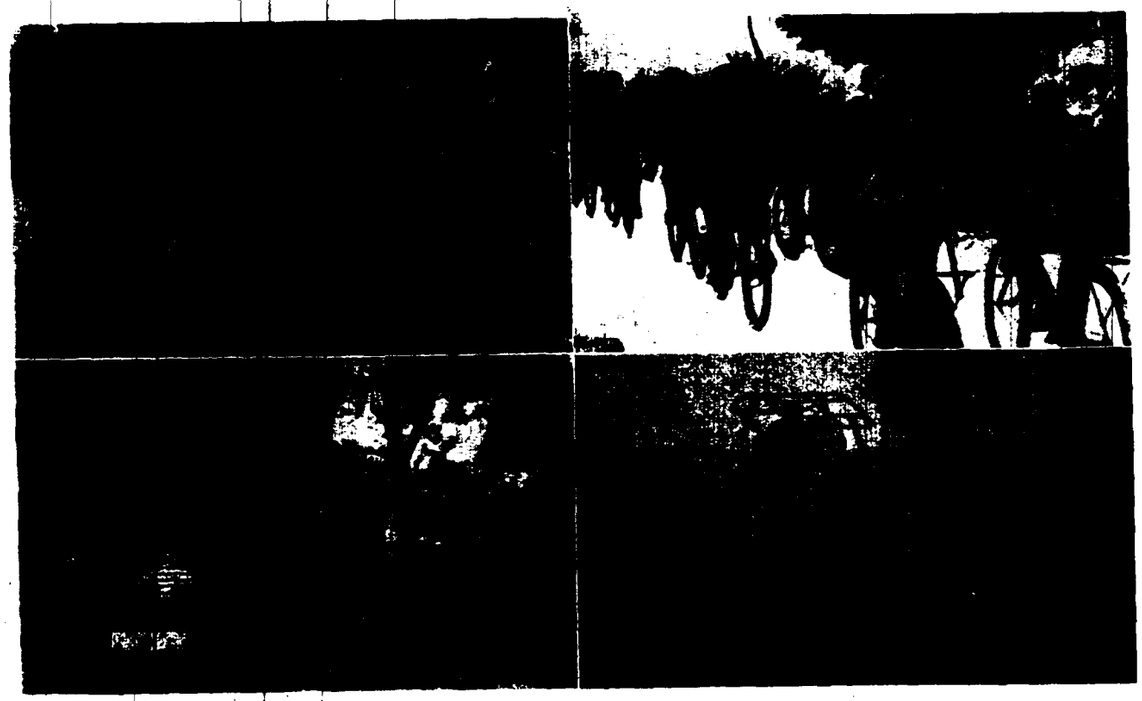
The Reconnaissance Battalion of the German Panzer Division includes a Cavalry Platoon. (Portéed?)

* * *

Although there is no organic divisional reconnaissance unit, reconnaissance is highly developed in the German Division. Distant reconnaissance is performed by the Corps Motorized Reconnaissance Battalion either acting as a unit under corps control or with a detachment under division control. For close-in reconnaissance, the reconnaissance detachment of the Corps Cavalry Regiment is normally attached to the division.

Corps Reconnaissance Detachment

	Officers	Enlisted Men	
Headquarters	3	15	
Signal Platoon (mot.)	1	35	
Cavalry Troop	5	196	
Bicycle Troop	4	140	
TOTAL	13	386	399



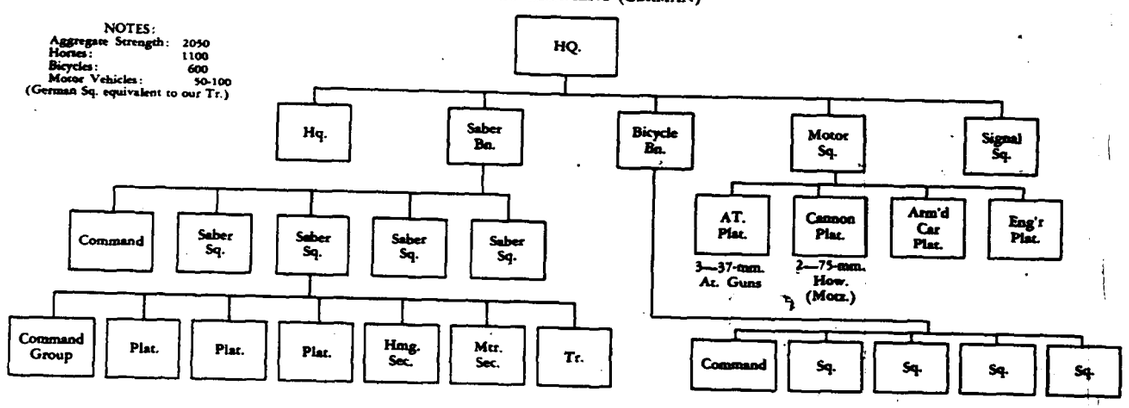
German Reconnaissance Elements

Difficulties of German supply in Russia. Here, an obsolete light tank is being used to bring up gasoline. Deep mud in the country roads, and heavy rains, have prevented motorized columns from moving as fast as they did in France.

METHOD OF OPERATION OF PARTLY MOTORIZED RECONNAISSANCE UNITS

The partly motorized reconnaissance unit carries out tactical reconnaissance for an infantry division. The strength of mounted patrols varies from a section to a troop. The reconnaissance unit is made up of elements which move at different speeds. The aim must be, in spite of these differences, to bring the mounted and cyclist squadrons forward in such a way that on contact with the enemy unified command of the reconnaissance unit is possible. If the situation requires it, the commander of the reconnaissance unit does not hesitate to push on with the mounted squadron if the country is impassable for motor vehicles. Separation from the wireless sets and the necessity of relying entirely on mounted orderlies and despatch riders for the transmission of messages, must be reckoned with. Mounted men, cyclists and motorcyclists can cross streams rapidly in pneumatic boats. The reconnaissance unit has two large and two small pneumatic boats

CAVALRY REGIMENT (GERMAN)



THOROUGH TRAINING

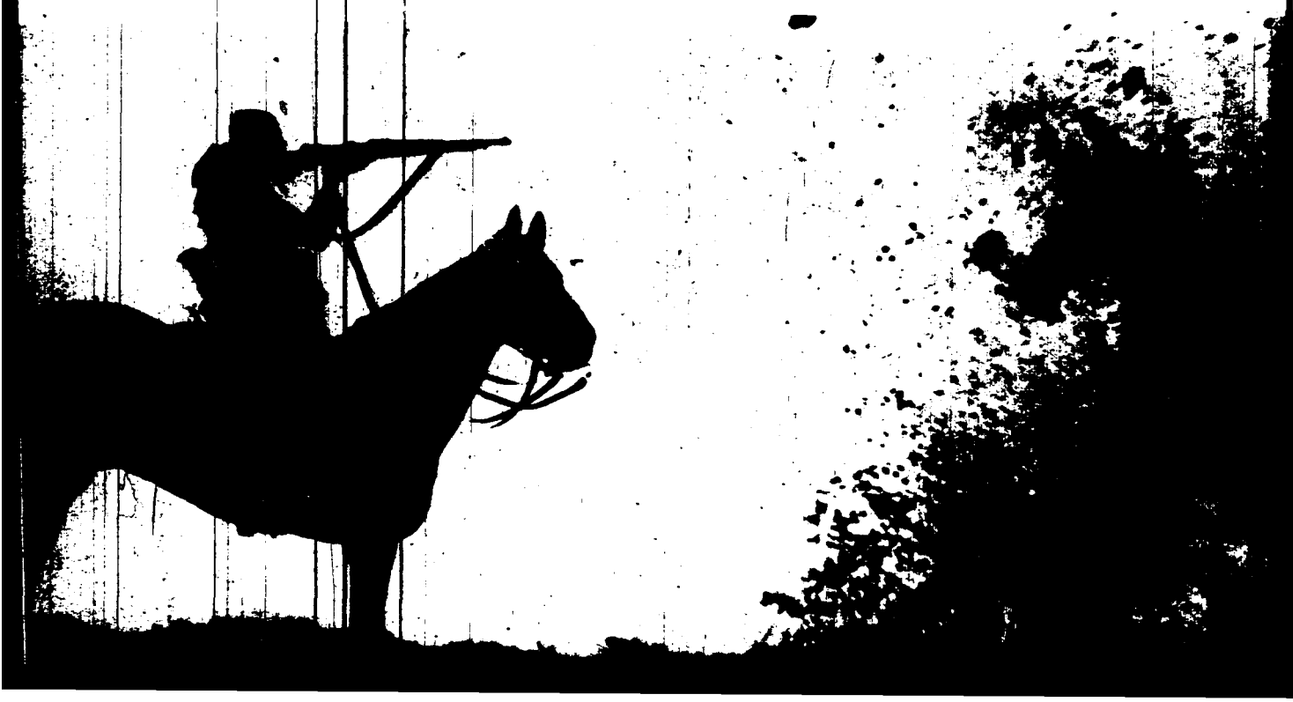
in the engineer stores wagon of the ammunition and stores echelon. These boats are manned by the engineers in the mounted and cyclist squadrons.

The mounted platoon of the German Infantry Regiment is employed chiefly to furnish patrols of greater mobility than the regiment which may be sent out either for reconnaissance or for security, or both. During a march this platoon ordinarily furnishes a mounted point of eight men which advances from rise to rise while the remainder rides near enough to the regimental commander to be readily available for patrol or messenger service. Rates of march: on patrol, 8 km (5 miles) per hour; as messengers, 10 km per hour. Personnel: 1 officer and 29 enlisted men.

A Parallel

If one views the present German-Russian situation as a parallel to that of Napoleon's in 1812, one should remember that Napoleon's defeat came at a time when his cavalry was depleted to one-fourteenth of the strength of his infantry. His deficiency in light cavalry, more than weather conditions or any other cause, contributed to his downfall.

The German Army now is weak in light cavalry and, therefore was at a disadvantage in coping with the vast number of Russian Cossack divisions and mounted guerrilla units that have harassed the German flanks and lines of communications.



Italian Cavalry

At present the Cavalry Arm is composed of thirteen Horse Cavalry Regiments and three squadrons of light tanks, the latter having sufficient that one troop may be attached to a regiment of cavalry.

ITALY — CAVALRY REGIMENT (War Strength (a) January, 1941)

UNITS			ANIMALS		ARMS		MEANS OF TRANSPORT				
	Officers	Enlisted men	Saddle horses	Pack animals	Machine rifles	Machine guns	Bicycles	Motor-cycles	Light tanks	Auto-mobiles	Cargo trucks
Regimental Hq & Hq Troop (2 Plat)	12	110	66	14			10	12			15
1st Sqdr Hq (b)	2	10	10	1			3				
1st Troop (c)											
Hq Platoon (d)	1	32	27				3				
1st Platoon (3 squads) (e)	1	36	37		3						
2d Platoon	1	36	37		3						
3d Platoon	1	36	37		3						
Total 1st Troop	4	140	138		9		3				
Total 2d Troop	4	140	138		9		3				
Total 1st Squadron	10	290	286	1	18		9				
Total 2d Squadron	10	290	286	1	18		9				
M.G. Troop 4 Platoons (3 squads each)	5	120	120	36		12	3				
TOTAL REGIMENT	37	810	758	52	36	12	31	12			15

NOTES:

(a) There are generally two squadrons to the regiment. A light tank troop was assigned to each cavalry regiment, but recently all light tank troops with cavalry regiments have been withdrawn and formed into tank squadrons with the Celeri Divisions. It is understood that when improvements to the present light tanks are made that the light tank troop will be returned to the cavalry regiment.

(b) The Squadron may consist of two cavalry troops or one cavalry troop and one machine gun troop.

(c) The Cavalry Troop consists of a headquarters platoon and 3 rifle platoons.

(d) The headquarters platoon is made up of the necessary personnel for the administrative functioning of the troop, internal liaison of the troop, other necessary personnel such as horseshoer, medical personnel, student armorers, cooks and orderlies.

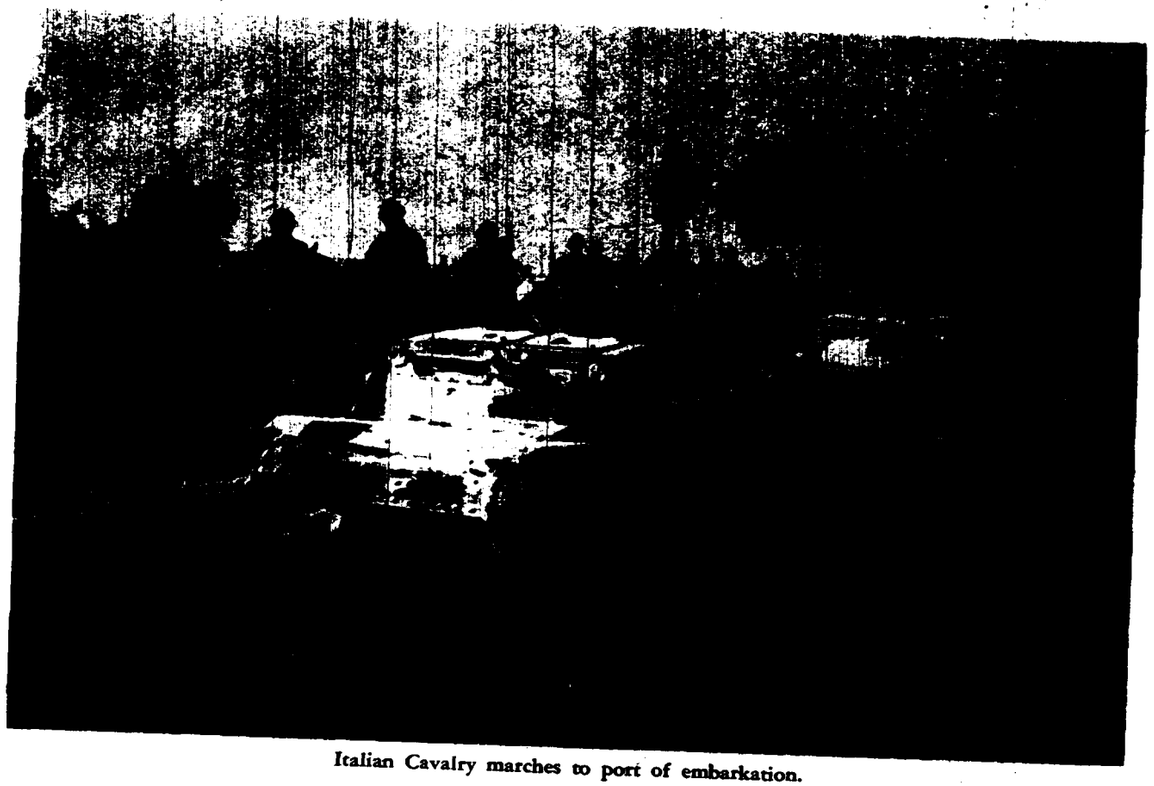
(e) The Cavalry squad consists of:
1 machine rifle Model 30
12 men
1 corporal (squad leader); 1 gunner; 1 assistant gunner; 1 scout; 1 sapper; 1 ammunition carrier; 6 privates.

ITALY, JANUARY, 1941 — ANIMAL TRANSPORTATION SUPPLY AND TRANSPORT UNITS (War Strength)

UNITS			ANIMALS			MEANS OF TRANSPORT		
	Officers	Enlisted men	Saddle horses	Pack animals	Draft animals	Bicycles	Motor tricycles	Wagons
Pack Transportation Section	1	120	1	100				
Wagon Section	1	140	1		120	1	9	60
Mountain Pack Transport Section	1	120	1	100				
Mountain Pack Transportation Co. (3 sections)	6	410	6	312	8	1		4
Wagon & Pack Unit in Army Corps	1(a)		1(a)					
Wagon Section	1		1		124	1		62
Pack Section	1		1	100		1		
Total Unit	3	295	3	100	124	2		62
Wagon & Pack Units in Army Corps (b) (3 companies)	12	925	12	300	392	8		192
Wagon & Pack Units in the Div. (c)	16	840	16	624	20	4		10
Wagon & Pack Unit	1(a)		1(a)					
2 Wagon Sections	2		2		244	2		122
1 Pack Section	1		1	100		1		
Total of Unit	4	435	4	100	244	3		122
Army Wagon Squadron (d)	12	985	12		752	11		372

NOTES:

(a) Commanding officer of unit.
(b) With as many units as there are divisions in the Army Corps.
(c) With as many units as there are regiments in the division.
(d) With as many companies as there are Army Corps in the Army: Two wagon sections in each company.



Italian Cavalry marches to port of embarkation.

Italian Cavalry ready to be taken aboard a transport sailing from Naples.

Japanese Cavalry

THE most recent confirmed information relative to Japanese cavalry is that they have twenty-five regiments—eight regiments of non-divisional cavalry, organized into brigades; and seventeen regiments of divisional cavalry. Reliable but unconfirmed information, however, indicates that Japan now has approximately sixty-one infantry divisions and that the divisional cavalry has correspondingly been increased to sixty-one divisional cavalry regiments. Moreover, recent Russian translations state that the Japanese expect to build up large forces of cavalry, heavily reinforced, to be used as independent cavalry.

The cavalry regiment, infantry division, consists of a headquarters, two squadrons, train, and probably a 2-gun section of 37-mm. rapid fire antitank guns.

The following table shows the estimated organization:

		1 squadron			1 squadron		
	Headquarters	Communication	Antiaircraft machine gun antitank	Heavy machine gun	1 troop	3 troops	Total
Total commissioned	7	2	3	3	4	12	27
Total enlisted	8	64	66	49	99	297	484
Aggregate	15	66	69	52	103	309	511
Horses, riding and pack	13	66	76	56	110	330	541
Light Machine guns	...	...	...	...	4	12	12
Heavy machine guns	...	...	...	4	...	...	4
Antiaircraft machine guns	...	...	2	...	...	...	2
Carbines, cavalry	...	40	40	20	99	297	397
Sabers	12	66	69	52	103	309	508
Pistols	6	20	22	10	7	21	79
Guns, 37-mm. antitank	...	...	2	...	...	...	2
Radios	...	3	...	...	...	...	3

NOTES:

1. Weapons of some cavalry regiments include 12 grenade dischargers.
2. Japanese are discussing the inclusion of a reconnaissance troop in the organization of the divisional cavalry regiment.

The cavalry regiment, pack division, organization differs from the cavalry regiment, infantry division, only in its field train, which consists of the following: 115 enlisted men; 79 horses, pack and riding; one day's ration and forage.

The non-divisional cavalry regiment consisting of a headquarters, 4 troops, and a machine gun troop is comprised of 788 officers and men; 884 horses, riding and pack; 680 carbines; 6 light machine guns; and 8 heavy machine guns. (This armament probably has been increased.) This type of regiment is found in the independent cavalry brigades. Independent cavalry brigades include a brigade headquarters, one battery horse or pack artillery, armored car troop and a detachment of engineers.

Saber: The saber is a slightly curved weapon about 36 inches over all. It is carried by the cavalry, and officers and most noncommissioned officers of other arms.

Lance: The lance is used only for ceremonies and is carried only by the guards cavalry regiment.

Carbine and bayonet: The cavalry carbine is model 1911, caliber 6.5-mm. (0.256 inches) and differs from the infantry rifle only in having a shorter barrel. The weight is about eight pounds. A double-edged bayonet is permanently attached to the rifle, folding under the barrel when not in use. Its total length over all is 51½ inches and it is sighted to 2,000 meters (2,187.2 yards). Side arms also are carried by the cavalry.

Light machine gun: The cavalry uses the same model light machine gun that the infantry uses: Caliber 6.5-mm. In pack, the gun is slung horizontally with the butt towards the croup well up on the near side of the pack. The tool and spare parts box is slung below the gun. Two ammunition boxes, each containing 400 rounds, are loaded one above the other on the off side of the packsaddle. The encased, folded tripod is either packed on top of the packsaddle or suspended from the shoulder of one of the ammunition carriers. About 45 seconds are required to go into action from pack and about the same length of time is necessary to repack.

Heavy machine gun, model 92 (1932) Caliber 6.5-mm. (also used by infantry): The gun and certain accessories are carried on the pack in the following manner: the gun is slung horizontally, muzzle to the rear on the near side; two boxes of ammunition, each containing 15 clips of 30 rounds each (450 rounds), are loaded on each side of the packsaddle of the ammunition pack horse; spare parts and the tool box are carried below the tripod on the off side of the gun pack.

An antiaircraft adapter, about 24 inches long and weighing less than 10 pounds is inserted between the gun and bipod, when the gun is to be used against hostile aircraft. At other times one of the ammunition carriers slings it from his shoulder in a case.

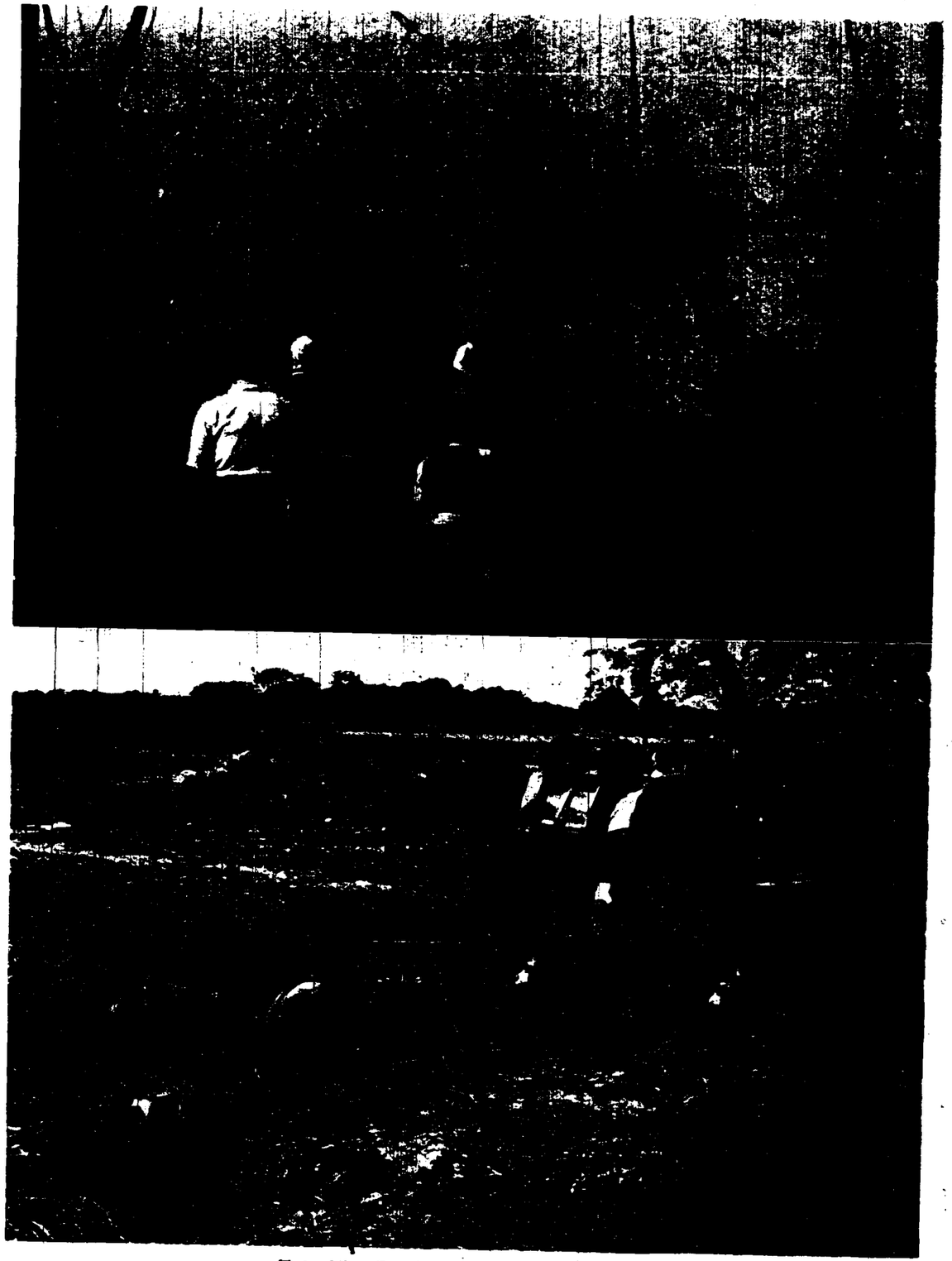
Antiaircraft sights are carried in a box by the squad and attached to the gun.

Other transport methods: (1) The periscopic sight is carried by the squad leader. It can be attached to the gun for direct aiming, used attached to the panoramic sight, or used as a periscopic field glass when detached. It is a 6-power glass and has a 100-mil horizontal scale and a 70-mil vertical scale, both graduated into 5-mil units.

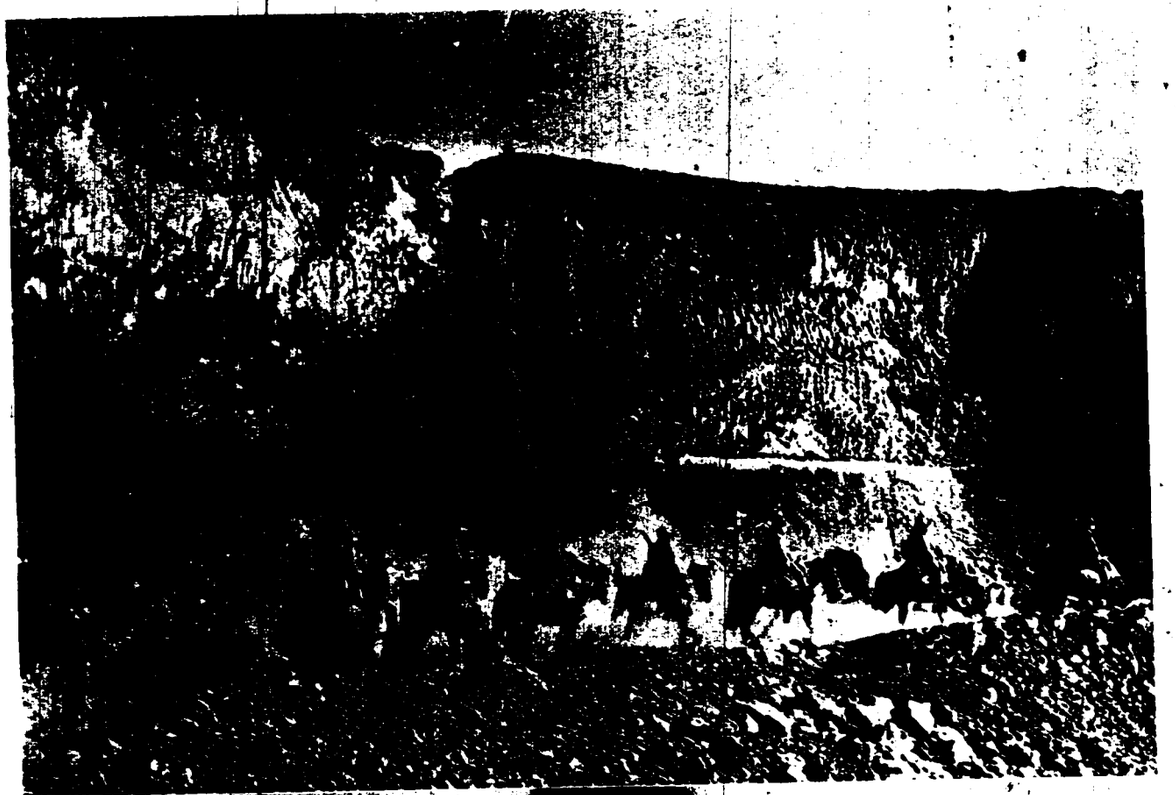
(2) The panoramic sight is carried by one of the ammunition carriers. It is equipped with range, traversing, and site scales, and leveling bubbles.

(3) The flash hider is carried in the spare parts box.

Cavalry Packsaddle: The packsaddle used by the Japanese cavalry is similar in basic design to the Phillips

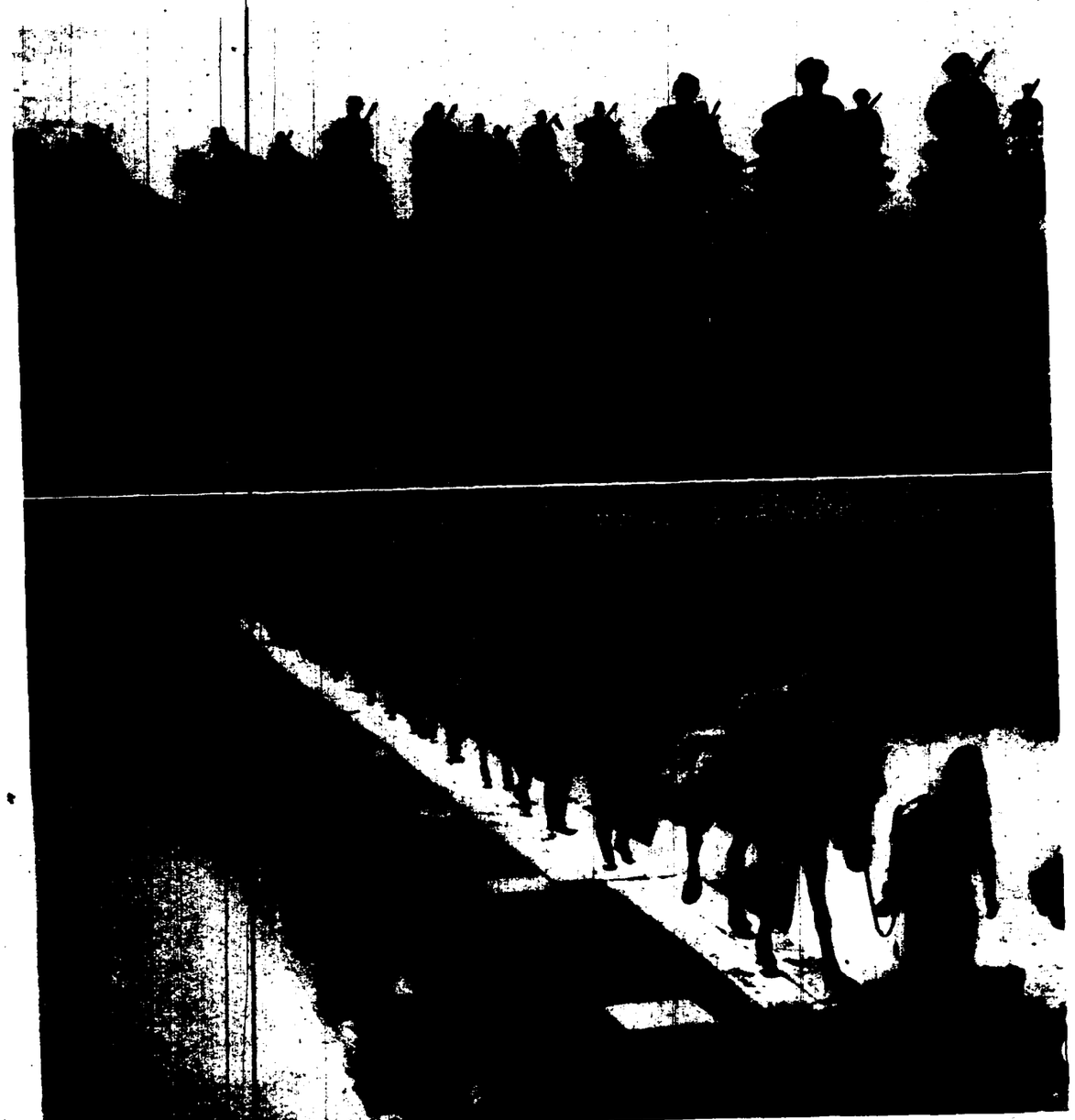


Top: **The Cavalry embarks.** ***Bottom:*** **The main roads are searched for hidden land mines**



Top: Japanese Cavalrymen penetrate the rugged and barren mountains of Shansi Province, China. *Bottom:* Japanese Cavalry is well mounted

Top: Japanese Cavalry operations in the Peiping-Suiyuan Sector, China. *Bottom:* A unit of Japanese Cavalry advances on a "mopping up" operation in South China



Top: **Japanese Cavalry operations against Chinese guerrilla units are continuous.** ***Bottom:*** **The trails are where one finds them**

packsaddle used in our service, and consists of a steel frame to which the necessary pads and hangers are attached. Hangers are adapted to the load intended to be packed.

Tactics: In general, the Japanese doctrine with reference to the use of cavalry is very much like our own. The following excerpt, however, from one of their regulations may be of interest: "Modern cavalry not only can defend itself successfully from motorized-mechanized units of the enemy, but it can crush them."

* * *

The following extract from a report relative to general characteristics of Japanese tactics, rendered about

the time Japan began its undeclared war on China might be of value.

"To the exclusion of matters of minor technique, the general characteristics of Japanese tactics may be summarized as follows:

"The continuous offensive is the basis of Japanese tactical and spiritual training. The offensive is sought under condition of combat inferiority, which indicates a lack of appreciation of modern fire power and an overconfidence in the mystic virtue of Japanese spirit (seishin) to overcome material obstacles.

"The meeting engagement is the preferred form of offensive action. Its conduct is energetic and rapid but is apt to be uncoördinated with a piecemeal commitment of troops.

"The envelopment is the preferred type of maneuver, although frontal attacks are common in practice. As executed, most envelopments are flat and close-in with little or no interval between frontal and enveloping attacks.

"The effect of envelopment is usually sought by an advance in parallel columns with a view to overlapping one or both of the hostile flanks. The desire to stage a preconceived maneuver often leads to premature development.

"Japanese advance guards are unusually strong in infantry, particularly in approaching a meeting engagement.

"The Japanese Army does not appreciate the difficulties of the attack of a position and does not have the necessary weapons to undertake such attacks except on a narrow front.

"The Japanese artillery is deficient in number, caliber, and technical training. It is untrained in modern gunnery methods such as use of air photos, night registration, and fire of unobserved concentrations. It has no carefully thought-out plan for liaison with the infantry.

"The Japanese division is carefully trained in night attacks, believes in them, and can be expected to execute them frequently in war.

"The Japanese division frequently sends forward an advance detachment amounting to from a third to a half of its strength to precede the main body and facilitate the mission of the division, whether this be offensive or defensive.

"The Japanese dislike the defensive. When forced to assume it, commanders retain the idea of a quick return to the offensive. They will counterattack on the slightest provocation at all echelons of command.

"A Japanese defensive position tends to lack depth. The systems of fire in front of and within the position are often imperfectly organized.

"The Japanese appreciate the importance of secrecy and deception. No maneuver is ever attempted without including in the plan some device to deceive the enemy and conceal the true intention of the commander. (Sneak-tactics are their specialty!)

"*Weak points:* Many of the weak points of Japanese tactics noted, result from the fact that the division is under-armed by Western standards of comparison, but the Japanese are making great efforts to correct this deficiency. They are spending large sums on aviation, mechanization, and motorization. They have increased the strength of the division artillery. Division antigas and antitank units are being organized. The division which started the China incident will not be the division of a future war. Increased material means will facilitate the task of Japanese tactics.

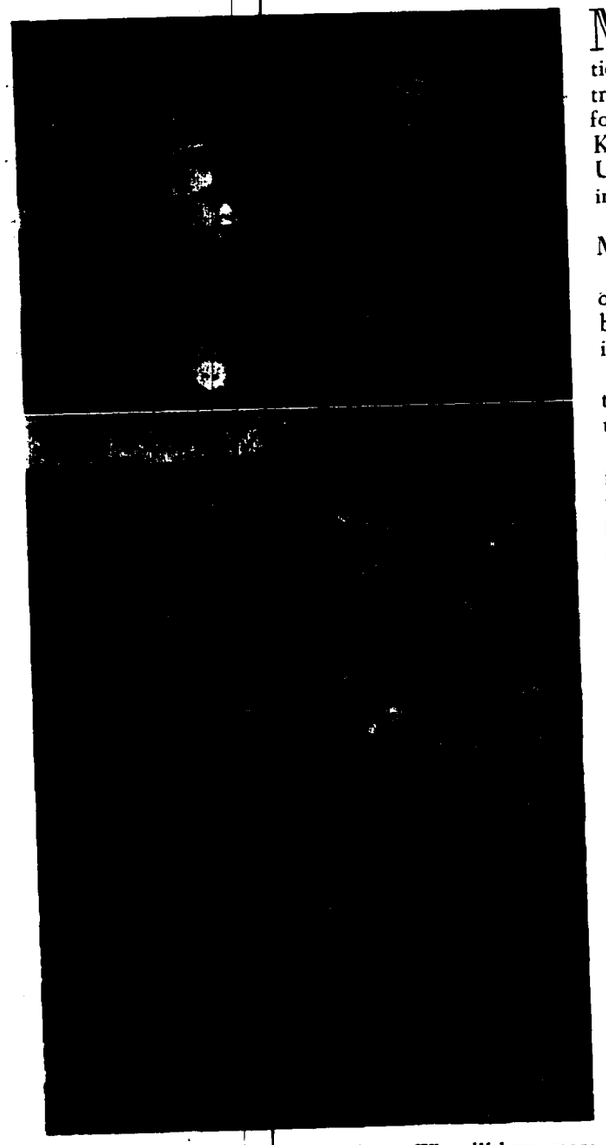
"*Fighting efficiency:* Tactics are without meaning unless studied in relation to the human agent who will apply them in battle. This report has avoided excursions into the field of Japanese military psychology and national characteristics; however, it should be read with a constant eye to the nature of the Japanese Army for which these tactics are designed. It is an army easily misjudged by the foreign officer who sees first of all its straggling columns, slovenly dress, and unmilitary bearing. Just as there is no glitter to its accouterments, there is little theoretical excellence to recommend its tactics; but it is an army which excels in durability and performance. In the same way that its infantry 'straggles' 30 miles a day and arrives at the destination on time and with surprisingly few casualties, its command and staff can be counted on to evolve plans and orders which, without being brilliant tactical combinations, are practical and workable schemes for getting a maximum performance from the Japanese soldier. Furthermore, the Japanese Army which fought with bows and arrows in 1870 is thoroughly capable of learning from its mistakes and advancing with the new developments of warfare. While its swaggering self-confidence may receive some rude jolts in a major war, it is a rugged army fired with a devotion to duty and a narrow patriotism which make it a dangerous foe on a field of its own choosing."

Chemical Warfare Service

A modern chemical warfare research establishment exists in the vicinity of Tokyo. There are also a chemical manufacturing plant and a chemical warfare school for the training of selected officers of all arms except military police. Graduates of this school give chemical warfare training throughout the army. It is definitely known that mustard gas, lewisite, phosgene, chloracetophenone and certain of the smoke materials are being manufactured at army laboratories and arsenals. Commercial plants are known to have manufactured phosgene and to be engaged in making raw materials for the production of mustard and tear gas.

Vast Soviet Cavalry Armies Forming

*By Colonel General Gorodovikov**



Their *esprit de corps* is magnificent. We will have more about them in subsequent issues of *The Cavalry Journal*

MOSCOW, December 22, *Pravda:* The geographical peculiarities of our country, the historical traditions of the Russian Army, in which mounted Cossack troops have always played an outstanding part, the love for the horse inherent in Cossacks, Kirghizians, Kazakhs, Kalmyks, Bashkirs and other peoples of the Soviet Union—all this shows that cavalry will always hold an important place in the Red Army.

The Germans encountered Soviet cavalry at Tula, at Moscow, at Rostov, and felt the strength of its blows.

It has been shown that the tank is not very dangerous for the cavalryman if he can handle not only a blade, but a hand grenade, mortar and automatic arms, if he can fight on foot as well as on horseback.

The best evidence of our cavalry's achievements was the award of the Guards title to a number of cavalry units.

Powerful reserve cavalry armies are being trained in the rear and are preparing for decisive engagements with the enemy. An example is the unit commanded by Surikov. Its well-fed horses and the military bearing of the riders—who handle the most up-to-date weapons as well as sidearms—produce a splendid impression.

Units of this quality are being prepared for the front with great rapidity. One, commanded by Milerov, consists of men who are ardent horse lovers. In a short time this unit had brought its horses up to the standard of a regular cavalry unit, although it started with ordinary collective farm horses and had only a few weeks' training.

In addition to reserve units, voluntary Cossack forces are also taking up arms to fight the enemy.

The heroic traditions of the First Mounted Army, formed on Stalin's initiative, are still fresh among the Cossacks, who preserve their hereditary audacity and indomitable hatred for the Germans who have dared to encroach on Soviet soil. The Cossacks of the Don, Kuban and Terek are rising for war. The collective farmers of the northern Caucasus are taking up arms.

Veterans of Last World War Join Cossack Squadrons

Men who fought in previous wars and sabered not a few Germans in the war of 1914-18 are joining the ranks of the Cossack volunteer forces. They come with

*This datum was furnished by courtesy of the Embassy of the Union of Soviet Socialist Republics, Washington, D. C.

their own horses, their Cossack uniforms and their weapons. Collective farms provide them with their finest horses.

The Cossack volunteer forces include many former Red guerrillas and many veterans of the First Mounted Army. They are splendid cavalrymen, as much at home on horseback as on the ground. They receive new weapons and are taught the tactics of modern warfare and coöperation with other arms.

Every district of the Don and Kuban is training detachments for the Cossack volunteer force. They have their own local commanders and doctors, their own transport. They count in their ranks many commanders who are Civil War order bearers. This fast spreading movement shows what enormous untouched reserves Russia possesses.

* * * *

Crack Soviet Military School Turns Out New Officers

The following interview with the Commander of the Frunze Military Academy, one of the many advanced schools for Soviet army officers, was published in *Pravda* December 22d:

The war has imposed new tasks on the Academy, which has modified its program in conformity with war conditions. The length of the training period has been reduced, time is used more intensively, and secondary subjects have been abolished from the curriculum.

Special attention is being given to quick orientation and correct evaluation of the military situation and to operations against the *enemy's flanks and rear.* Our main object is to teach commanders of all arms to direct their troops in the midst of battle and in constantly shifting situations.

Much attention is given to enemy tactics, his strong and weak points, and to intelligence methods as applied against enemy tanks and air landing parties. Tactics of fighting at short range, which play an important part in modern warfare, are equally stressed. Red Army students are taught to handle not only modern Soviet weapons but also enemy weapons.

The Academy has already sent large contingents of trained officers to the front. A large part of the student body and of the faculty as they existed when the war began have been assigned to active duty. Some of them have already distinguished themselves in battle, including Major General Golubev, Major General Dovator, Hero of the Soviet Union Provalov, Hero of the Soviet Union Pogodin and others.

Despite the constantly growing demands of the front, new classes of students have successfully completed the Academy's course. Of the new students admitted, over 70 per cent have previously received university or technical education. The age of most of the students ranges between 20 and 35.

Additional Datum

As the result of the custom of adding captured artillery to cavalry units during the revolutionary wars, and the successful part played then by cavalry in rapid flanking operations, cavalry has been greatly increased and given as much fire power as motorized infantry, being armed with small and large caliber machine guns and 2 lb. mountain guns. Dismounted cavalry, so armed, alone successfully opposed the Japanese a few years ago in Manchuria. Cavalry predominates in all of the steppe and desert country throughout the southern U.S.S.R. from West to East.

The present Russian cavalry strength is estimated at one-half million. The Cossacks constitute most of the cavalry. They are geographically divided and known as Don, Siberian, Terek and Kuban. The latter, also known as Caucasian Cossacks, are recruited from twelve tribes and are the fiercest.

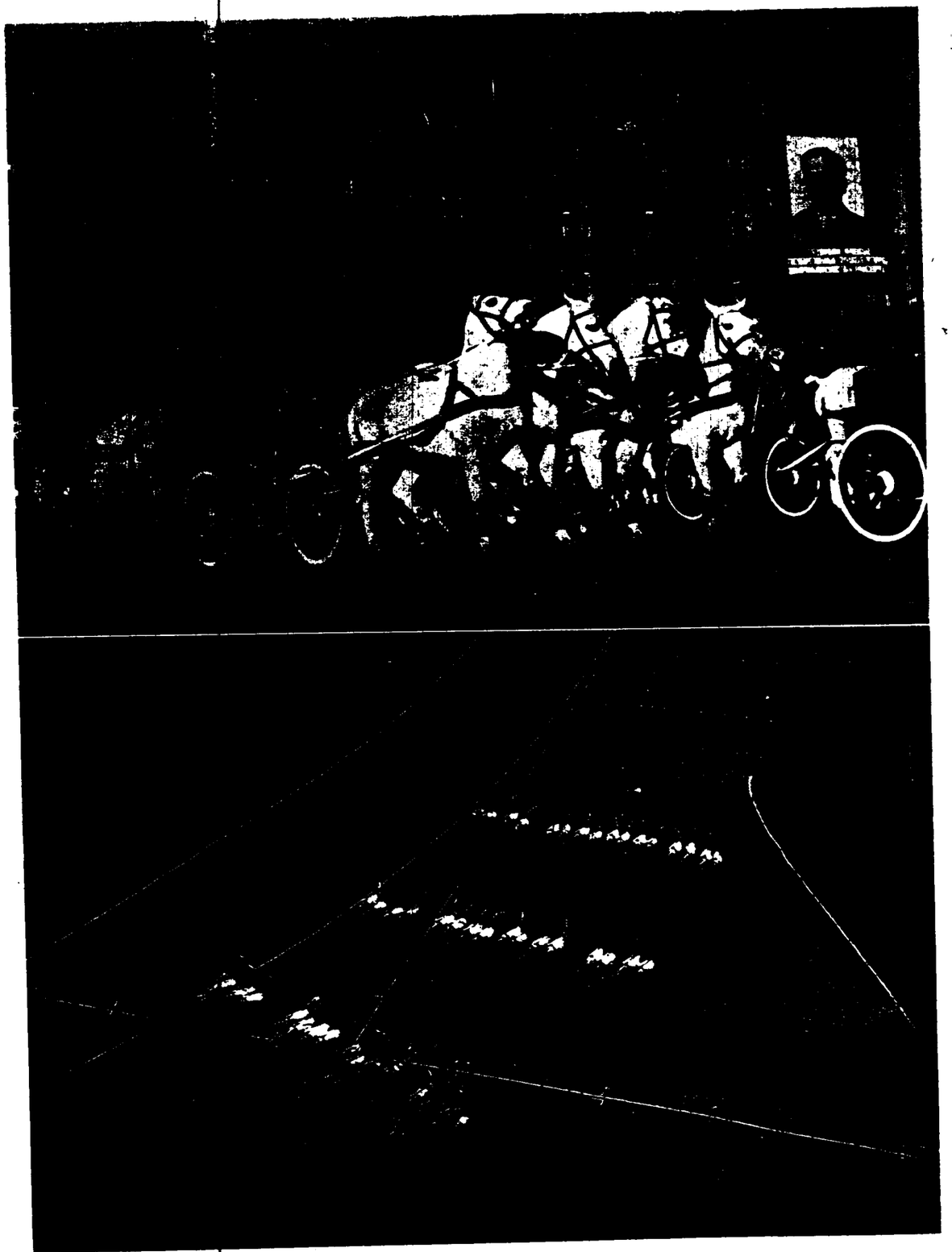
Cossack regiments attached to northern centers do not wear the Cossack uniform, appear like regular cavalry, which last may have slightly heavier horses as the government is operating stud farms. Cossack home bred horses are fairly light and not large. The Cossacks are armed with five-shot carbines, slightly curved sabers, and almost without exception have discarded lances.

Tachankas

"Tachankas," horse-drawn carriages mounting .50 caliber machine guns (see accompanying photographs), are attached to cavalry units. Harnessing four abreast is the outgrowth of the nationally used three horse tachanka (high wheeled rig). The extreme off and nigh horses can be cut loose if necessary. Military tachankas seat the gunners facing the gun breech.

Army tachankas originated during the revolutionary wars when two seated high wheeled carriages of that name, were used as gun mounts.

Tachankas also are used by irregulars or mounted guerrillas. The farm type with three big and fast horses, the center horse between shafts, is used in raids. The occupants use machine guns, hand grenades and German Mausers, carbines being scarce and rifles cumbersome. Irregulars are organized in units of ten men with sometimes ten units in a command. The element of surprise enters largely into their operations. Driving tachankas at full speed through enemy occupied towns and villages; machine gunning the while, and disappearing rapidly, is a favorite method of attack. When snow comes three horse sleighs are similarly used. Mounted irregulars use all kinds of horses, depending on locality and personal choice. (A recent news picture showed a tough looking horse smaller than a western cow pony.)



Tachankas (horse-drawn machine-gun carriages) on parade in their beloved Moscow

Soviet Turkestan: The Turkoman Camel Corps (Camel Cavalry) on the march.

CAVALRY—IN GENERAL

Cavalry leaders in a war of movement are more essential today than ever before in our history. The tactical principles have not changed with modern developments. It is the *methods* of cavalry that constantly are undergoing improvement affecting mainly the factors of time and space, armor and armament.

When an army advances to battle some mobile group, for the "mass," must perform those time-honored ground missions involving reconnaissance, security, offensive and defensive combat, exploitation, covering, or pursuit operations. Whether the horse—in saddle or pack, camel, elephant, the motorcycle, jeep, scout car, armored car, combat car, truck or portee trailer is used (any or all) is merely a means to the end of accomplishing cavalry missions. Animals and vehicles should be used wherever they are most effective. Whether it be by horse cavalry, mechanization, or both, getting the cavalry job done is the main idea—call it what one may.

Let us not be hidebound to terminology. The terrain, time element, and opposition indicate the mode of travel; the specific situation indicates the required type of combat. The respective equipment and organization should meet this requirement.

The catch phrase "Blitzkrieg," which seems to have captured popular civilian fancy, is not new to cavalrymen. Blitz tactics are normal cavalry tactics. Modern warfare emphasizes the need of well-balanced combat teams. Neither cavalry nor infantry nor the armored force can advance now without the proportionate supporting assistance of all of the other arms and services. For cavalry, highly mobile engineer and artillery support is essential. Combat aviation in support of ground troops has entered a new phase of importance. Effective coordinated teamplay, however, can be obtained only by actual practice in the development of technique. *We must pull together without prejudice.*

GENERAL HERR
On his private mount *Star Witness*, grandson of *Man o' War*

General Herr's Address*

Why Should the United States Lag Behind Other Great Powers in the Military Use of Animals?

INTRODUCTION

Mr. President and Members of the Association. I am glad to be here. It is gratifying to be with people who like the horse. I find many who are really hostile to this noble animal. Always I find in them other symptoms of unbalance.

I will talk to you briefly as follows:

FIRST, a survey of the comparative use of animals in the Russian, Japanese, German, and American armies, with more detailed comparison as regards German and American armies.

SECOND, I will discuss the present and probable future effect of mechanization and air on the use of animals in war.

THIRD, I will tell you what our American cavalry really is and how we hope to develop it to keep abreast changing conditions.

FOURTH, a few words concerning the influence of your association, of our remount service, and of mounted sports on the future of the horse.

FIFTH, conclusion.

1. *THE USE OF ANIMALS IN OUR OWN AND FOREIGN ARMIES.*

a. General Comparison.

All foreign armies except the English use animals in great numbers. I will consider only the greatest, Russia, Japan, and Germany, with special attention to the German as first in efficiency.

From the most reliable sources available, it appears that the Russian Army has more than 1,000,000 animals; the Japanese Army has more than 375,000; and the German Army includes, as a conservative estimate, more than 960,000 animals. The American Army has 50,000.

Breaking down these figures further, we find

	For Cavalry Use	*For Draft and Pack*
Russian Army	200,000[1]	800,000
Japanese Army	50,000[2]	325,000
German Army	50,000	910,000
American Army	25,000	12,000

NOTE: In remount depots and for administrative purposes, etc.—13,000.

b. Use of Animals in Our Own and German Armies.

As the German Army is the most efficient in the world, let us compare further the use of animals in the German and U. S. Armies.

For cavalry purposes, Germans 50,000—U. S. 25,000.

Although the Germans have but one cavalry division, while we have two, they use much more cavalry than we do for reconnaissance purposes. They have more corps cavalry regiments than we have, except that theirs are made up of bicycle squadrons and marching horse squadrons. I will show later how ours are constituted. They also have smaller horse groups, often a troop, as reconnaissance groups for their marching divisions. We have no horse reconnaissance groups with our marching divisions and small mechanized reconnaissance groups with only nine of our divisions. Eighteen of our marching divisions have no reconnaissance groups, either mechanized or horse. The Germans have a scouting platoon of 30 horsemen in each marching infantry regiment. We have none.

For artillery purposes, Germans 464,000—U. S. 11,000.

For draft and pack other than artillery, Germans 446,000—U. S. about 1,000.

Thus we see that by far the greatest discrepancy existing in the use of animals between the German Army and our own Army is found in the use of draft and pack animals, chiefly draft. Why is this? First, let me tell you that the Germans have approximately 25 mechanized divisions, 35 motorized divisions, and 245 marching divisions, i.e., those where the infantry walks. We have 5 mechanized divisions, 1 motorized division, and 26 marching divisions. It is in the marching divisions that we find the differences.

*This address was delivered in Chicago, Illinois, December 3, 1941, by Major General John K. Herr, Chief of U. S. Cavalry, at the annual meeting of the Horse and Mule Association of America.

Recent reports from abroad eloquently confirm the soundness of General Herr's masterly analysis of the military use of animals.

[1]The Russians have approximately 40 divisions of more than 130 regiments of cavalry. The splendid work done by the Russian cavalry in pursuing the retreating Germans could have been done by no other arm. During the subzero weather the horse requires neither oil nor gas nor warming up to move. Tank units bog down in the cold weather.

[2]As a result of the war in China, Japanese cavalry has more than doubled. The Remount Service, in both Japan and Manchoukuo, has been doubled and the most painstaking care is being exercised to develop more and better mounts. The Japanese have stated:

"Many things hitherto unnoticed even by the thinking public have been brought to light, frequently with new emphasis and implications, through experiences undergone on the China and home fronts in connection with the present conflict. The usefulness of the horse in modern warfare is one of such discoveries. In reality, without the services of this dumb, faithful animal, Japanese troops would not have been able to carry out successful, daring attacks upon enemy positions, particularly in battles on the rugged steppes and in the narrow passes of the Chinese mountains. Contrary to popular expectations, the increasing mechanization of the Army has by no means diminished the utility of army horses. The present hostilities have certainly established their distinct place in modern warfare."

Germans find uphill going in Russia.

In the German marching division all the artillery and practically all the other transportation, whether of supply or fighting echelons, is drawn by animals. In our divisions there is not a single animal; all our vehicles are motorized. Why this striking difference? The Germans claim that there is no reason for using motors where animals will do as well. Animals can draw vehicles as fast as men can march so why use motors with marching divisions? The Germans use great fleets of motor vehicles to bring supplies from bases to the divisions. Thus it is motors for the long haul and horses for marching transportation. They believe also that it is wise to balance the use of resources. Although we are the greatest motor country in the world, we have vastly more animals than has Germany. With more than 10,000,000 horses and 4,000,000 mules in this country, why should we not achieve a similar balanced use? Although I have tried to find out why we insist on using motors for tasks which the horse can do as well or better, I have yet to find any convincing answer. I do not believe there is any adequate answer. If we used animals to the same extent as do the Germans, over 4,000 per infantry division, we would need 100,000 more animals, chiefly of the draft type. About 50,000 of them would be for artillery use. What does the Chief of Field Artillery, General Danford, think about it? I quote from one of his addresses to which he still adheres:

c. General Danford's Opinion.

"At this time, it seems appropriate for me again to make a few remarks with reference to the oft recurring argument of horse versus motor, and to state my views thereon.

"I have frequently remarked that I believe the easiest thing the Field Artillery could accomplish today would be to eliminate the horse completely from the arm. Congress and the country are definitely machine-minded and many brilliant officers simply can not see horse-drawn Field Artillery except as a relic of a bygone day. Student officers at our service schools, and commanders and umpires in our maneuvers, do not like to be slowed down by a horse-drawn artillery. In our map rooms we magnify the importance of strategic mobility, while we ignore almost completely bad weather, bottomless roads, and their effect on battlefield mobility.

"*It is my belief that in war every means and agency procurable* will be utilized in the prosecution of the war. It is conceivable that, as in the last war, the steel capacity of our country can not satisfy the well-nigh insatiable demand for airplanes, tanks, motor vehicles, guns, ammunition, bombs, manufacturing machinery, civilian needs, etc., and that someone in authority will say to the then Chief of Field Artillery, 'Animals *can* be used by you—this country's horse population is enormous. You must plan to utilize it to the fullest extent possible.'

German Infantry and supplies on the march.

"I can see no argument about this matter myself. The motor is far superior to the horse in some situations, while the horse is superior to the motor in others. For light division artillery, the horse still remains superior as a prime mover off roads through the mud, the darkness and the rain. He does not scrape open his belly on a rock, he does not fall off an embankment, he does not smash his head against a tree, and he still works a bit longer when his fodder is exhausted. In other words, the horse *can* be used by us, and he still remains superior to the motor, in what are usually the most difficult situations involving the emplacement of guns to support the jump-off of the division infantry at dawn. To discard him during peace in favor of the motor, 100 per cent, is simply putting all our eggs in one basket, and is, in my judgment, an unsound policy. There is today a minimum of argument regarding this matter within the Field Artillery itself. We have pretty well accepted the idea, that with the National Guard 100 per cent motorized, the Regular Field Artillery officer is not 'horse or motor,' he is 'horse and motor' and must qualify himself to utilize both to their maximum degree of efficiency."

d. Discussion.

The situation so wisely forecast by the Chief of Field Artillery is now here. We cannot now fill the insatiable demand for airplanes, tanks, motor vehicles, and other war supplies now vitally necessary for the equipment of our own forces and those of our friends. The time is now here when we should utilize the horse to the fullest extent possible, thereby releasing the products of industry for other vital needs. This is obviously a matter of plain common sense. Although we are now over-motorized, this can be adjusted by replacing motors by horse-drawn vehicles in at least one-half of our marching divisions and by using animals in all marching divisions to be formed in the future. Will we be wise enough to do this? I doubt it. The motor-mad advocates are obsessed with a mania for excluding the horse from war. This idea always gets a favorable press.

2. *PRESENT AND PROBABLE FUTURE EFFECT OF MECHANIZATION AND AIR ON THE USE OF ANIMALS IN WAR.*

a. General.

The German armored force-air team has profoundly influenced the trend of present warfare. It has restored the war of movement. Why? First because of perfect teamwork. Second because the tanks are invulnerable to the small arms fire of rifles and machine guns. Third because the Germans have had overwhelming air superiority. Superiority which not only swept enemy air from the skies and secured complete information of enemy movements but which by use of stuka dive bombers and attack planes actively attacked enemy groups endeavoring to block the advance. Without

such overwhelming air support, the swift advance of armored forces would be impossible. Nevertheless the Germans have restored the war of movement. This has effected to a considerable degree all the combat branches. They have motorized 35 infantry divisions to more swiftly support the fast-moving armored divisions. They have also motorized part of their artillery to move in swift support. Remember though that the backbone of the German army is 245 marching divisions which follow to occupy, mop up, and fight when the spearheads are stopped.

b. Effect on Cavalry.

This getting into the open is a happy break for cavalry. Unfortunately for the Germans, although they had reconnaissance units for the regiments and divisions, they had but one cavalry division. In the advance into Russia, they lacked the cavalry strength in divisions and corps which would have greatly assisted them. Consequently after the breakthrough of German armored forces, the Russian enemy often closed in along the line of advance and pinched off vulnerable motorized infantry which followed. The Russians also frequently interposed between the motorized infantry and the marching divisions. Isolated armored units were surrounded and destroyed. Guerrilla warfare flourished. The tank elements were ambushed by antitank units.

Cavalry can cope with all these situations. It will ferret out antitank units waiting in ambush. It will protect the flanks of the motorized infantry in battles and form a link with the slower following marching divisions. It will cope with guerrilla warfare. It is well suited to hunt down parachutists. It has the flexibility and mobility which enables it to fill in all the weak gaps.

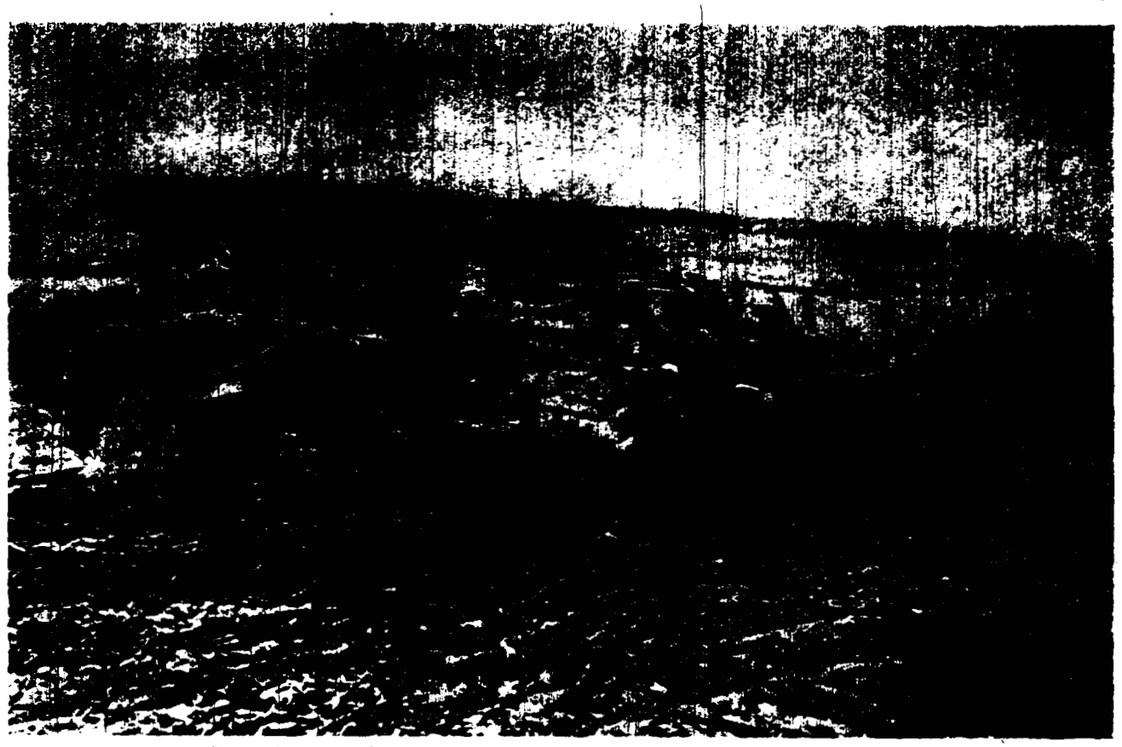
Under no circumstances should we blindly ape the Germans. If we give scope to our imaginations, we may, by the addition of cavalry, forge the strongest spearhead of exploitation yet devised.

I believe many of our progressive thinkers hold this view. In this connection I wish to quote extracts from a letter of Major General Charles L. Scott, United States Army, Commanding the 1st Armored Corps, to Major General Innis P. Swift, Commanding the 1st Cavalry Division.

"1. I wish to express to you and all the personnel of your fine division my appreciation and that of the entire personnel of the I Armored Corps for the splendid cooperation and assistance received in forcing a crossing of the SABINE RIVER at JOAQUIN on September 28, 1941. The successful crossing of this river and the establishment of an effective bridgehead could not have been accomplished in the prompt and efficient manner that obtained, without your bridge equipment and without the most remarkably efficient crossing of your horse elements over a foot bridge.

* * * * * *

Italian mountain battery moving into position.



Using horses and their own shoulder power, these Rumanian soldiers are pulling out a German staff officer's car after it bogged down on the southern front. From the Ukraine an Axis reporter described the "chocolate" mud.

"3. I regret that the exercise did not continue through another day because I believe that your division could have demonstrated most conclusively that it could *assist armored units in their movements forward over difficult terrain and could follow up promptly and effectively the attack of these units after it had been launched.*"

As many of you know, General Scott was at one time head of the Remount Service and one of our noted horsemen, and it is not surprising that he is able to appreciate the value of horse elements. Thus, strange as it may seem, mechanization, by its great part in restoring the war of movement, has increased the opportunities for the use of cavalry.

(2) Relative Increase in Air Power.

We trust the war of movement will continue and we believe it will, but we foresee a radical and swift change in relative powers of the armored force power and air power, which will effect the war of movement.

(a) Antitank Threat.

First, the power of armored forces will decrease because of the antitank threat.

The development of fast-moving antitank units, the core of which will be self-propelled vehicles mounting guns capable of shooting holes through any tank, will stop armored vehicles just as the machine gun stopped men. Although armored force commanders hold that the only answer to armored units is other armored units, I cannot agree. Theirs is a natural and interested viewpoint because it means more tanks. The answer to the armored knights was also presumed to be more armored knights, but the projectile gave a swifter and cheaper solution. You will recall that the arrows of the Incas and Aztecs glanced harmlessly off the mail-clad knights of Pizarro and Cortez, but when the English crossbow and later the musket came upon the scene, the armor was relegated to the museum. Likewise, although the present armored units are invulnerable to small arms fire, it is possible to produce myriads of antitank weapons to which they are vulnerable and which can be moved around just as fast as tanks and probably faster. In view of the fact that the present tanks cost about $1.00 a pound, i.e., a fifteen-ton tank costs about $30,000 while for the same money scores of unarmored vehicles carrying antitank weapons may be produced, there can be but one answer. As a matter of common sense and of dollars and cents, the diminishing power of the tank is indicated. The experience of the experimental antitank squadron formed by the 1st Cavalry Division for use in Louisiana maneuvers supports this view. The core of this force consisted of 36 "bantams" or ¼-ton trucks with 37-mm. guns mounted on

German troops moving southward in the Ukraine, using commandeered vehicles to supply Infantry columns.

them. About 72 ¼-ton trucks were used as accompanying vehicles to carry ammunition and with machine guns mounted on them to cope with enemy infantry. This squadron proved extraordinarily successful. The report shows that the armored forces feared it more than any other opposing unit; that this force not only destroyed attacking tanks but also was able to hunt down and destroy tanks. Remember antitank development is in its infancy.

(b) Air.

Second, the power of armored forces will decrease because of the constantly increasing air power.

Great as air power now is, it is still in its infancy. Soon we will have planes mounting highly effective antitank guns. What will be the effect of the antitank gun, the bomb, and the machine gun respectively on the tank, the unarmored vehicles, and the personnel in trucks? It needs no vivid imagination to foresee the carnage. Whenever enemy air can establish superiority, armored forces will be destroyed. It will be like hawks swooping down on rabbits in their runways.

c. Discussion.

Thus air power will become the strongest factor in causing a breakthrough and a war of movement. The relative power of armored forces will diminish. The relative power of cavalry will increase as a member of the ground exploitation team because of its cross-country mobility and powers of dispersion, which enable it to avoid losses from the air and continue to move. These inherent powers also enable cavalry to evade tanks, continue on, and attack supply columns and infantry in trucks.

Cavalry will disperse for protection and proceed on its mission.

3. *OUR CAVALRY AND ITS PROBABLE DEVELOPMENT.*

a. Our Cavalry.

(1) General.

Our Cavalry is, I believe, the best in the world. This is because it has developed in a different manner from European cavalry. Instead of fighting mounted, our mounted troops have followed the methods of Sheridan, Buford, and Forrest, fighting almost always dismounted and using the horses to place our riflemen and machine guns in an advantageous position. The ordinary citizen does not realize this. . . . He is misled by incredibly stupid writers who persist in picturing cavalry as medieval knights insanely committing suicide by fighting mounted against modern tanks and machine guns. I saw such an absurd article in a recent issue of the *American Blood Stock Review*, entitled "War and Horses." Funnier still was the caption on the booklet, "A Magazine Devoted to Horse Breeding."

I will tell you what our cavalry really is.[3] It numbers about 30,000 men and consists of 21 regiments and 10 separate troops. Nine of these regiments are National Guard and 12 are Regular Army. Ten of the regiments go to make up our two regular cavalry divisions of 4 regiments each, and the 56th National Guard Brigade of 2 regiments. These large groups are primarily for use in large operations to assist armies or groups of armies. They may be organized as a cavalry corps under GHQ combat or may be separately attached to armies.

(2) Reconnaissance Units.

The smaller units, consisting of 11 regiments and 10 mechanized troops, are chiefly for attachment to infantry units, mainly for purposes of reconnaissance and scouting. Thus 9 of these regiments are horse and mechanized corps reconnaissance regiments.

(a) Horse and Mechanized Regiments.

Our horse and mechanized regiments consist of a mechanized squadron of scout cars, bantam cars and motorcycles, and a horse squadron of 555 horses portéed, i.e., with each complete fighting unit a squad of 8 men, 8 horses, equipment and arms carried in a truck-tractor with semi-trailer. The entire horse squadron is loaded in from five to seven minutes. The signal platoon, antitank platoon, and pioneer platoon are motorized so that this entire regiment can move on wheels. They are part of the army corps for use as reconnaissance regiments. One of these regiments, the *4th U. S. Cavalry*, during the maneuvers of last summer *marched approximately 5,000 miles from Fort Meade, South Dakota*, to Louisiana and return, participating in all the maneuvers. The rate of march to and from the maneuver area was *over 200 miles* per day at an average rate of *25 miles per hour*, with a cruising rate of *30 miles per hour*. Because of its power to bring its animals fresh to the battle area and then to operate with both machines and horses over all types of terrain, the horses often swimming streams and traversing areas inaccessible to vehicles, it was highly successful and earned the plaudits of all commanders. During this entire period of almost two months, only 6 horses were evacuated—5 for wounds and one for laminitis. The horses were in fine shape at the conclusion of the maneuvers, showing the value of using motors to conserve the horses.

(b) Mechanized Troops.

Nine of the scout car reconnaissance troops are for reconnaissance units for the 9 triangular divisions. Unlike the Germans, we have no horse reconnaissance groups with our Infantry divisions and regiments. We need them. *Obviously the combination of horse and*

[3]It is rather a tragic situation also that a vast number of army officers, including many of high position, have very little understanding of the real value of American Cavalry. They little realize that it is the one branch we have developed which is better than that of any foreign nation. Many of them seek to minimize its value and to ridicule it and finally to do away with it, totally unaware of the real value of the treasure which they have.

Battling the elements. Horsepower moves German guns into position in deep snow.

Germans pack food to troops in combat areas prohibitive to motor vehicles.

motor is the most effective organization to conduct reconnaissance over all kinds of terrain. Vehicles are largely restricted to road reconnaissance. We should also have at least *one squad of horses portéed for use of all division and corps staffs, both infantry and armored, for use in detailed staff reconnaissance. This would also save some of our Generals from capture.*

(3) Cavalry Divisions.

(a) Composition.

Each cavalry division is a self-contained fighting unit, supported by auxiliary arms and services, just as in an infantry division. The horse strength of a cavalry division is 7,413 of which 6,080 are used in the 4 regiments for riding and pack and 1,156 used by the two horse artillery battalions for draft and riding. There is a troop of pack mules in the Quartermaster Squadron. All other units are mechanized and motorized. This includes the fighting units of one battalion of 155 howitzer artillery antitank squadron and mechanized reconnaissance squadron of 2 bantam troops, a motorcycle troop, and a light tank troop. This is largely because horse-drawn vehicles cannot keep up with our marching cavalry. Also, all service units such as Engineers, Signal, Medical, and Quartermaster are motorized. We have in our Quartermaster Squadron two troops of truck-tractors with semi-trailers, like those in the horse and mechanized regiments, capable of transporting one squadron of horse cavalry. Thus in our cavalry divisions we use both motor and horse for reconnaissance purposes. We have no prejudice against the motor or against mechanization, as is shown by our employment of both where helpful.

(b) At Maneuvers.[4]

Maneuvers at their best are highly artificial. In recent maneuvers, the cavalry divisions were used chiefly on the flanks for wide sweeping operations, sometimes in combination with armored forces. These missions were suitable and effectively accomplished, although requiring unusually long and forced marches to adjust their movements to the unnatural speed of approach of the opposing infantry forces, moving in trucks along the motor roads. In war, enemy air would attack the truck columns. If released, squadrons of enemy cavalry, infiltrating forward between roads, could have waylaid, ambushed, and ruined most of these columns racing down the roads with no reconnaissance of intervening country.

[4]In all the maneuvers that have been held in the past two years opposing forces have been set down opposite one another at distances varying from 50 to 100 miles with the stipulation that no part of either force shall cross a fixed line before a certain time. Thus the maneuver starts with an assumption of unreality which affects the whole conduct of the exercises; knowing there can be no enemy between these fixed lines, commanders proceed to commandeer all the trucks they can get from the supporting services, dumping even the kitchen stoves on the ground, load these up with about one-third of the infantry troops and proceed to boil down the roads toward one another, without any reconnaissance of the fields and forests. Naturally, under such unreal conditions it is plain that cavalry is too slow to move out in front of these forces. This is undoubtedly true under the assumed conditions, but you would not find any such conditions in war. Thus unsound conclusions are based on methods which are the result of unsound and unreal assumptions. The resulting road war caused by the clashes of these heads of columns also caused the unsound assumptions to be made that the portéed horse squadron is not necessary in a horse and mechanized regiment. Naturally, nothing is necessary under such absurd assumptions, except motors rolling down the roads.

Mounted food carrier gallops across exposed area to reach troops under fire.

Another artificiality incident to this type of maneuvers was the necessity for cavalry to make long road marches between phases or problems to reach new positions according to the pasteboards set up on the great map of the control room. After prolonged tactical marching in one exercise or phase, it is a bit annoying for cavalry to be obliged to make long marches to new positions, and to plunge immediately into a second exercise with no rest for horses or men, while all other troops were shuttled by motor to new positions. These things actually happened. For instance, between the first and second phases of the GHQ exercises, the animal elements of the 1st Cavalry Division marched almost 100 miles in the interim of four days, while everyone else was motoring or resting.

During the period August 17-October 1, the 1st Cavalry Division marched about 1,000 miles with little rest. On one occasion it marched 73 miles in 39 hours. Again it marched 44 miles in 20 hours, crossing the swiftly flowing Sabine River, and delivered a decisive blow against the right rear of the enemy army, capturing and destroying the gas supplies of the 2d Armored Division. Again it marched 71 miles in 35 hours, again crossing the Sabine River, swollen by rains to a depth of 10 feet, and established a wide bridgehead for the crossing and development of the 1st Armored Corps. The 2d Cavalry Division performed scarcely less notable feats. It was the only large force which could be extricated from combat and speeded to combat the 1st Cavalry Division in its drive against the supply lines of the wing. It may interest you to know that in spite of having it tougher than anyone else, the cavalry soldiers although driven to the utmost effort were at the end of these maneuvers cheerful and ready to go on. It was really inspiring. There has never been any question as to the morale of our cavalry.

(c) Horse Casualties.

Considering the conditions, the horses held up mighty well also. Of a total of 11,000 animals in the two divisions, the total number of evacuations which includes all absence from duty, although often for trivial injuries and for a few days only, totalled 2,722. Of these 1,400 were returned to duty during maneuvers, and by the end of October, all but 120 had been returned to full duty. Only 87 animals died or were destroyed. It may interest you to know that the majority of these horses were remounts of less than six months' service. The 1st Cavalry Division had 25% remounts. Of these 864 were 5-year-olds and 44 four-year-olds. The 2d Cavalry Division which was expanded rapidly

had 95% remounts. Of these 976 were 5-year-olds and 57 four-year-olds. Horses over six years of age showed up much better than the others. As I have stated, out of 450 horses of the 4th Cavalry, only six were evacuated. Had truck-tractors and semi-trailers been available to shuttle our division horses, the evacuations would undoubtedly have been similarly reduced.

(4) Horse with Motor.[5]

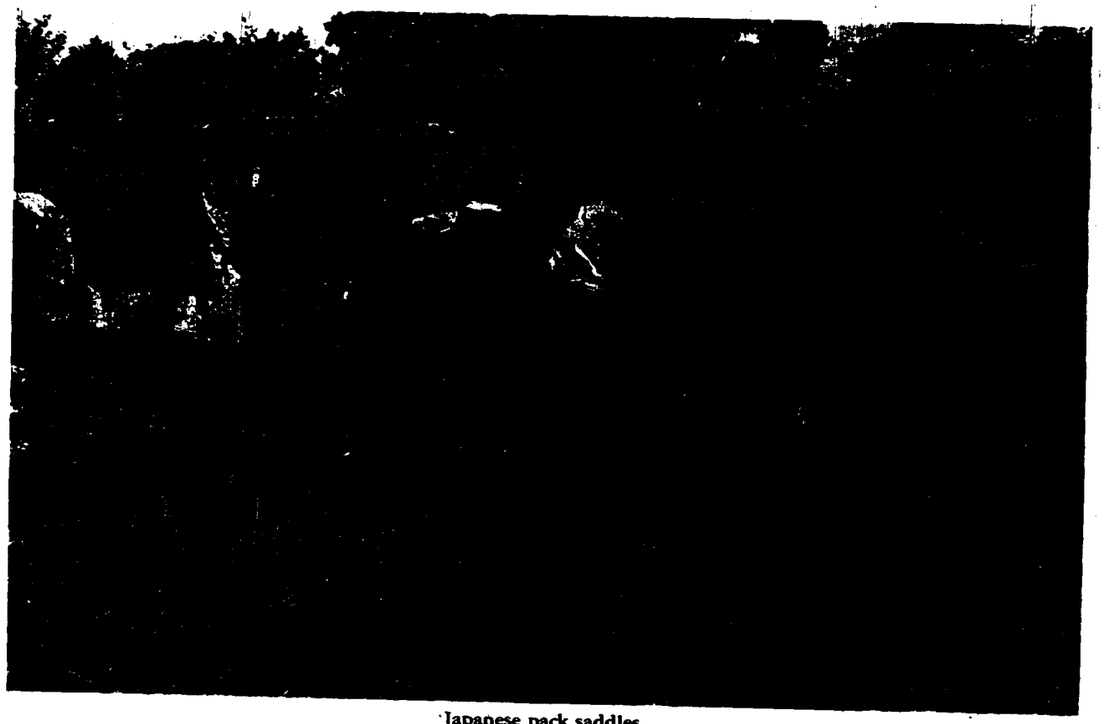
Arrived in the battle areas, where roads can be used but little, cavalry has greater tactical mobility than any other arm. Why not give it the same strategical mobility as other troops have? It is just as easy to transport horses on motors as to transport men or guns. It is done by rail. Why not by motor? The chief criticism of cavalry divisions has hinged on the lack of strategic mobility in competition with the motor on the road. Why not give him the motor? I tried to secure these but met with opposition. First, it was claimed that the truck-tractors with semi-trailers had not yet thoroughly proved themselves, and that we should wait until after the maneuvers to find out. To my mind, they had already been proved. The other objection was that "Transportation which must itself be transported on occasions is obviously inefficient. It must justify itself by other essential qualities, which are not too apparent in horse cavalry." There you get the picture. Reluctance to place the horse on a par with the man and skepticism as to the value of cavalry. The fine performance of our cavalry divisions at maneuvers did much to dissipate this unbelief in cavalry. The truck-tractors and trailers proved highly successful. *And, I now have hopes of accomplshing my purpose to equip the division with horse carriers for long hauls.*

b. Probable Development.

Our cavalry divisions should be so developed as to enhance their unique power to disperse under control moving over all kinds of terrain. This involves the *use of air transport* to replace much or all of the wheeled transport for purposes of supply. The *employment of only such combat vehicles as possess the greatest degree of cross-country mobility,* such as *bantam cars.* The *use* of *horse trailers* to *increase strategic mobility. Attached air bombardment groups to furnish swiftly moving air artillery support. Grasshopper planes to insure control of dispersed forces. We must so develop our individual soldiers and small unit leaders as to be able to find their way over unknown terrain singly or in small groups, and to care for themselves and their animals as did the scouts of frontier days.* The training of a military team is like that of a football or polo team. Stress the fundamentals to perfection. Then build up the

[5]Wherever men fight on their feet on the ground in a war of movement there will be a need for horses to transport these men with their fire power at a faster pace than can be done on foot. This is the real competition, that between a man on a horse and a man on his feet. It is not a competition between horse and motor.

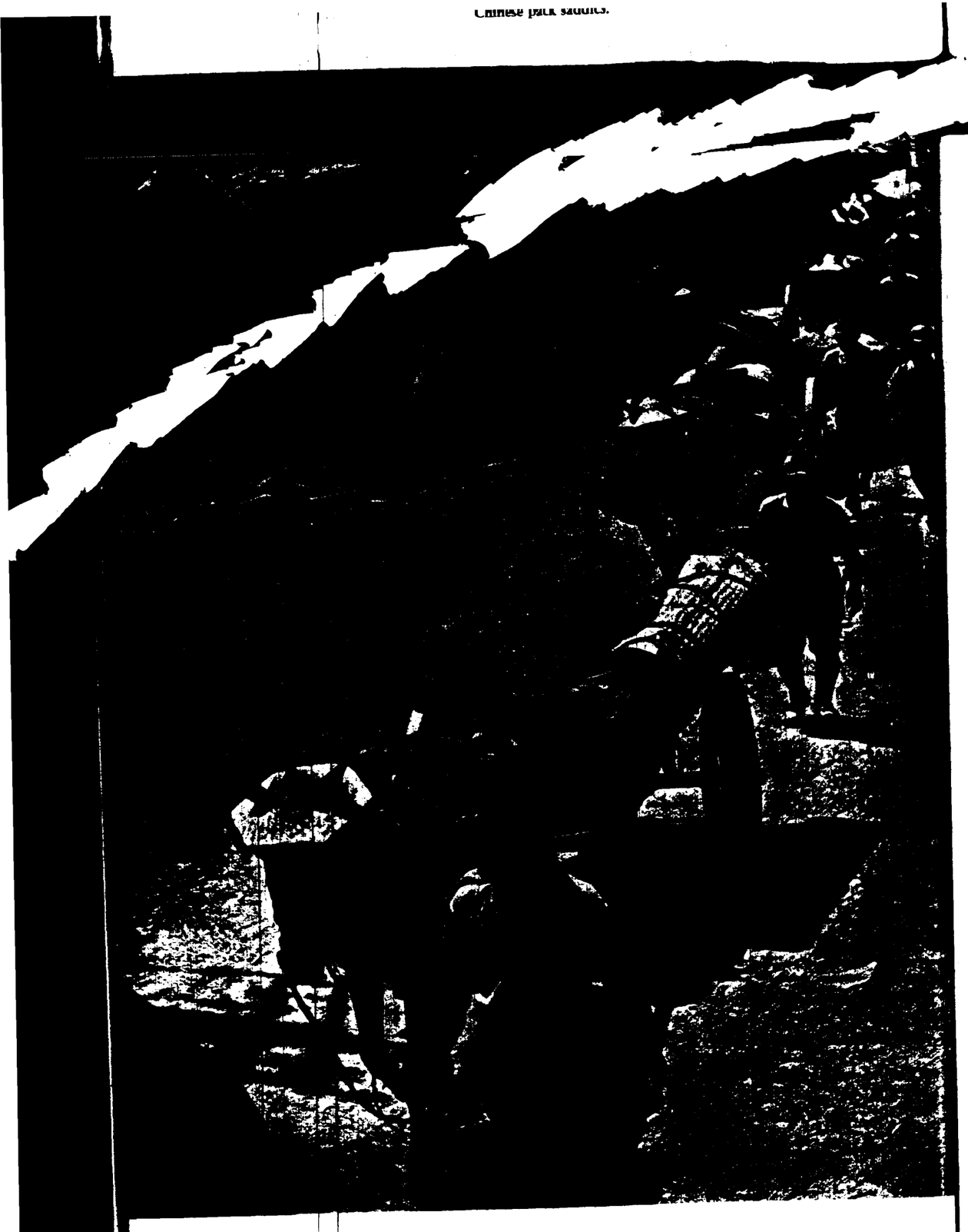
Chinese pack saddles.



Japanese pack saddles.

Japanese forces move through the streets of Saigon, Indo-China, under the occupation agreement with the French government at Vichy.

Chinese pack saddles.



the occupation agreement with the French government at Vichy.

Man and horsepower move guns to positions unapproachable by motor vehicles.

team play. We can do these things if given the green light.

4. *INFLUENCE OF THE HORSE AND MULE ASSOCIATION OF AMERICA, OUR REMOUNT SERVICE, AND MOUNTED SPORTS.*

You of the Horse and Mule Association and we of the Army have a community of interest in the development of the horse. As we know, in these motor-mad days it is difficult to get a square deal for the horse. This applies to both civilian and military. You are aware of the aggressive efforts of certain motor interests to push their products by publishing pamphlets comparing horse and motor and teeming with exaggerated and untrue statements which you have exposed. You have not the promotion funds at your disposal. You might try forming some corporations of horse and finance to enable you to offer some fine animals for a small down payment and monthly installments to include insurance at 12% interest or more. Anyway you are doing a fine constructive job in advancing the interests of the horse.

Our Remount Association has also done a wonderful job as you know. It purchased during the fiscal year 1941:

Horses, Riding	22,720
Horses, Draft	1,333
Mules, Pack	4,096
Total	28,149

Its authorized purchases for the fiscal year 1942 were:

Horses, Riding	4,785
Mules, Draft	342
Mules, Pack	1,799
Total	6,926

During the fiscal year 1942 up to December 1, 1941, it purchased:

Horses, Riding	3,140
Mules, Pack	198
Total	3,338

I have observed all the remounts sent out during the expansions to cavalry units, and I concur with the various commanders that this is the best group of remounts ever sent to our units. This reflects just credit on Colonel Hardy and his subordinate officers. As you know, the quality of horses in this country has greatly improved by reason of the intelligent efforts of your association and our remount service. Insofar as military

Japanese baggage train on the march in China.

Flooded rice paddies are natural motor traps.

uses are concerned, this has more than counteracted the decline of numbers. I feel sure that this improvement in quality will also tend to stimulate the demand for animals, especially at this time when motors are needed for other purposes. It is an opportune time to urge the use of animals where possible to replace the motors.

We must continue to encourage all mounted sports, such as hunting, horse shows, racing, steeplechasing, and polo. All these require a fine type of horse and promote good breeding. From a military viewpoint such sports are of untold value in stimulating those qualities of dash, courage, and endurance which one needs in fast-moving war. Of all these sports, I regard polo as of greatest value to the soldier. It is a real practical school of training for a leader. It not only requires qualifications of training and riding, but the game demands teamwork, an awareness of the whereabouts of all players, both friend and foe, anticipation of play, instant decision, and rapid execution. It demands physical and mental activity. Swiftness of action will not compensate for sluggishness of thought. Good polo players are generally fine cavalry leaders. Almost all our cavalry commanders of divisions, brigades, and regiments have achieved distinction in the game of polo.

5. *CONCLUSION.*

a. From the standpoint of military efficiency and a balanced use of our horse and motor resources, it is believed we should use animal instead of motor transport in a proportion of our marching divisions.

b. We should add to the Armored Force—*Motorized Infantry* Ground Exploitation Team, *divisions* and *corps of cavalry* to produce the greatest exploitation force yet devised.

c. The most effective *reconnaissance is accomplished by motor plus horse. We should have horse reconnaissance groups with all infantry echelons from regiment to corps.*

d. The strategic mobility of cavalry divisions should be amplified by the use of motor transport, consisting of truck-tractors with semi-trailers to transport cavalry divisions on long road marches.

e. The power of armored forces will be diminished because of the threat of antitank power and air power.

f. The relative power of cavalry will increase because of its power to evade destruction from the air by cross-country mobility and dispersion. Cavalry will be able to disperse, evade, continue on its mission, and fight.

g. The greatest handicap to cavalry development is the complete misconception of our people as to what American cavalry really is. Our Army is sensitive to public opinion, even when based on ignorance.

h. The horse needs no favors. He asks only a square deal.

MORALE: Its Elements and Sources

*By Lieutenant Colonel J. D. Stevens, CAC**

OUR country is engaged in a mighty effort towards national defense. This effort finds expression in the creation of a military machine which will be effectively instrumental in enforcing our national policy. The physical proportions and material aspects of our program are enormous.

From the point of view of the military, manifold problems confront the army in its attainment of full stature. Augmentation has gone forward along lines reminiscent of cell propagation, the parent unit splitting into cadres which in their turn, by subsequent subdivision, have produced more nuclei. Tables of organization have been drafted and re-drafted. Tables of Basic Allowances have been computed and checked. Specialists have bent over drafting boards to insure perfection of technical design in the various weapons and instruments of war. Matériel has been tested and improved. Production lines are humming now, through prearranged priorities and broken "bottlenecks." "Bugs" in the 1941 model, U. S. Army are being eliminated on the proving ground of field service.

There is however, in addition to the structural perfection for which we are striving in this military machine, another all-important consideration. What of the sparkplug? If this mechanism fails in its essential function of injecting the life-giving properties of electricity into the vitals of the machine, the vehicle will not move. No instrument, its outward perfection notwithstanding, which depends for its activation on electricity, is of any value without a constant and regulated flow of current.

There is a kind of current which is as vital to an army's purpose as is electricity to a machine. Its qualities are as subtle and elusive. This indispensable electrifier is MORALE.

In a military machine, the leader is the sparkplug. He must galvanize it into action. He must energize the instrument toward the accomplishment of the mission for which it was designed. In a word, he must electrify the machine, which his staff creates and maintains, with the vitalizing spark of morale. On his capacity to perform this function depends the military value of his organization.

In view of the importance of morale, the leader should understand the nature of it; what it is; what are its elements and sources.

Man is, in many ways, a machine. The spirit which animates his being may be compared to the electricity which activates the machine. Potentialities, then, exist in both. Both require the presence of a vital spark before their capabilities can be made manifest. Let us examine this intangible essence as it influences man's actions, and, since man remains the most important military element, its influence on our extended organization.

"These are the times that try men's souls," and surely morale can be called the soul of an army. Spirits are being assailed by disappointment and discouragement today, as certainly as when Thomas Paine uttered this famous phrase. In Napoleon's words: "The spiritual is to the physical, as two is to one." If an army has morale it can accomplish any mission; if not, it will fail. Let us trap this elusive quality and set it down in black and white, where we can analyze it.

Morale is the catalyst which insures the union of strength and will in an instrument of achievement. It is the impalpable, but unquestionable hallmark of military excellence; the sine qua non of military accomplishment. It is that indefinable presence which is definitive of invincibility; it is the adrenalin of aggressiveness. It is an intangible quality which gives concrete force to the efforts of the unit possessing it. Finally, on the one hand, it is an elusive will o' the wisp which beckons to all leaders who cannot infuse their commands with its stimulus. On the other, to leaders whose troops possess it, it is a beacon which inspires the undertaking and lights the way to accomplishment of any mission.

He who succeds in inculcating morale in his command, will have soldiers whose:

Mettle is without a peer,
Obedience is prompt and intelligent,
Resourcefulness surmounts all eventualities,
Assurance will not be denied,
Loyalty is unswerving,
Enterprise welcomes every challenge.

We have set up a body of attributes whose manifestations are indicative of the presence of high morale. We have delineated characteristics which will evince themselves in meritorious action, along the lines indicated, whatever the situation, whatever the mission. How are we to cultivate such an ideal state of mind on the part of our units, that, under all circumstances, we can rely on the desired reaction? Analysis of what we want is comparatively simple. To search out the sources of abstract qualities and from them synthesize the desired condition, is another matter.

In order to weld human beings into an instrument

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which assumes mechanical properties for the execution of an appointed task, we must deal with human nature. It is paradoxical, that in making men behave as machines, we must treat them as men. Human nature, often spoken of as fickle, has, strangely enough, changed not at all since recorded history. It is basically a constant quality, though its ramifications may at times be diverse. This fact should be remembered when attempting to produce that salubrious state of mind we are pleased to call high morale.

Let us examine the manifestations of morale in the order in which we have listed them above, and see if we can discover the sources from which they may be derived.

METTLE: The most important ingredient of this attribute is courage, that quality of mind which meets danger or opposition with intrepidity, calmness, and firmness. It may be true that courageous men are born, not made. In this sense, courage is a quality which must exist, per se, else neither the most dramatic situation nor the most inspiring example can call it forth. We are fortunate in knowing that the men who comprise our Army are well endowed with the fundamental American attribute. They wear the badge of courage already, and are sure to keep it bright with the proper example of leadership before them.

Vegetius takes the view that: "Few men are born brave; many become so through care and force of discipline." It might be more correct to say: Few men are born with an awareness of their own courage. In this case, we must convince such individuals of the existence of bravery within themselves. Accustom them to the hazardous, the arduous, the dangerous. Sun Tzu says: "Soldiers when in desperate straits lose the sense of fear." Confronted with a difficult situation, they find the innate quality of courage to exist in unsuspected measure. Its manifestation in the face of danger apprises men of its presence. Once summoned, courage will rise more swiftly when they are again called on to display their METTLE.

OBEDIENCE: In campaign, football-field execution of commands is imperative. Discipline, called the "soul of armies" by Marshal Saxe, is defined as the "habit of intelligent obedience" by our own field manuals. Saxe also foreshadowed our own interpretation when he said, "It is a false idea that discipline, subordination, and slavish obedience debase courage. It has always been noted that it is with those armies in which the severest discipline is enforced, that the greatest deeds are performed." And, as a matter of fact, it is generally true, that the unit which exemplifies discipline in its drills, has an excellent record in all other fields of military endeavor.

However, let us consider intelligent obedience as the means by which control is exercised. As such, it recognizes the superiority of the commander's military knowledge concerning the aspects of all situations and insures the execution of his will in effecting a solution of the problem. It subordinates petty considerations to the accomplishment of the mission at hand. It gives direction to the means necessary to attain an end.

Men must be led gradually into the habit of intelligent obedience. In Sun Tzu's words: "If soldiers are punished before they have grown attached to you, they will not prove submissive. If, when they have become attached to you, punishments are not enforced, the soldiers will be useless." Obedience is based on the age-old principle of reward and punishment. Through this principle's application it should become habitual. Meritorious action and infraction of orders should alike receive prompt recognition and appropriate treatment. Although force is the ultimate instrument of compulsion, it should not receive undue emphasis. The primary object of imposing punishment is not retribution for the guilty, but deterrence of potential future offenders.

Abuses are not rectified by the issuance of orders, for the multiplicity of commands itself predisposes to noncompliance. The important thing is to implant in the minds of your men the conviction that orders issued will be followed up and enforced. Nothing is so prejudicial to discipline as the belief that many infractions go unnoticed. If a few violators are apprehended and the majority go free, those punished complain of injustice, while those escaping are prone to boast of their misdeeds. Issue few orders. Keep in mind that the manner in which orders are given will have a bearing on the way in which they are executed. See that they are enforced. Promptness of punishment, not its severity is the essential thing. Keep your men occupied with professional and recreational pursuits. Avoid, as much as possible, the idea of compulsion. These procedures, with prompt and impartial administration of justice, will inculcate in your command the habit of intelligent OBEDIENCE.

RESOURCEFULNESS: The possession of this attribute involves two elements: adaptability and foresight. In view of the casualties that may be expected in conflict, with consequent disruption of initial plans and organization, the value of resourcefulness is beyond question. Adaptability is conditioned by foresight. Every man should be taught to perform the functions of his teammates in the particular tactical unit of which he is a member. While this may appear inconsistent with efficiency in a day of specialists, it nevertheless has particular application in small tactical units such as the rifle squad, artillery gun and range sections, meteorological sections, and in lower echelons of armored, mechanized, and motorized units. Every man should also be capable of assuming the command functions of at lease his immediate superior. So much for flexibility of attitude in a war of rapidly changing conditions.

According to Sun Tzu, "The general who wins a battle, makes many calculations in his temple ere the battle is fought." The employment of means to develop a force which can reorient itself and carry on under changed situations, and in face of losses, has already been encouraged by our own commanders.

Commanding Generals of our overseas departments have directed that various units of one arm be trained to function as other arms. Maneuver situations were imposed which required the application of this principle by the units under their command. This principle has been extended to lower echelons, wherein company or battery schools for N.C.O's were conducted. In this way the duties and responsibilities of successive ranks were outlined for actual N.C.O's and potential non-commissioned officer material. Needless to say, the interest evinced in the cited instances was keen.

To paraphrase Napoleon, anticipation of, and preparation for contingencies constitute RESOURCEFULNESS.

ASSURANCE: This attribute stems from past accomplishment and enhances the prospect of future success. It is synonomous with confidence. Confidence is based on achievement. Achievement proceeds from ability, and ability is engendered by training and preparation.

Preparation and training are directed by the leader. In cultivating confidence in their troops, commanders will do well to consider the opinion of Vegetius, that the assurance of a soldier is heightened by his *knowledge of his profession*, and he only wants an opportunity to execute what he is convinced *he has been properly taught*. And he adds, "All arts and trades are brought to perfection by continual practice." No less the art of war, though the application of this truism is familiar to everyone.

Chances of success are multiplied by a conviction of the ability to achieve it. Conviction of ability is based on thorough training; teach a man to do his job properly and he will welcome the chance to demonstrate his capability. Success may depend on opportunity, but if assurance is lacking when opportunity knocks, you will lack the key to open the door.

Successful accomplishment produces a healthy state of mind which is sustained by pride in successive achievements. Thus, any new challenge is quickly accepted in order to uphold the record of past successes.

Confidence, however, has certain of its roots in the judgment of the leader. Hence, troops should not be assigned impossible missions. Neither should their confidence be compromised by allotting them tasks for which they are unprepared. Their ardor should not be vitiated by assignment to patently fruitless occupations. Careful and thorough training will develop ability, and this in turn insures success, which will stamp your organization with the hallmark of ASSURANCE.

LOYALTY: "Regard your soldiers as your children, and they will follow you into the deepest valleys; look on them as your own beloved sons and they will stand by you unto death." Although these words were spoken by Sun Tzu 500 years before Christ, their truth is recognized in the paternal status of the commander, with reference to his troops, which is encouraged today. The importance of this relationship cannot be over-emphasized, and should be fully appreciated. The further admonition of the great Chinese general to "carefully study the well-being of your men, and do not over-tax them," should also be kept in mind. Personal loyalty, even in our mechanized age, cannot be replaced by any other factor. The paternal idea is natural and instinctive. It finds expression today in the common reference to the C.O. as "The Old Man." This is a homely term of affection but it means more, perhaps, than anything else in the morale of an organization. When all other considerations have been nullified by disastrous reverses, men will draw unsuspected strength out of personal devotion to their leader. Every officer should carefully study means to insure and enhance the loyalty of his command.

There are two chief elements which make up loyalty toward the leader. One is human or personal; the other is professional or official. The real leader commands both love and respect from his followers. Both of these are required.

Vegetius said the commander should "extend his care to every private soldier," and added, "he must know, if possible, the name of every count, tribune, subaltern, and soldier." This practice was followed to a remarkable degree by Napoleon, who habitually visited the camp fires with inquiring solicitude as to the physical well-being of his men. These and similar procedures calculated to foster personal loyalty paid dividends a thousandfold.

There is nothing which means more to a subordinate than *appreciation* of his efforts on behalf of the commander. Nothing is more gratifying to any man who serves, than recognition, by his superior, of a job well done. It satisfies the ego in all of us and calls forth the determination to merit further recognition of our efforts. The application of this principle may be attacked by some as prejudicial to the proper interpretation of "duty." However, a judicious approach to this question is within the discernment of all officers, and no other means of enlisting loyalty will be found so remunerative. It is perfectly natural that appreciation of their efforts and concern for their welfare, will implant in the hearts of the troops, a determination that "The Old Man" will never be let down.

With regard to the professional aspect, the commander must be a personal example of soldierliness, if he is to command the respect of his men. He should be with them in the field, and should be prepared to share the privations they undergo, whenever necessary. He should see to it that his professional attainments measure up to the expectations of his men. He should not allow his command to suffer because of his personal shortcomings, for "fidelity is seldom found in troops dis-

heartened by misfortune" or disappointed in their estimate of their leader.

In all official dealings, impartiality should be the watchword. In the words of Saxe: "Negligence should be punished without partiality and without distinction of rank: otherwise, you will make yourself hated. Severity must be accompanied with kindness, but this should not have the appearance of pretense, but of goodness."

Finally, in regard to loyalty, cultivate a sense of humor. A story of the famous Prussian, Frederick the Great, will illustrate the ability to see one's self as seen by others. While riding down a street in Berlin, Frederick came upon a crowd craning their necks at a caricature of the Emperor. Realizing the cartoon was lampooning his characteristic personal parsimoniousness, Frederick said, "Hang it lower, lower that they may not hurt their necks about it." To the rousing cheers of the crowd, the Emperor drove on, realizing he had materially increased his subjects' LOYALTY.

ENTERPRISE according to the dictionary, is boldness, energy, and invention in practical affairs. It connotes aggressiveness and initiative. It is developed by habituating one's self to constant challenges and new problems which require self-reliance and vigor in their accomplishment. It signifies verve and the will to win. "Unhappy is the fate," said Sun Tzu, "of one who tries to win his battles and succeed in his attacks without cultivating the spirit of enterprise; for the result is a waste of time and general stagnation."

Let us call enterprise the ambition to outdo others. One of the most enterprising officers in our army adopted the slogan, "Results, not Excuses," and posted this phrase over the organization bulletin board as a constant challenge to the unit. Many organizations have probably adopted similar watchwords to stimulate a desire for excellence.

A prerequisite of enterprise is pride. This rightly begins with the individual. Once the individual develops pride in himself, that spirit is extended to the whole outfit. As a basis of personal pride, a commanding general of one of our overseas departments insisted that pride in personal appearance is the open sesame to subsequent development of high spirit. Consequently, fit and tailoring of the uniform were made the object of great attention, and this effort was visibly rewarded by the concomitant heightening of the soldier's pride in himself, his uniform, his outfit, and his Army. It was good psychology. Interest in appearance is receiving deservedly increased attention today. It should be stressed. Pride in the uniform is important for officers and should be equally so for all ranks. Increased pride in appearance contributes to élan, and sustains an aggressive attitude. This point, in general, should be remembered before consigning "spit and polish" completely to limbo.

Further impetus to an enterprising spirit is fostered by competition. In this case, pride in excelling whets the appetite for added prestige. Hence the value of inter-organization athletics, which is generally recognized. In at least one overseas department, a program of military games has been inaugurated. Organizational teams vied with each other in events ranging from such fundamentals as tent pitching, to those involving the highest coördination, such as battle practice. The competitive spirit thus engendered was something to behold. A constant challenge to pride, by whatever means, is a sure way to develop ENTERPRISE.

CONCLUSION

As postulated earlier, human nature changes little. Mastery of tactics and technique requires an understanding of contemporary developments. Technical advances today are of such proportion that we tend to overlook the instrument which will direct the weapons they have produced. However, as the directing element, man remains the fundamental unit of an army. And, the direction and use of the weapons at his disposal are conditioned by his state of mind, his will, his MORALE.

This indispensable state of mind for which we strive is a function of temperamental variables which respond, in large measure, to impulses of the heart. Marshal Saxe, stern warrior that he was, realized this when he said: "Without a knowledge of the human heart, one is dependent on the favor of fortune, which is sometimes very inconstant."

It is our function as leaders to supply the spark, to insure the morale, by cultivating in our men the qualities we have considered above. Their presence in a command is proof of effective leadership.

"We have only considered leadership by the officers; but what of the noncommissioned officers? The answer is simple. Good officers will produce good N. C. O's just as good officers and N. C. O's will produce good men."—*Suggestions for Unit Training* by MAJOR M. P. HUTHWAITE, British Army.

The Axis signatories will rue the day that Hitler called the world "to arms!"

TOTAL WAR

TOTAL WAR is ghastly! We and our Allies are now confronted by a sinister, unethical enemy coalition whose Nazi-Fascist-Jap imbued methods of waging warfare are particularly contemptible, repugnant and repulsive to our civilized minds.

The Axis gangster nations have replaced the international *Rules of Land Warfare* by total despicable RUTHLESSNESS, under the guise of military audacity and sagacity.

The United States was still pleading for peace in patience and good faith, still offering Japan honorable friendship when the Tokio government, making plans for a surprise attack upon an unsuspecting friendly populace, struck without warning. It indubitably was premeditated! *Thus, the treachery was complete.*

In total war we fortunately know what to anticipate. Since this war apparently is to be total *we* also know how to wage it. If we must accept the *gauntlet,* we can! It includes the effective employment of every known weapon, sabotage, and subterfuge. Thus far, the use of lethal gas by our enemy has been the only exception—probably through fear of retribution. Yet, unfortunately, its employment still is within the realm of possibility. Its main value obviously is in surprise action. Training in anti-gas measures, therefore, must be stressed continually—for animals as well as for personnel, both military and non-military—and also in its offensive utilization.

We must *always be alert* and remember that when our totalitarian, barbaric enemies realize that ultimate defeat is inevitable they will resort to *any means* to further their despotic objective. We wisely should acquire a *total war perspective.*

Total war, as we understand it, implies the force of arms, strife, mass-starvation, brutality and national hostility in every detail.

We shall not forget!! We cannot forget!!

OBJECTIVE NOW CLEAR

We and our allies now have but one objective—*Victory!*

There must be no distracting or disconcerting influence. Unmercifully, our concerted prosecution of titanic global war must be directed toward the assured total destruction of the infamous *Axis alliance* and all that it implies—the global intent of the scourge personified by the Axis signatories.

In the American Revolutionary War we fought for *national birth.* In our Civil War we fought for *national unity.* We, now, are righteously fighting for *national existence.*

We have the resources to win. We have the just cause, and in that might and in that right we have such national unity as never before in our history. There is no place now for complacency. We must be *tough!* The Japanese attack on Hawaii united America in a common horror and in a common resolve—a unity as grim and complete as if Japan had struck individually at 130,000,000 Americans. In our cause the Western nations rightfully have rallied.

We must fight with everything we have. It will not be easy. But the greater our concentration and the greater our sacrifice, the sooner the victory.

Mr. Hitler's infamous major technique, compounded of evil and now aped by the dastardly Japs, is to spread terror among troops and civilians. Bombs are supposed to shatter nerves even more than buildings. Fear and confusion, caused by rumors of raids that are exaggerated or imaginary, destroy even more—*morale.* But we are unafraid! *Our morale will not falter!*

So, let's get on with the job of winning this war—the long job, the hard job, the sober job, the fighting job, the dirty job, the deadly calm job of winning *this war.* To this we are dedicated full-time, *all-out!*

Our training objective is now clear!

OUR CAVALRY

WAR has found our cavalry ready for *any* eventuality. Better trained, better armed, better equipped, better mounted than ever before, with a higher standard of officers and men, our cavalry now *champs at the bit.*

Our 1941 development established a sound basis for the 1942 wide expansion of our cavalry, which now is urgently necessary. Under the practical guidance of our Chief of Cavalry we have proceeded on the basic idea that a military team, in order to be effective, must first be efficient in fundamental basic training and in perfected organization; beginning with the individuals and the smallest units. In our Cavalry School and Cavalry Replacement Training Center as well as in all cavalry units these ideas have been stressed with confidence and professional understanding.

It is only too apparent that roads in this war will be very unhealthy places for road-bound vehicles. Cavalry, therefore, has specialized in marching and maneuvering across country over all types of terrain, in dispersed formations. They seemingly scatter and are out of hand, but actually they are dispersed, *in order,* and are under control. In this manner they do not provide profitable targets for enemy combat aircraft. The *airplane-tank-horse* team holds inestimable possibilities of accomplishment—and this *should be exploited!*

From the meager information received of the great Russian cavalry action in the Donets area of Russia in the defeat and pursuit of German armored and infantry divisions, we have been provided with ample factual evidence that horse cavalry still is an essential factor in modern warfare. Thus, our new cavalry with traditional high *esprit de corps* faces the enemy with eager confidence in its ability to perform appropriate cavalry missions.

* * *

Speed?

Just because an automobile can travel at the rate of 80 miles per hour on a level highway does not necessarily mean that it ever is expected to travel at that rate. It does however, indicate *power*—a reserve of power for quick pickup, for hill-climbing and for *maneuver.*

Battles cannot be won solely by racing armored and motorized divisions down highways as frequently is the case in artificial maneuvers. From the initial flash reports of the Battle of France, motor enthusiasts formed a snap opinion to which many have stubbornly clung. They should now admit at least a qualified disillusionment. They pictured the German armored divisions speeding across country at 40 or 50 miles per hour under the shield of a swarm of combat planes. The true facts as we now have them indicate that even in the conquest of France the German advance against little opposition averaged only 10 miles a day. Moreover, in those areas of Russia where the terrain was favorable to tank operations the German advance averaged about 2 miles per day. The Panzer Divisions failed to reach Moscow and Leningrad because they were prevented by the Russian *well balanced* army.

Marshall Semeon M. Budenny, former cavalry sergeant in the Czarist army and leader of the famous Red raiders in the Russian Civil War, strongly supported by Marshal Vassili C. Bluecher, Commander in Chief of the Far Eastern forces, insisted on maintaining strong *mounted* forces—approximately 400,000, mainly Cossacks in the army even after the general reform of 1925 and the "purge" of 1936. They remembered that some 600 years ago the Mongolian General Batu's army in a *blitz* advance into Central Europe made more than *160 miles in three days on horseback.*

We know now that Russian strategy held its cavalry in reserve until the Panzer attack was spent and then sent them in to harass the enemy rear and supply lines—for which task they were thoroughly trained. "A Russian cavalry unit in action is like an amazing precision machine; and not only the regular army but even the organized guerrillas have cavalry of their own, directing the actions of the walking troops and harassing the rear guards of the enemy." *They obviously were not road-bound.* Their cross-country maneuverability was decisive!

Fortunately, our own Army High Command did not fall for the flash first impression about the Battle of France. Reliance was placed on the analysis of expert reports. *Speed* is a liability, not an asset when it carries elements of the combat team out of reach of their supporting units.

Armored divisions of high skill are indispensable in modern warfare, but they cannot perform miracles. The coördinated combined efforts of all arms and services are necessary to win wars.

* * *

Horse Power

The CAVALRY JOURNAL continues its persistent efforts in assisting military and civil agencies to fully appreciate the value of horses in war—both militarily and commercially. This in no sense should be interpreted as a depreciation of the motor. In war the horse and motor complement each other. Both are necessary.

In the combat area cavalrymen know that horses, due to terrain and climatic conditions, can go places prohibitive to motor powered machines. We must therefore activate our individual efforts to impress on others the vital necessity of immediately increasing our horse cavalry while we yet may have time. The notable exploits of Russian cavalry is the *handwriting on the wall.*

It is pure folly to underestimate the enemy's ability to attack the mainland, as there are numerous areas along our vast coastal frontiers where a toe-hold landing might be attempted—areas without a suitable road-network for coastal defense. The proper position of mechanization in our army is now assured. So we must therefore undo some of the sales propaganda that has been spread by the motor industry. Moreover, motor vehicles, rubber, fuel and other critical supplies are certain to be rigidly rationed. Animal transportation will be equally vital to governmental and commercial activities. The United States is rich in horse and mule strength. It should be exploited at once. We must take the *long term view!* The return of the "horse and buggy days" is not now remote. The necessity for economy in machine power already has arrived. The small farmer and many commercial concerns will be almost completely dependent on draft horse and mule power. The light horse business, also proportionately, is bound to increase. The promulgation of information to effect this realization is imperative. Now is the time for our horse and mule and related agencies, such as vehicles and harness accessories to plan for the immediate future—the wartime utilization of horses and mules alike by our governmental and commercial establishments.

* * *

Censorship

We are at war! The question which we naturally ask now is, "What about censorship?"

The average man on the street usually will tell more than he knows. It is a national characteristic! The less he knows, the more he will tell—about military and naval strategy, tactics, politics; *any subject.* One can have a voluble seemingly authentic discourse merely for the listening. Many Americans like to appear to be "in the know." This weakness, however, may prove to be our strength. Foreigners have been furnished so much critical data relative to our National Defense *secrets* that it is now impossible for them, we hope, to differentiate between fact and fiction.

From now on, however, the case assumes new aspects. There are two kinds of censorship—formal and voluntary. Formal censorship is that imposed by governmental officials and regulations. President Roosevelt, discussing censorship for the duration of the war, placed most of the emphasis on voluntary censorship. There need be but two rules, he stated. First, news must be accurate. That needs only to be said; it applies in peace time as well as in war. The second rule, is that news *must not give aid and comfort* to the enemy.

There is no doubt about the meaning of the term *aid,* but comfort is an elastic word. Any public criticism of our own government, or of particular officials or of our war effort, etc., would give comfort to the enemy—without necessarily giving military aid. We should be sure of our facts and avoid the spread of depreciatory rumors and whispering propaganda. True information is an antidote and preventative of false rumor. When facts are verified the government will officially publish them just as it did *after investigation* when Hawaii was attacked.

Formal censorship obviously should not be merely a perfunctory compliance with regulations. We should assume that "fifth column" ears and eyes are anywhere—EVERYWHERE! The same is true of voluntary censorship, only *more so.* For mutual and national safety we should lean over backwards in our effort to apply *voluntary censorship* and assist civilians in appreciating the necessity for such action.

Average Prices Paid for Army Horses and Mules Fiscal Year 1941

Animals	*Average Price*
Horses, riding	$161.96
Horses, riding, light	98.54
Horses, light draft	162.50
Mules, draft	207.69
Mules, pack and riding	183.77

APO Address

Recently, nearly all of our 5,000 addressograph plates have been re-cut in an effort to keep abreast of the numerous changes in address and rank.

There will be no difficulty about The CAVALRY JOURNAL reaching you if your APO address is furnished us. Please, therefore, use the *Change of Address* cards enclosed with each issue to keep us informed as to correct rank and *APO number and address.*

Association Office Moves

The building formerly occupied by the Office of The CAVALRY JOURNAL and U. S. Cavalry Association was condemned by the government to clear the site for the newly-projected State Department Annex building. On January 5, 1942, therefore, The CAVALRY JOURNAL and U. S. Cavalry Association moved to its present location—*1719 K Street, N.W.*, to which all future communications for us should be addressed.

100% Officer Membership

3d Cavalry, Colonel H. M. Estes, Commanding.
4th Cavalry (H-Mecz), Colonel Joseph M. Tully, Commanding.
6th Cavalry (H-Mecz), Colonel John A. Considine, Commanding.
8th Cavalry, Colonel Charles S. Kilburn, Commanding.
102d Cavalry (H-Mecz), Colonel D. W. McGowan, Commanding.
113th Cavalry (H-Mecz), Colonel Maxwell A. O'Brien, Commanding (since promoted to Brigadier General).
82d Reconnaissance Bn., Lieutenant Colonel I. D. White, Commanding.
1st Cavalry Troop Rcn. (Sep.), Captain W. V. Martz, Commanding.
2d Reconnaissance Tr., Captain Anthony F. Kleitz, Commanding.
3d Reconnaissance Tr., Major Harry W. Miller, Commanding.

Editorial Policy

The wartime editorial policy of The CAVALRY JOURNAL, in substance, is stated on Page 1. The CAVALRY JOURNAL is a professional magazine. It is not in any sense in competition with the press. Our deadline date usually is four weeks prior to our date of publication. Our sole objective is to promote the professional improvement of the members of the U. S. Cavalry Association; to preserve and foster the spirit, the traditions and the solidarity of the Cavalry of the Army of the United States. The 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 —insofar as they *do not furnish aid or comfort to our enemy.*

From a professional standpoint, therefore, it is well to remember that factual information relative to current combat operations rarely is immediately available. To be of professional value, considerable time necessarily must elapse before detailed information can be assembled and evaluated.

The CAVALRY JOURNAL will continue to publish authoritative information of importance and value to cavalrymen that ethically can be published, along with all obtainable pertinent data pertaining to enemy cavalry and related arms and services.

Military information relative to our allies which is not immediately available to the Axis armies obviously must be withheld.

Future issues of this magazine will constitute a file of source material of professional value elsewhere unavailable and, therefore, should be perused by members of other arms and services as well as by cavalrymen.

Editor's Mail

More About Guidons

EDITOR, THE CAVALRY JOURNAL:

In a recent issue of The CAVALRY JOURNAL, the question was asked as to why the Cavalry guidon is red and white, rather than the branch color as in other branches. This I do not believe was satisfactorily answered.

When the guidon was first adopted, St. George was the patron saint of Cavalry, as well as of England, and his colors, red and white, were adopted; although at this time the piping of Cavalry and dragoons was yellow and orange respectively.

Very truly yours,

H. L. CONNER, JR.,
1st Lieutenant, 8th Cavalry.

4538 Trowbridge Street,
El Paso, Texas.

Annual Meeting

In accordance with the call of the President of the United States Cavalry Association, the fifty-third annual meeting of the association was held at the Army and Navy Club, Washington, D. C., at 8:00 PM, January 12, 1942.

A quorum was present, in person or by written proxy, for the transaction of business.

The Secretary-Treasurer presented and read his previously audited annual report and financial statement, which was duly approved. The report indicated that the affairs of the Association are in excellent condition.

The Secretary reported that the past year has seen the greatest increase in Association memberships on record. From 2,999 members the first of the year the enrollment has grown to 4,782 on December 31st, a net gain of 1,783 members. The number of members now exceeds the total number of cavalry officers of all components now on active duty; however, there are still approximately 800 cavalry officers who are not members of the association, of which number about half are serving with the Armored Force. A mailing list of all nonmember cavalry officers is kept up to date, and monthly letters are forwarded with a view to further increasing the membership.

During the year 477 members were dropped from the rolls either by request or for nonpayment of dues. Collection of dues, however, on the whole, has been very successful. It is believed that this has been due largely to persistent monthly billing. Experience shows that regardless of the number of statements mailed each month, there is a return in receipts of about 50% of the total amount billed.

The cost of production of The JOURNAL has been increasing rapidly in the last few months, and there is every indication of further increase of expense. Paper, printing, pictures, engraving, mailing envelopes—all cost more than last year; and with the increased membership there has been a corresponding increase in the quantity of all supplies, postage, etc.

The net profit derived from sale of books by the Association during 1941 again exceeded any previous year. It is believed that inasmuch as this profit covers office clerical overhead, the Association is operating on sound principles, thus allowing income from membership dues to be utilized almost solely for publication of The CAVALRY JOURNAL.

After the Secretary's report the next order of business was the election of officers for the ensuing year.

The following were elected:

President: Major General John K. Herr, Chief of Cavalry.

Vice-President: Brigadier General Hamilton S. Hawkins, U.S.A.

Secretary-Treasurer: Colonel Fenton S. Jacobs, Cavalry.

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Following the showing of a motion picture illustrating U. S. cavalry operations the order of business enthusiastically turned to the affairs and interests of the Cavalry Association with remarks by the Chief of Cavalry.

The Executive Council appointed Colonel Fenton S. Jacobs, Cavalry, Editor of The CAVALRY JOURNAL for the calendar year, 1942, or until relieved during the ensuing year.

The meeting then adjourned and refreshments were served.

★ ★

With All Your Might

. . . To fight out a war, you must believe something and want something with all your might. So must you do to carry anything else to an end worth reaching. More than that, you must be willing to commit yourself to a course, perhaps a long and hard one, without being able to foresee exactly where you will come out. All that is required of you is that you should go somewhither as hard as ever you can. The rest belongs to fate. One may fall—at the beginning of the charge or at the top of the earthworks; but in no other way can he reach the rewards of victory. . . . —JUSTICE OLIVER WENDELL HOLMES.

★ ★

Enlisted Communication Courses At the Cavalry School

By Lieutenant Thomas R. Warner, Cavalry

"THE ultimate purpose of all military training is the assurance of victory in the event of war." (FM 21-5, Military Training.)

Victory in these days of blitz techniques and gas engines hinges on effective communication within all units, large and small. It is the aim of the communication courses at The Cavalry School to provide our Cavalry Regiments and Reconnaissance Troops with trained communication personnel capable of making these units the most effective in any army. In this article is a description of the course itself, suggestions for the selection of students by unit commanders and recommendations for the most effective use of the graduate upon his return to his organization.

The present emergency has, of necessity, shortened the length of time available for instruction. A course which could easily be spread over nine months without materially increasing the scope of instructional material, has been compressed into a twelve-week period; however, it is not a condensation or adoption from any other. It is a practical course, teaching the cavalryman's solution to cavalry communication problems. The entire course is based on the applicatory system of instruction and only the minimum time necessary devoted to lectures and conferences on "how or why" to do a particular job. Work is kept as practical as is possible with regard to the subject and the students are actually "doing" the job themselves in most cases.

Over one-third of the entire course is spent in practical field operation of cavalry radio equipment.

The first four weeks is devoted to basic communication instruction. Code practice begins the first day and the student receives one hundred thirty-four hours code practice in addition to any radio operation he may perform in connection with other classes. The objective is to reach a minimum operating speed of at least fifteen words per minute upon graduation. Eleven hours are devoted to conferences on safeguarding military information, organization of communication within the Army and various types of Cavalry units, message writing, messenger training and use, and the operation of panels and other specialized signalling devices and map reading. A special short course in message centers and cryptography embraces both conferences and practical work in all message center operations. Message centers typical of Cavalry units are stressed. The student receives training in the use of all codes, and the cipher device as well as practical instruction in work as message-center chief, code clerk and messenger. Simplification of message-center procedure and forms is stressed wherever possible. The student also receives a brief introduction to radio procedure during this initial four weeks.

In the second phase of four weeks' instruction the student receives a thirty-hour course in electricity and magnetism and basic principles of radio, thirty-six hours of radio procedure and practical field exercises. The objective of the electricity and magnetism course is to furnish the student with a background sufficient that he will understand the "how and why" of the operation of his radio and associated electrical equipment. The procedure course is divided between conferences, practical work on code tables and work sheets submitted by the student and its objective is to turn out qualified field radio operators.

Fifty hours, divided between the second and third phases are spent on radio sets and equipment. Here the student learns the actual construction and makeup of the various sets used by cavalry troops. He learns nomenclature, operation and functioning of the component parts of all receivers and transmitters. Considerable time is devoted to learning how to get his set operating properly and to keep it operating properly on the air.

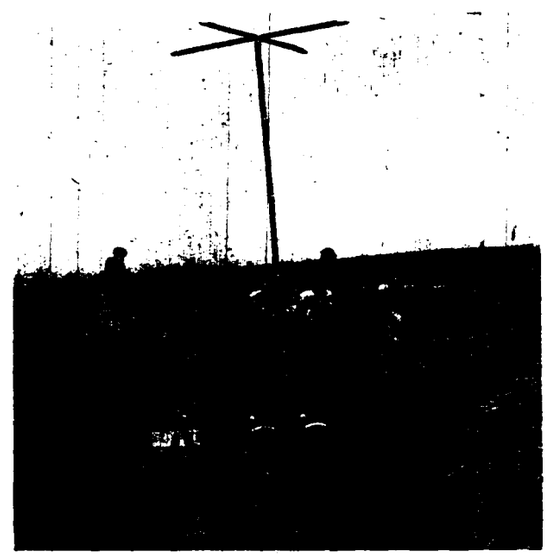
During the final four week phase a limited number of the outstanding students, about twenty in number, are selected for advance instruction. These courses include advanced radio theory, radio shop work and main-

tenance. They are devoted to "trouble shooting" on cavalry communication equipment construction of simple transmitters and receivers and the proper use of shop tools. The entire class receives coaching for the Federal Communication Commission examination for amateur licenses and a Class C examination is held for each class with about half the class receiving licenses.

In the second four weeks' period the student spends the entire afternoon each day in the field and during the final phase spends every morning in the field actually operating cavalry radio equipment under field conditions. All work is practical and the student is checked both on his technical proficiency in operating the equipment and his ability to use proper operating procedures. The students handle all classes of messages and operate all types of tactical radio nets during this time. The major portion of every fourth week a total of approximately one hundred hours is devoted to command post exercises. During the first phase CPX's the student functions as messenger, code clerk, panel operator and message center specialist. During the second group he advances to duty as junior log and key operator. In the final phase he may act as message center chief, communication chief, radio section chief, senior operator or assistant instructor. This final series of CPX's is the "graduation ride"; students are familiar by this time with the technique and various requirements of the problem and are able to carry much of the responsibility. On return to their organizations they are prepared to assist their unit commanders in the preparation and conducting of similar exercises.

The soldier selected for this course should have an AGO aptitude rating of not less than 110-II-87. This rating is the result of tests given at the Induction Center or by the recruiting officer and is found on the soldier's Form No. 20. He should also be at least a grammar school and preferably a high school graduate, able to read, write and speak fluently, and able to perform basic operations of arithmetic including decimals and fractions. In addition he should have demonstrated a keen interest in radio, be able to receive code at a speed of at least five words per minute and should have attained this code facility in 45 hours or less, of instruction. Above all, he should be instructor or assistant instructor material, a prospective set or section chief if the full fruits of his instructions are to be obtained.

The graduates from this course on returning to their organizations should by all means be continued for a time at least, in communication work. The ratio of students authorized for this course to communications specialists required in the cavalry is very low. Therefore, these men should be used as instructors and technical leaders on their return. They will be good code instructors. Their procedure will be accurate and their knowledge of simple tests and checks, disseminated throughout the unit, will eliminate most set trouble. Probably most important of all, their enthusiasm and spirit, nurtured with a few old parts and tools, a place to work, and a little interest or friendly coöperation by the unit commander, will build an esprit and "will to communicate" that bad luck, bad weather and even bad orders cannot overcome.



The war in Russia involves a complexity and multiplicity of individual battles fought under conditions wherein individual commanders must operate on their own initiative. Unless complete chaos is to result, the high command must exercise some sort of control. The Germans accomplish this through the lavish use of radio combined with highly trained motorcycle messengers. Here, in the Ukraine wheat fields, we see a German short wave radio station receiving orders from the higher command echelon, with motorcyclists waiting to distribute them to the lower units. This is an important feature of the *Wedge and Kessel* pattern.

SINCE the last writing of these Notes for the last number of The CAVALRY JOURNAL, the storms of war have descended upon us. In these circumstances I have looked backward over the Notes I have written for The CAVALRY JOURNAL during the last five years, and I find nothing that has been emphasized concerning tactical principles or the great need for larger cavalry forces that I would change on account of the developments brought about in this war to date.

The gallant defense of the island of Luzon by General MacArthur's forces, which has stirred the hearts of us all, has brought back to mind vividly the scenes in that country of more than forty years ago when we campaigned through those valleys, mountains and coast lines, traversing the swamps and swimming the rivers.

Visualizing those scenes, one cannot but be impressed with the value that a large force of modern cavalry would have now—December, 1941—in that country. Able to go anywhere and in almost any direction over Philippine terrain as was demonstrated in 1899—a large force of cavalry, now equipped with its powerful fire action, including .50 cal. machine guns, mortars, and 37-mm. cannon all in pack, could perform services that no other arm could undertake. In a situation like that now in the Philippines we need every arm of the service. We are lacking particularly in air force, armored force and cavalry. These three branches have different functions. All are necessary. The main force of infantry is of course the main reliance, and, it appears, we need much more of it than we have.

It is irritating to the professional soldier to hear the broadcasters and the press commentators say that what we need only is air force. Of course we need air force; the more, the better! But what we need in modern war is every branch of the service, not only one or two of them. Among these branches we need cavalry, and lots of it.

And so, in the Philippine campaign we could use, in addition to other branches, large forces of cavalry. Motorized infantry is very useful in defending coast lines, but such troops have their limitations. Speeding along the coastal roads, they can arrive at the scene of action first of any ground troops, but they must detruck to fight; and along the coastal roads of Luzon it is difficult to get the empty trucks off the road to hide them from enemy fire and bombing. If bridges, crossing many streams running into the sea, are bombed behind or before these motorized troops they are trapped. While traveling along those open roads they may be bombed by enemy aircraft. They find it difficult to fight and get away, if such tactics are necessary. Useful and necessary as they are, their limitations are serious. Cavalry has its limitations also, but they are not the same as those of other branches.

Cavalry is not bound to roads. It could conceal its horses in the wooded mountain slopes. It need not suffer so much from bombing along the roads. It can fight to defend the beaches, and, if unable to hold the enemy off, it can get away in any direction and come back in another spot to fight again. In the meantime, infantry and artillery can be brought up to supplement the cavalry and, each in its own rôle, may combine to defeat the enemy. Air Force is used in combination with the ground troops. It may be the decisive feature. Again, it may not. It may be neutralized by enemy air force, or it may be beaten. Armored force too, in certain situations, may be the decisive factor. On the other hand, it may not be able to get forward or to use the particular ground. It is ridiculous to rely wholly on any one branch of the service; and still more is it ridiculous to rule out or discard any one branch such as the cavalry.

In the broad valley of Luzon there is a varied terrain —difficult rivers, dry, firm ground in the rice paddies in the dry season, wet spongy ground in the rice fields during the wet season, swamps of considerable size and many wooded mountains. None of these conditions stopped our cavalry forty years ago, but they stopped all other troops. Similar conditions might prevail anywhere else—on this continent, in other large islands, or other parts of the earth.

The power of air force over the sea has been given startling demonstrations recently. Its power in land operations is also tremendous. But the war in Russia should show all laymen as well as soldiers that we must not put all our eggs in one basket. Notwithstanding the recognized power of air force, it has taken millions of infantry, artillery, cavalry, armored forces and antitank forces, engineers, signal troops and supply troops—all working on the ground—to stop the great German attacks made by similar troops.

I have been pleading for years for large forces of cavalry in our army in order to fill out and complete our ground armies. This necessity was belatedly recognized in the last part of the war in Spain. According to the news despatches, Russia seems to have recognized it. France and England failed to recognize it in 1940. Germany failed to recognize it because she did not have to, having beaten her unprepared enemies with overwhelming forces that had little opposition. Perhaps she is realizing her mistake now. Large forces of cavalry might have kept up her élan when her tanks bogged down or were met by competent antitank forces in the hands of her Russian opponents. Large forces of German cavalry of the modern variety might have spelled the difference between her present frustration and complete victory before the great winter set in. Not only at the front but also guarding her long line of communications, a numerous cavalry was indispensable.

NOTE: Brig. Gen. H. S. Hawkins (Retired), now is on active duty.

An article in the last CAVALRY JOURNAL, by Major R. L. Howze, shows how cavalry might have helped the English to defend the island of Crete. Of course, it was not to have been expected under the circumstances that any cavalry should have been there. In the first place, England has neglected to keep any cavalry in her army ready for any possible use. You cannot have cavalry where it is needed if you have no cavalry. It would have been easier, however, for us to foresee that we should need cavalry in the Philippines. The one cavalry regiment there has apparently done splendid service.

Without going into the question of what might have been foreseen in the Philippines, there may yet be time here at home to increase our cavalry forces to somewhere near their proper size if we commence at once. When they are needed they cannot be improvised. So much remains to be done to complete our army that no one can blame the authorities for doing only a few things at a time, but cavalry is not one of the things that should be deferred.

Some persons claim that it is difficult to ship cavalry overseas. It was not any more difficult to ship cavalry to the Philippines in 1899 and 1900, once the need for it was appreciated, than it is now to ship armored forces. Even the Japanese, with their many theaters of operations, and their lack of much cavalry experience, are said to be shipping cavalry to the Philippines. Evidently they appreciate the need for everything.

Very few of the thousands of officers in our army have more than an elementary knowledge of branches of the service other than their own. In time of peace we have attempted to remedy this defect by instruction in our service schools. But as far as cavalry is concerned, it must be acknowledged that this has met with only mediocre success. Thus, the cavalry has not been well understood by the great mass of our officers. The fault, to some extent, may lie with the cavalry itself. It is difficult to say. But there are some factors which can be recognized as partly responsible. A great many of our finest cavalry officers were transferred to the Armored Force under the name of "Mechanized Cavalry." In my opinion, there is no such thing as mechanized cavalry. Cavalry is cavalry, with here and there a few mechanized elements, the personnel of which is composed for obvious reasons of cavalrymen, but primarily a cavalry unit is composed of horsemen. Those cavalrymen who have been transferred to the Armored Forces are no longer cavalrymen, no matter how they are carried on the army lists. The loss of these cavalrymen is a severe blow to the cavalry and to the army. What real cavalrymen are left are too few to spread the knowledge throughout the service of what our modern cavalry is. Instead of increasing our cavalry we have seriously diminished it.

The Russians have from thirty to fifty divisions of cavalry and are making good use of them. No one but a real cavalryman knows exactly how they are doing this. I have already given an inkling of what cavalry might have done in the Philippines, but the limitations of this paper will not permit many details of modern cavalry action. One can get a little idea when he reads of Russian cavalry cutting off German infantry battalions from their main bodies, especially motorized infantry; or the flank attacks upon mechanized units resulting in delay or crippling or destruction of such units.

There is yet time to increase our cavalry materially. Perhaps it will be done.

Exploitation

"I say, then, that when you have gained a victory, you ought by all means to pursue it, and to imitate Julius Cæsar rather than Hannibal in that respect; the latter of whom lost the empire of the world by trifling away his time at Capua, after he had routed the Romans at the battle of Cannae. Cæsar, on the other hand, never rested after the victory, but always pursued and harassed the enemy after they were broken and flying, with greater vigor and fury than he attacked them at first."

—*The Art of War*, Page 162, Book 4, Machiavelli.

The "Battle of Bridges"*

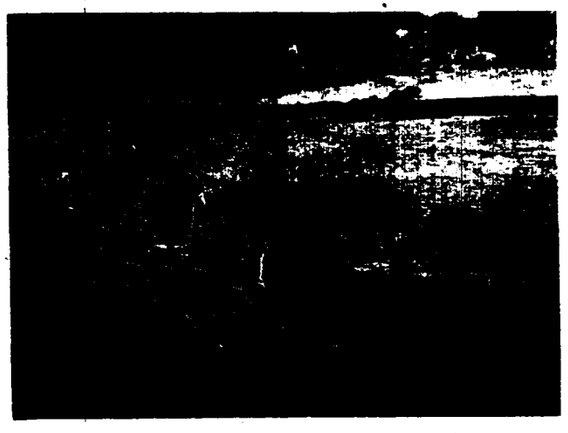
LIEUTENANT GENERAL McNAIR, Director of the Second-Third Army Maneuvers, named the latter phase of the 1941 Louisiana maneuvers the "Battle of Bridges." Every movement of this phase had entailed the blowing of bridges or construction of pontons. Every strategic move hinged upon the Red or the Sabine river. No little part was played by the Second Cavalry Division in this bridge warfare. Their zone of action first on the Red and later on the Sabine put them in direct position to make the most of the bridges (or absence of bridges) as the Division withdrew toward Shreveport.

The nature of the enemy opposing the Second Cavalry Division during this phase, First Armored Corps less the 1st Armored Division, the 2nd Infantry Division, and the First Cavalry Division with the 56th Cavalry Brigade attached, made the absence of a bridge of vital importance; importance that meant days of time and thousands of gallons of fuel. The blowing of the Bon Weir bridge caused the Second Armored Division a trip of 350 miles; captured quartermaster records show a great quantity of fuel purchased from local dealers with cash, to make this move.

Of the many missions calling for skill and daring, perhaps the most outstanding was the one that called for the blowing of the Burr Ferry and Bon Weir bridges on the nights, September 23rd and 24th. The Division Commander, Major General John Millikin had decided that these bridges must be blown if the strong offensive of the Third Army with the First Armored Corps was to be held up.

Both bridges were deep inside enemy lines; approach by road with the necessary amount of TNT was impossible; air attack would not insure complete destruction by umpire rating. The only certain way to put them out was the perilous river trip that General Millikin decided upon. Major Harry O. Paxson, his division engineer, assured the General he had an outfit that could do the job.

*By Public Relations Section, Hq. 2d Cav. Div.



Major Paxson assigned to Captain Charles M. McAfee, Jr., and Troop A, Ninth Engineers, the difficult mission. The mission was of such a nature that Captain McAfee was forced to pick a crew in which each member was adept at demolition work and also qualified to handle an assault boat in the river. His choice was First Sergeant Stillwagon, Sergeants Allen and Kelly, Corporal Patterson and Privates Dockter and Smith. Equipped with two assault boats, one outboard motor, 600 blocks of TNT, one case of Type "C" rations, field equipment, and armed with pistols, the detail was loaded on a one-half ton truck and ponton trailer and transported to the Sabine River east of Toledo, Texas.

At 12:30 PM after all arrangements were thoroughly checked, the detail left their launching spot, the motor boat towing the rear assault boat. The original plan called for both boats to proceed to the Burr Ferry bridge and prepare it for demolition, with Sergeant Kelly, Corporal Patterson and Private Dockter to "blow" it at the zero hour. However, plans, no matter how carefully laid, oftentimes break down under adverse conditions. Such was the case in the early morning hours of Wednesday, September 24th, when the leading boat hit a snag, puncturing a hole in the bottom of the boat. It was a cold, miserable group that shivered around the smudge fire they managed to build at 4 AM that day, far from their destination and the chances of completion of any part of their mission growing dim.

At 6:30 AM, with the rain pouring from a low overcast sky that made aerial observation improbable, Captain McAfee ordered Sergeants Kelly and Allen, and Privates Dockter and Smith to move onto Burr Ferry where the two men were to remain to prepare the bridge for demolition and the other two would return to pick up the rest of the crew. Soon after their departure, Captain McAfee with the help of Sergeant Stillwagon, assembled a makeshift patch that succeeded in keeping his boat afloat. Starting downstream at once they soon made contact with the boat returning to pick them up. At 12:30 PM, they reached the Burr Ferry bridge and Captain McAfee, after checking the charges, ordered Sergeant Kelly and Private Dockter to remain behind and blow the bridge at the appointed time. Corporal Patterson was left to act as Engineer Umpire. The Burr Ferry bridge, left unguarded by the enemy, was a simple matter to charge and later destroy.

About 1:00 PM, Captain McAfee, and the remainder of the detail started for the Bon Weir bridge and after almost eleven hours of continuous travelling, under what might be called story book conditions, in that they were going into the teeth of a tropical hurricane, four thoroughly drenched engineers grounded their

boat fifty yards upstream from the Bon Weir bridge.

In order to take stock of the situation Captain McAfee, Sergeants Stillwagon and Allen crawled through the heavy brush, along the bank, to a point near the base of the bridge. Here at Bon Weir the bridge was guarded and enemy traffic was crossing continuously—it was not going to be an easy matter to destroy this vital link between Louisiana and Texas. At this juncture, Sergeant Stillwagon was sent ahead as a scout, and after making an estimate of the situation, circled the lone guard on the east end of the bridge and walking boldly up to him, drew his pistol, saying, "Don't say a word, you're my prisoner."

Now, things began to happen at an increasingly fast pace. The guard was turned over to Captain McAfee for questioning. Sergeant Stillwagon ran back to the boat for TNT—by the time he returned (and it was just a few minutes) Captain McAfee had captured two more Blue soldiers who wandered down to the river bank. Now came the important job of placing the charges on the bridge itself and in plain sight of the continual Blue traffic.

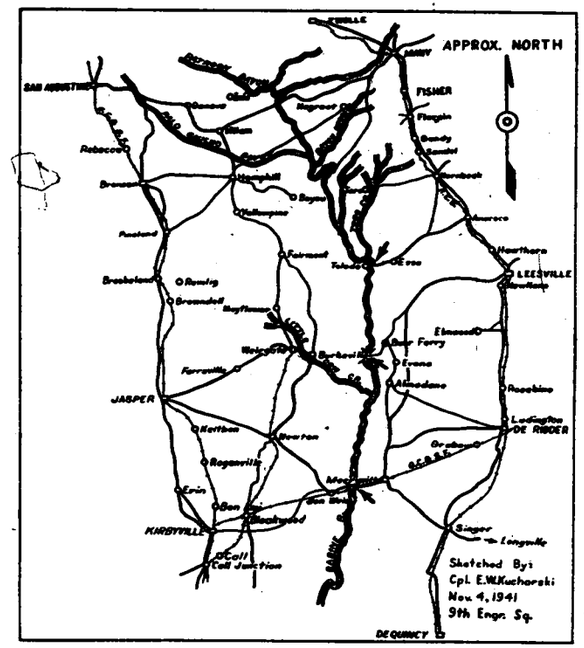
Almost at once, Sergeant Stillwagon, loaded down with TNT, made ready to lay the charges. Taking advantage of the total darkness and the ever-present mist, Sergeant Stillwagon worked his way one-third of the distance across the 700-foot span, when he noticed a light, flicking on and off, coming toward the east end of the bridge. Returning to Captain McAfee, he reported what he had seen and the two of them went forward to meet the person carrying the light. Just as they were about to come within range of the light's beams, Captain McAfee drew his pistol and said, "You are my prisoner."

"Why capture me? I'm a Blue, too," jested a young lieutenant, officer of the guard, who was carrying the lantern.

Even then he did not realize he was talking to a member of the opposing forces and Captain McAfee said, "Well, I am not—I am a Red. As an officer, you know the rules of warfare. In accordance with those rules you are my prisoner and are not allowed to try and escape."

Leaving Private Smith to guard the prisoners, Sergeant Stillwagon, with Sergeant Allen preparing the charges, completed the demolition work on the entire bridge in one hour and five minutes. Captain McAfee during this hour stood at the end of the bridge, acting the part of bridge guard, Blue Army. At 2:30 AM on Thursday, September 25th, the bridge was completely charged and ready to be blown. (See Par. 25 GHQ, Umpire Manual for requirements.)

The mission a success, Captain McAfee and Sergeant Stillwagon decided to capture a Blue vehicle, dash through the Blue lines and report to the Headquarters of the Second Cavalry Division. They chose the last truck in a convoy passing over the bridge and, before leaving, instructed Sergeant Allen to set the charge off



after their truck was across the bridge. A moment later the bridge was destroyed. Almost immediately traffic was halted and high-ranking officers of the Blue Army arrived on the scene wanting to know what was holding up their advance. An engineer umpire, First Lieutenant Gibbs, Company C, 110th Engineers, was present to verify the authenticity of the demolition. The Assistant to the Army Engineer personally inspected the bridge charges and questioned Sergeant Allen on all phases of the mission. Although the officials of the Blue Army were loath to admit that the enemy had blown two important bridges under their very noses, they had to abide by the rules and by late afternoon were ferrying their rations across the Sabine River in assault boats.

Unluckily for Captain McAfee and Sergeant Stillwagon, the captured vehicle proved to be a meat and ice truck. Rather than have the food go astray, Captain McAfee allowed the truck to go on its way in Newton, Texas, warning the driver to keep quiet. Instead, he drove about two blocks and started shouting, "Two Reds are in town." In a few minutes the town, packed with Blues, was a beehive of activity.

After hiding in houses, jumping fences, running through alleys, the Reds stumbled on a lieutenant sitting in a ½-ton reconnaissance car directing solo motorcyclists in the search. Before the young officer knew what was up, Captain McAfee had him covered with his pistol and once again it was, "You are my prisoner." The officer objected to the capture and in keeping with the rules of the war games, Captain McAfee administered the "coup de grace," as it were.

At this point, Captain McAfee, Sergeant Stillwagon

and the captured lieutenant made off in the Blue "peep" for the Red lines. Before long they came to a bridge blown by the Red forces. After abandoning their captured "peep," and walking a few miles into Red territory, they decided to take a well-earned rest—their first "cat nap" in almost three days.

They awoke at 8:30 AM, Thursday, September 25th, caught a ride on a Red Army truck to the 2d Cavalry Division Headquarters and reported to Major General Millikin—it was a job well done.

While this was of great strategic importance—no less important in the "battle" was the blowing of several more bridges by the 2d Cavalry Division Engineers.

In the immediate maneuver area three important bridges down the Sabine from Logansport northwest were originally prepared for demolition by the 2d Army Engineer troops. However once the 2d Cavalry Division withdrew to defensive line with their backs to the Sabine River the job of actually destroying the bridges fell to the 9th Engineers. A liaison officer of the 2d Army Engineer Headquarters with the complete data of preparation of Sabine bridges for demolition turned over the guarding and demolition of these bridges to the 2d Cavalry Division. As soon as the change of command took place the Division Engineer Major Harry O. Paxson sent Engineer detachments to the bridges at Logansport, Highway 71 and Highway 59, and pending the decision as to which bridges would be utilized if further withdrawal was necessary, all bridges were heavily guarded.

At Logansport the bridge guard left in charge of Sergeant Robert Stillwagon (brother of Sergeant Arthur Stillwagon, member of the detail at Bon Weir and Burr Ferry) had definite orders to execute the demolition of the bridge only on the personal orders of Major General John Millikin, his Chief of Staff, Lieutenant Colonel William Bradford, or the Division Engineer, Major Harry O. Paxson. In each case these orders if not delivered in person were to be accompanied by a code word, i.e., "Arthur," the first name of Sergeant Stillwagon's brother.

The opposing Blue forces tried time and time again to capture the bridge but to no avail. In one instance Blue soldiers commandeered a civilian car and tried to bluff their way across the bridge but that attempt was nipped in the bud.

Not only was the bridge guard plagued by the Blue forces but his own Red forces also tried to have Sergeant Stillwagon blow the bridge before the 2d Cavalry Division or all its attached units were across. Finally, after the Division was forced to retire across the Sabine via the bridge at Highway 71, and Blue pressure on the Logansport bridge became critical, Lieutenant Colonel Bradford ordered its demolition.

About this time all remaining bridges over the Sabine, except Highway 71, were ordered destroyed, and as often the case in actual warfare, insructions for the demolition of the bridge at Highway 59 went astray. This probably would not have occurred if the Division Engineer had radio communication with his bridge guards. Blue (mechanized) advance guards were approaching Carthage at the intersection of Highways 59 and 79 and General Millikin directed the Division Engineer to verify personally the destruction of the Highway 59 bridge over the Sabine. A convoy of six infantry (armored) half-tracks were dispatched to the scene and under the direction of Major Paxson this last important link between the Red and Blue forces was destroyed. Once again, the demolition of important bridges had stalled the Blue advance.

If a bridge is destroyed without regard to enemy position, the enemy often is able to change his plans or send ponton equipment ahead so that no delay will result from the loss. There is a strategic time to blow a bridge which, though dangerous as a mission, catches the enemy after they have come to depend on that bridge and their plans to entail its use. Such was the case of the Bon Weir where its loss had not been foreseen and no ponton equipment was available for at least twelve hours. Had either the bridge at Bon Weir or Logansport been blown days earlier, little delay or confusion would have resulted.

Learning from the history of the disastrous French withdrawal, when the Germans invaded the Lowlands, over-centralization of bridge-blowing was avoided by the Second Army. In its place, a plan of decentralization was adopted as a "time-saver" and as a means of insuring the demolition of all bridges vital to the advance of opposing forces. No bridge was left for a higher command to blow, only to fall intact into the hands of the enemy. Decentralization was Second Army's insurance against such possibilities.

In one instance, this plan of decentralization backfired in that a squadron of the 4th Cavalry (attached to the 2d Cavalry Division for maneuvers) was trapped when a bridge was blown behind them. They effected their escape but only after swimming two troops across the river and sending vehicles nearly one hundred miles to the west.

Here, once again, the "bugaboo" in modern warfare, closer coöperation between land and air forces, raises its head. Had notification of the withdrawal been served on the attached air unit and, in this particular instance, had the air unit dispatched a plane to spot friendly troops on the wrong side of the river, destruction of the bridge could have been held up to allow the 4th Cavalry to make a faster and less expensive crossing.

The lesson to be learned from this "Battle of Bridges" is that every bridge must be handled in a way the tactical situation dictates. While care must be taken to insure that the bridge in question is blown, a commander must be sure that the action must not cause hardship or disaster to friendly units. Somewhere along the line between centralization and decentralization there is a happy medium—built possibly on coöperation, initiative, and a share of good luck.

Horsemanship Training
At Our CRTC

By Lieutenant Colonel E. M. Burnett
and Major Henry M. Zeller, Cavalry

IN twelve weeks training at the Cavalry Replacement Training Center it is impossible to make finished horsemen of recruits who have never seen a horse before, however, as they join their regiments, the men trained in the horse troops will at least "fit in." The goal of the Horsemanship Department, which is responsible for the planning and supervision of horsemanship training, is to give these men sufficient basic horsemanship instruction so that it will be necessary for them only to acquire experience in order to become excellent cavalry troopers.

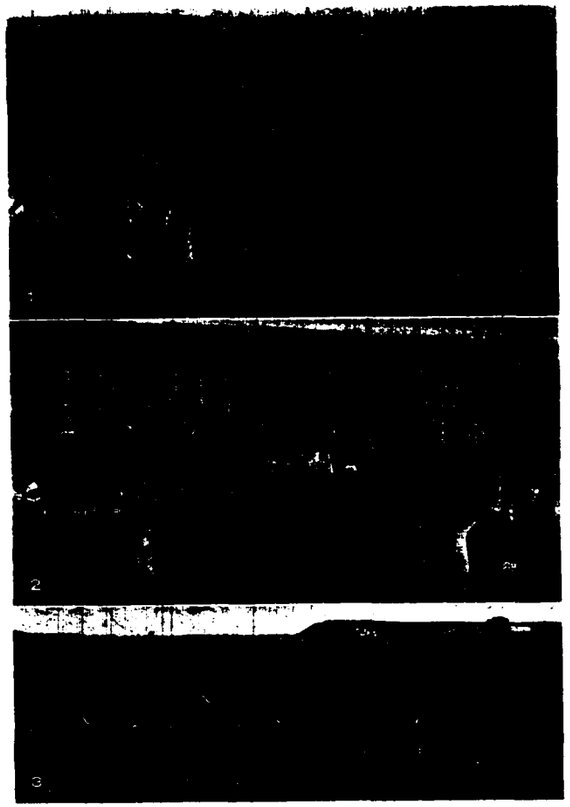
Quantity production in recruit training is a very different affair from training recruits in a regimental recruit detachment under peace-time conditions. In the "old days," if a regiment had twenty recruits (which was a fairly large number to have at one time), they were organized as a platoon with an officer in charge, a sergeant or two as his assistants, and with a corporal as squad leader of each squad. At the CRTC one non-commissioned officer has the whole job by himself. Furthermore this non-commissioned officer himself may be a recent graduate of the CRTC. The smallest unit commanded by an officer is the half-troop, consisting of four platoons. Thus it can readily be seen that these non-commissioned officer platoon leaders have a considerable problem of supervision and correction, particularly when instructing in horsemanship, since three or four squads of recruits can get out of hand rather quickly when mounted. Under these conditions it is necessary for the Horsemanship Department to plan the daily instruction periods in detail in order to save the officers and non-commissioned officers of the troops this work and to leave their minds free to conduct the instruction. Instruction methods must be kept simple and stereotyped.

As just mentioned, many of our non-commissioned officer platoon leaders are themselves recent graduates of the CRTC. These men are carefully selected, and since many high-type and well educated men pass through the CRTC as trainees, there is a great deal of material from which to select. Further, if any of the men selected as non-commissioned officers do not prove satisfactory, they can easily be replaced out of later increments. It is this opportunity to select replacements for any non-commissioned officers who are not actually excellent that makes horsemanship training practicable with the low ratio of cadre personnel to trainees. Each platoon leader has what was actually an officer's job in peace-time.

In order to provide help to the platoon leader in the supervision of his unit, the eight best trainees in each troop are designated trainee non-commissioned officers, and one is assigned to each platoon as file closer. Also, selected trainees are assigned as squad leaders. This use of trainees as acting non-commissioned officers, besides affording additional supervisory personnel, gives the men selected an opportunity to show and develop their leadership qualities. This, in turn, gives the troop commanders an opportunity to choose those men they desire to keep as non-commissioned officers of the cadre.

As the CRTC has progressed and experience has been gained, the course in horsemanship has become clearly delineated, and methods are exact and definite. Three phases of horsemanship instruction from which excellent results have been derived are worthy of comment on account of the results obtained and because they are methods not generally used in the service. These are, first, giving a week of dismounted horsemanship instruction prior to the first occasion when the trainees are allowed to mount, second, the use of elementary gymnastic exercises, bareback, at the halt and walk, and third, the use of routine exercises at the beginning of each mounted period. The importance of both the first two phases of training mentioned above lies in the fact that they tend to overcome apprehension, of which there is a great deal since many of our trainees have never before mounted a horse.

During the first week, training given under the Horsemanship Department is all dismounted, and consists of instruction in the duties of stable police—including information as to safety precautions to be followed when working around horses, instruction in cleaning equipment and grooming, and instruction in the adjustment of saddle equipment. It is desirable of course that the trainees be well grounded in these basic subjects at the outset of their training, but the principal advantage of this dismounted week is in overcoming apprehension. When they first approach horses some of the trainees are so apprehensive that they retreat hastily at the slightest move of a horse, but by the end of the week of dismounted instruction most of them look like old troopers when working around horses on the ground and are fairly well relaxed when they first mount during the second week of training. Just working around the



1—1st Platoon, Troop D, 1st Training Squadron at monkey drill, which is part of the fifth riding lesson. The platoon leader is Sergeant R. B. Williams, who came to the CRTC from the 7th Cavalry as a member of the original cadre. The exercise is "face to the rear, starting with the legs crossed in front of the body, and reverse." 2—At monkey drill, fifth riding lesson. The exercise is the "full stand." 3—On the drill ground during the fifth riding lesson. This is part of the same lesson during which the pictures of the monkey drill exercises were taken. Notice that many of the men already have good positions in the saddle. This troop is commanded by Captain Victor L. Olsen, Cavalry.

stables and horses seems to impregnate them with a bit of the "stable atmosphere." Furthermore, this dismounted period forms a desire to ride, so that the men begin to ask their non-commissioned officers when they are going "to get to ride."

The bareback gymnastic exercises or "monkey drill" exercises serve the same purpose of overcoming apprehension, the exercises given being extremely simple and being given only at the halt and walk. These exercises start during the third riding lesson and continue through the third and fourth weeks of training. When they begin the exercises some of the men fall off frequently, but as they realize they are not hurt they gain confidence, and each man thinks it very funny when somebody else falls off. The result is that the exercises furnish general amusement and consequent relaxation. The exercises used are as follows:

Vault on, near side, to straddle seat;
Vault off, near side;
Knee stand;
Face to the rear, starting with the legs crossed in front of the body, and reverse;
Vault on, near side, to side seat;
Full stand;
Scissors to rear, and reverse.

The necessity to keep instruction methods simple and stereotyped implies reduction to a routine. This is particularly applicable in equitation, therefore the Horsemanship Department has published a "Pamphlet on Mounted Exercises." This pamphlet is pocket-size, and is carried by officers and non-commissioned officers at all horsemanship instruction. Very briefly, it lays out the entire course in equitation in the form of exercises to supple the rider and to force him into the correct seat. After the tenth riding lesson, these exercises become a routine which is repeated daily. This routine obviates for the platoon leader the necessity of planning his instruction, thus enabling him to concentrate on the correction of errors, etc. Also, it serves in the same way to compensate for lack of experience on the part of the platoon leader in conducting equitation instruction. This effect of the use of the routine is particularly helpful, since the ability to conduct equitation instruction is an art, not a science, and is acquired only through experience. The exercises given in the pamphlet furnish an irreducible minimum of instruction, other training publications may prescribe further steps in each lesson, but since the pamphlet can readily be carried in the pocket, it is always there to refresh the memory of the instructor.

The routine given to be followed after the tenth riding lesson is a satisfactory method for use in further equitation training of graduates of the CRTC after they have joined their regiments. Since this is the case, the routine is quoted below:

1. Spend five minutes on SUPPLING EXERCISES AT THE WALK WITHOUT STIRRUPS, reins loose and floating. Exercise from toes to head:

(1) Rotate the feet.
(2) Alternately flex the knees.
(3) Rotate the right (left) arm vertically and raise and lower the toes.
(4) The right (left) arm extended horizontally, palm up, rotate the body by twisting at the waist, right to left and left to right, eyes following the hand.
(5) Rotate the shoulders—forward, backward, upward, down.
(6) Rotate the head and flex the neck—forward, right, back, left, forward, up.

2. Spend five minutes at the SLOW TROT WITHOUT STIRRUPS, steadying the seat with the hand on the pommel if required. Then WALK WITH STIRRUPS for three minutes.

3. Spend two three minute periods on SUPPLING EXERCISES AT THE GALLOP, broken by a minute's walk. (Use any exercises in 1, above, that can be done with the feet in the stirrups.)

4. Give this exercise at the WALK:

With the right hand on the neck, stand in the stirrups, driving the heels and the knees down, feeling the weight go out through the heels; then with the BACK HOLLOWED, chest up, hip joints to the rear—sit down ONLY AS FAR AS THE THIGHS WILL PERMIT. Then take the test (without the hand on the neck): can you stand up in the stirrups in balance, without first leaning forward or making any preliminary adjustment of your position?

5. Give this exercise at the TROT:

With the right hand on the neck, stand in the stirrups, driving the heels and the knees down, KNEES FORWARD OF THE STIRRUP STRAPS, stirrup straps vertical; as you do this feel the heels driven down at each beat of the trot; then with the back hollowed, chest up, hip joints to the rear—sit down AS FAR AS THE THIGHS WILL PERMIT, on every other beat —in other words, post.

6. Spend three minutes at the GALLOP WITHOUT STIRRUPS, allowing the men to hold on to the pommel and lean back, taking the motion of the gallop in the loin, thus getting the rhythm of the gait.

7. Put the class at the GALLOP WITH STIRRUPS and check positions for the following: heels thrust far down with the stirrup straps vertical, buttocks to the rear, back hollowed, fork deep in the saddle—in all, a light seat. If the class does not qualify in this respect, REPEAT EXERCISES 4 AND 5.

Whether or not a trooper can ride his horse makes little difference in the field if he has no idea as to how to take care of him, so increasing emphasis has been placed on horsemanship as the corps of instructors—at first rather green—has gained experience and knowledge. All that the rank and file trooper should know, is taught, and as this comprises a good deal of information, the instruction cannot be imparted in such a short period so that the trainee will remember it all, even with constant emphasis and considerable repetition, both in principle and in detail. Even in the case of those men who have ridden prior to coming to the cavalry, all this instruction cannot be permanently absorbed, since their previous experience means little, horsemastership being largely a lost art in the civilian population. Above all, emphasis is placed on the fact that the trooper and his horse are an inseparable unit, and any fault or neglect of the man which even *tends* to put his horse out of action is a move toward cancellation of himself as a cavalry trooper.

No attempt is made to teach anything beyond the simplest equitation, that is, the rider should allow his horse to move with head and neck extended, on a lightly stretched or loose rein, while sitting the horse correctly so that he can function best. Since this is the case, and since probably no trainee will completely absorb all the horsemastership he needs, it is desirable that all graduates of the CRTC receive further training in horsemanship and horsemastership after reporting to their regiments, just as they should in all their duties. This is equally as important as further training in tactics, the use of weapons, etc. In other words, the CRTC graduate is well grounded as a basic cavalry trooper, but he should receive further training to absorb him into the particular combat unit which he joins.

How to Be a Successful Soldier

By Colonel Walter F. Siegmund, ORC

1—Observe everything within your notice.
2—Learn what your duties are and do them cheerfully and efficiently.
3—Be alert and on time.
4—Obey orders, but be sure you understand them; if not, ask questions.
5—Put all your energy and drive behind everything you do.
6—Keep yourself and your equipment neat and clean.
7—Indulge in clean recreation off duty.
8—Put duty before pleasure.
9—Pick with great care your associates off duty, and avoid those who may try to influence you to indulge in things you know might injure you.
10—Mind your own business, and don't become a part of grapevines spreading rumors among your fellow-soldiers. If you want information or need advice, go to your commanding officer.
11—When things go wrong, take it on the chin like a man. Don't be a cry-baby, but if you have a just complaint for the good of the service make it to your commanding officer.
12—Don't try "bull" to get by—it will catch up with you, and always remember that no man ever had a good enough memory to become a successful liar.
13—Don't be a boot-licker.
14—Don't try to gain recognition by hanging around headquarters.
15—Cultivate the respect of your fellow-soldiers, and you will win the respect of your superiors and promotion.
16—Attend religious service.
17—Don't forget the folks at home are waiting for a letter from you regularly.
18—Don't borrow or lend money—it makes enemies.
19—Save some of your pay.
20—Remember this always—that your sense of right and wrong is your greatest leader. Do all those things you know are the right things to do, and don't do any of those things that you know are the wrong things to do.
21—Resolve to leave the service a bigger and better man morally and physically—a credit to your family and your country.

The Officer and Mechanized Paper Work

*By Lieutenant Colonel F. W. Drury, F. D.**

ONE of the contributing factors which resulted in the loss of the Battle of France was the clogging of highways by refugees. This situation so slowed up the military movements of the defending forces that the highly mechanized, well-coördinated divisions of the enemy were able to cut off and encircle the French forces, section by section, until, in hopeless confusion, utter rout, and complete disintegration they surrendered.

When almost overnight an army increases in size from 200,000 to 2,000,000, the sudden enormous increase in army paper work tends to have the same effect on organization programs, reception procedures, and training operations as that produced by the congestion of arteries of transportation in the Battle of France.

In the early days of this Republic, army paper work was relatively simple, but even then it was burdensome. George Washington, for example, carried with him during the Revolution a relatively large, bound ledger in which he recorded advances of funds received from the chief finance officers of the Continental Congress, and against which he recorded his personal expenditures as well as those of the disbursing officers whom he had appointed to assist him.

Since the time of Washington, paper work has grown more complicated during each succeeding decade—particularly during each war period, and, until recent years, has been conducted largely on a manual basis with visible and permanent record forms. The last three decades, however, have seen a very rapid advance in the use of labor-saving devices throughout the business world for the handling of paper work. First came the typewriter with carbon paper and duplicate copies, inventions which revolutionized methods of writing communications and methods of filing. Second came adding machines and procedures for periodic summarization of accounts and reports. Third came the visible posting bookkeeping machine with the related development of loose-leaf, post binder ledgers. Fourth came visible card files for the maintenance of data requiring quick and ready reference. Fifth came the development of calculating machines by which complicated operations involving multiplication and division could be handled quickly and accurately. Next within very recent years, has come the rapid development of electrical accounting machines utilizing cards with holes punched therein. And, finally, have come devices for duplicating and preserving certain records and data by a variety of methods of photographic reproduction.

These efficient labor-saving devices have made it possible to administer successfully in America great business organizations on the size and scale previously considered impossible.

Many of these progressive inventions can well be adapted to use by the Army, for the administration of great assemblies of men and material is one of the major problems of modern warfare. The handling and digesting of masses of army papers have become almost as important today as is ability in tactical operations. Countless examples might be given to show how knowledge of the latest mechanical devices greatly simplifies paper work and general administrative procedure. Consider the problem of purchasing and storing supplies and equipment at any one of the numerous warehousing points. The handling of such matters was complicated for an army of less than 200,000. Imagine the complications for an army of 2,000,000, and then 4,000,000 unless considerable study is given to the use and proper application of every possible time and labor-saving mechanism. Or take the greater problems of today with which a large army must cope. First, consider the paper work of the budget in the accounting and statistical controls involved in reducing the time between proposing an army program and obtaining the approval of the program through an appropriation by Congress. Second, consider the planning and administrative paper work in accounting and reporting controls necessary to reduce the time lag between the availability of funds and the actual receipt by the army of supplies and equipment from private manufacturers. Third, consider the management problem of bringing together gun, airplane or tank with properly trained men, and blending the whole into a well-coördinated, smooth-working entity. Fourth, consider the problem of day-to-day operating control of the mobility, flexibility, and readiness for action of great assemblages of men and equipment in thousands of units, in hundreds of divisions, in a score of corps areas and departments in the armies of the entire Nation.

Go one step farther. Contemplate the relatively elemental problem of maintaining and supplying the thousands of items required today in a single modern, mechanized "Blitzkrieg." The motor transport of hundreds of thousands of men and equipment forty and fifty miles a day—the gas, the oil, the spare parts, the

*In collaboration with Mr. Walter A. Bowers, Executive Assistant U. S. Treasury Department.

repair items, the service items, the storage and stock inventories, the reserves—all require daily and hourly keeping of records and accounts and preparation of statements and reports at hundreds of points. These, in turn, must be summarized at subcontrol points, and, finally, subcontrols must be brought together into one coördinated picture for the Commander in Chief. As a Nazi general said of the modern "Blitz," "It is paradise for a tactician but hell for a quartermaster."

Therefore, in order to prevent delay, confusion, and congestion, modern mechanized procedures and mechanical devices must be utilized to simplify and digest the great mass of army paper work until operations are as smooth, speedy, and efficient as they were when the army was one-tenth its present size. Paper work and administrative mechanics in the rear must today be ahead of military operations—not behind.

American inventive skill and genius offer a wider variety of mechanical devices and time and labor-saving office equipment than is available in any other country on earth. Micro-files, tabulators, calculators, selectors, viewers, card punchers, sorters and countless other devices and gadgets now digest in a few hours a quantity of paper work that formerly could have been handled only in months and years.

Probably the most important of the modern mechanical devices are those which concern recording and accounting. Only a few years ago this type of work was done by bewhiskered gentry sitting on high stools at old-fashioned desks and using quill pens, green eye shades, and ornate paper cuffs. Today, a Twentieth Century stream-lined Miss sits before an artistically contoured console, and, with practically no effort, and at the rate of several thousand a day produces, by electricity, thousands of hole-punched cards which thereafter are used to make entries in scores of types of ledgers. A half century ago this procedure would have been a godsend to the men on whose shoulders fell the problem of organizing and training armies.

Filing procedures have also been revolutionized. Modern equipment makes it possible to find mechanically in a few seconds the whereabouts and other information concerning any one individual no matter where he is located. Even though his card has been filed in the midst of a million or ten million other cards, it is readily obtainable. Further, by a combination of simple mechanical and photographic processes, thousands of pages of records can now be reduced in size and stored in space one-hundredth that required for the original papers and documents.

Hence, just as science was responsible for chemical warfare and aerial warfare, so today it is playing a vital part in developing means for expediting and simplifying army paper work.

It seems reasonable, therefore, to suggest that all officers, cadets and other potential officers of the modern armies be informed as to the uses and mechanics of the elementary devices for accurately simplifying, expediting, and summarizing paperwork and the related administrative management procedures; so as to secure economy of effort in the assembling and digesting of the vast quantities of facts and figures they will receive. Provision should be made for definite training along these lines. Then, and only then, will the army be completely *stream-lined*.

Criticism and the Inspector

It is unfortunate that most of us dislike and resent criticism, a dislike that makes it hard for those in authority to correct errors, with the result that the sense of these uncorrected errors often piles up till there is a sudden explosion over some comparative trifle, really the sum of condemnations for a series of faults. Inspectees should therefore be trained to accept criticism cheerfully. The wind can often be taken out of the corrector's sails by immediately admitting the error. After all, his main object is to see that it does not occur again; if he sees that the culprit is equally decided in the matter he is satisfied, and also pleased at not getting the usual dirty looks.—LIEUTENANT COLONEL E. G. HART, D.S.O., from the article "On Organization" in *The Royal Air Force Quarterly*.

ARMY TRAILERS

*By J. Edward Schipper, M.S.A.E.**

EDITOR'S NOTE: *Upon request, this article was prepared by the Fruehauf Trailer Company exclusively for The* CAVALRY JOURNAL.

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THE greatest difference between warfare of today as compared with the last World War lies in the extreme advancement in mobility. A great part of this progress is due to improvement in automotive design. Much has come from the development of commercial transportation. It is but natural, now that we are engaged in war, that equipment developed for commercial highway transportation should be utilized, in many cases with only minor deviations, by the military forces.

During the quarter century which has passed into history between World War I and World War II, highway transportation in the United States has developed from a mere infant into a giant industry. We have in this country alone approximately three and one-half million men who make their living driving trucks. These are backed by many more millions whose job it is to build, equip and maintain these trucks.

An interesting index of the growth of this industry in the United States may be furnished by a contrast between the hard surfaced roads in 1914 at the beginning of the last World War and in 1939. The two maps shown, Figures 1 and 2, illlustrate the hard surfaced roads in 1914 and today. As will be noticed in 1914 there were practically no interstate, and certainly nothing that even approached, transcontinental hard highways. Today we have a network which embraces the entire country and adds tremendously to the strategic strength of defense as well as to our ability to decentralize industry and in general utilize efficiently the resources of the country.

It is but natural that along with development of this network of highways progress in equipment has been made. Today about 90 per cent of the long-distance hauling by highway in this country is done by truck-trailer. The trailer idea is based on the old established theory that "a truck, like a horse, can pull more than it can carry." Big loads can be rapidly and efficiently transported by trailer, and the vehicle itself, because it is articulated, has the advantage of extreme highway maneuverability. It is able to turn in less than its own length and furthermore, has an advantage from a military standpoint as well as commercial, that it does not tie up a power plant when stationary as the tractor unit can simply drop its load wherever it may be and go on its way to pull other trailers.

In commercial use truck-trailers are frequently employed on what is known as a "shuttle operation." In this case a tractor unit takes care of two or even three trailers—one being loaded while another is unloaded and the third is in transit. For military purposes it is possible to use trailers for straight haulage as well as for repair shops, mobile depots, mobile headquarters, and for a tremendous variety of other purposes.

*Advertising Counsel, Fruehauf Trailer Company. (Member, Society of Automotive Engineers.)

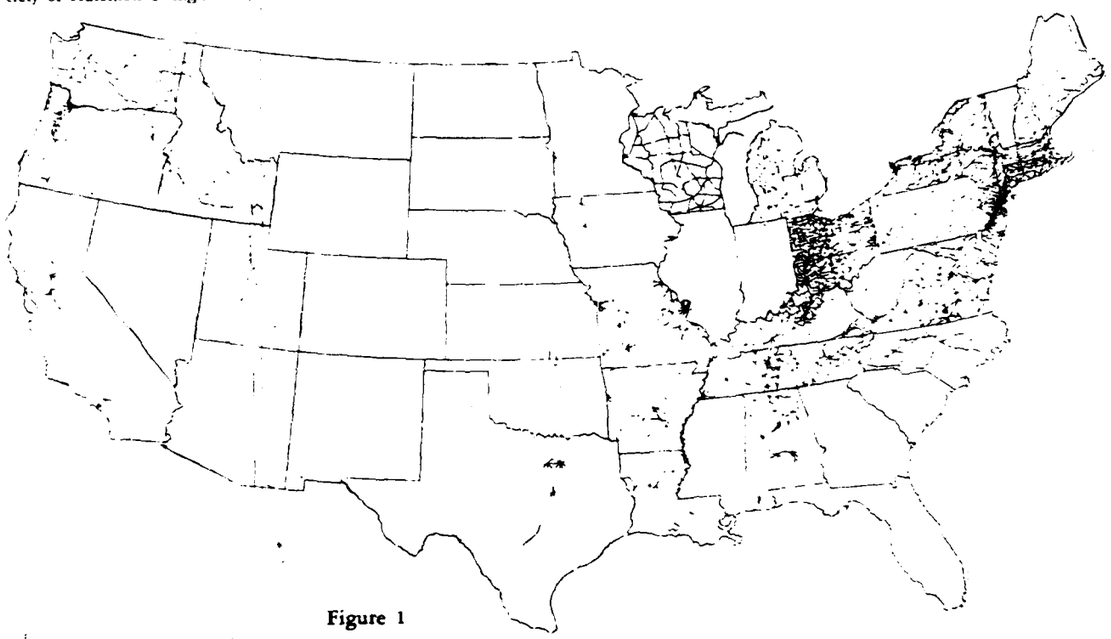


Figure 1

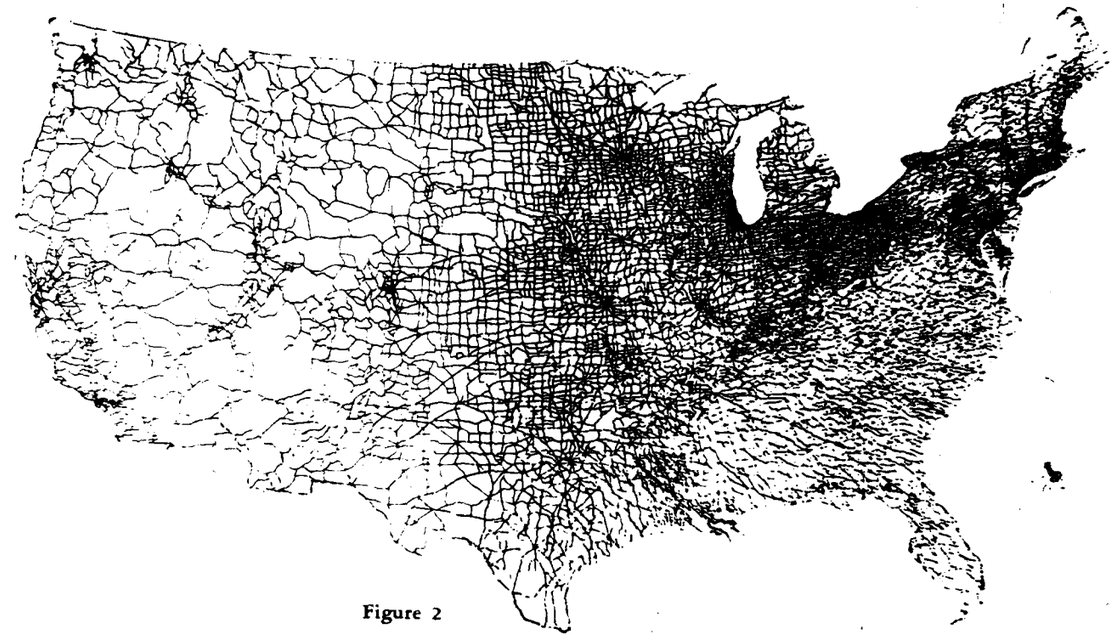


Figure 2

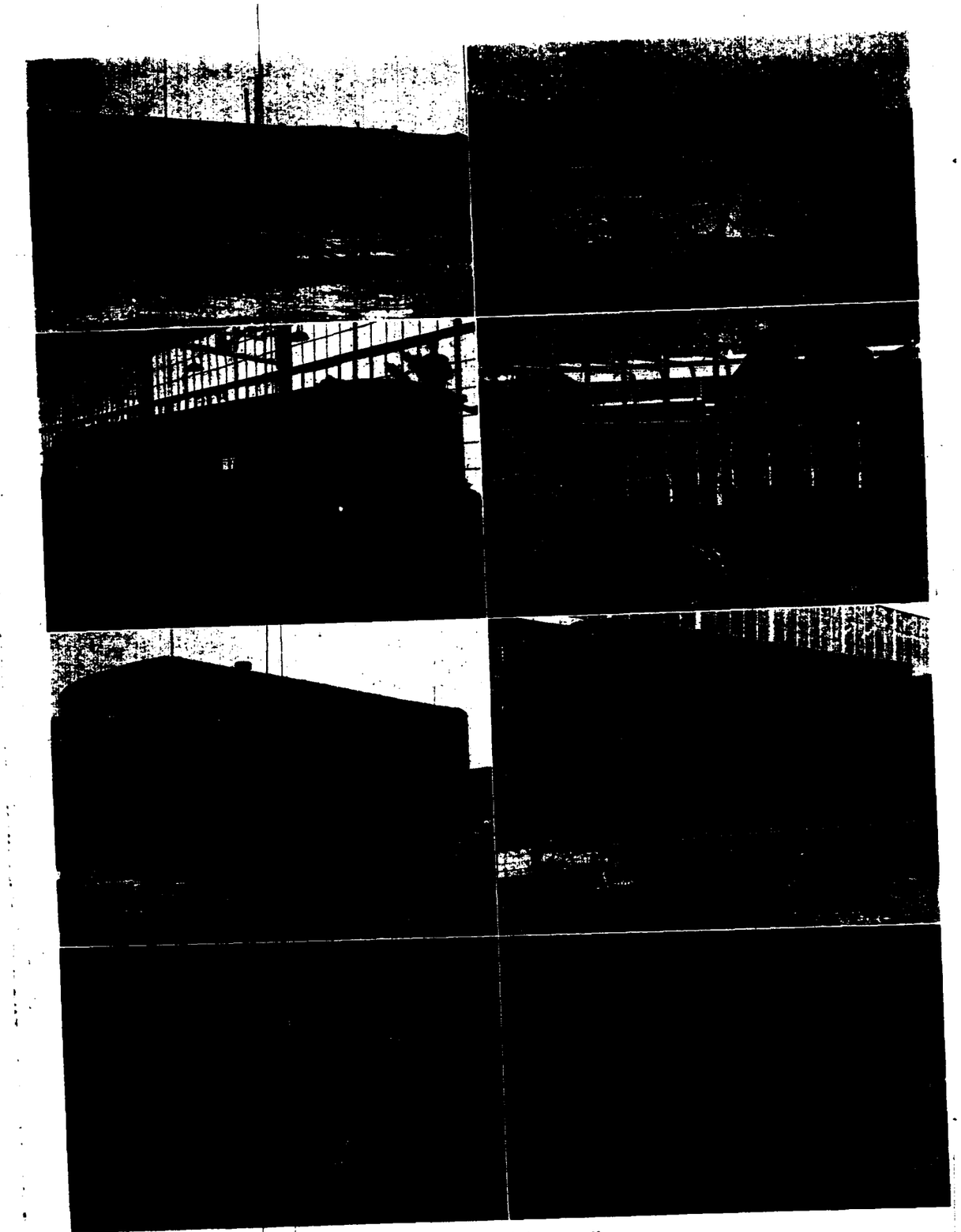
The extreme flexibility, adaptability and versatility of the trailer in the commercial field where it is used for every purpose from alley deliveries up to the transportation of heavy machinery weighing forty tons or more, is rapidly being duplicated for military purposes. In the cavalry, trailers are already being used for a multitude of purposes. The transportation of horses and complete cavalry equipment to suitable points on the front—from which it can be deployed as a mounted force—is naturally an obvious use.

With light tanks and many other pieces of heavy equipment being a part of the cavalry's mechanized set-up today, the trailer takes on a tremendously added importance in this branch of the service just as it has in the others as illustrated by the equipment shown on these pages. It does not take any great amount of vision to picture the many uses to which a detachable, mobile unit capable of transporting all types of loads can be applied. In military, as in commercial use, it is simply a matter of studying the problem and adapting and designing or selecting the type of trailer equipment suited for the job. *There is a further thought, however, in that many facilities and military services not heretofore possible are made entirely practical by the trailer development.*

TRAILER MAINTENANCE

From the standpoint of practical field work the question of maintenance is always important. The most successful maintenance plan which results in the minimum tie-up of the vehicle depends on an orderly routine of inspection, repair and replacement. The problem is entirely similar to that of commercial work where the trailer must be kept rolling day and night and the time for the vehicle in the shop must be held down to the limit. Such a routine has been worked out by a typical commercial shop and it is entirely applicable to military work. In the case of the commercial shop, if the trailer arrives at 8 AM it will be returned to the operator not later than 6:30 PM the same day with the following work completed if required:

1. Refloored (see following paragraph)
2. Rebushed
3. Brakes adjusted or relined (if necessary)
4. Hubs washed thoroughly in "Varsol"
5. Bearings washed in "Varsol" and repacked *under pressure*
6. All lights checked and replaced when necessary
7. Springs and radius rods rebushed if necessary
8. Springs checked for broken leaves, arch, etc.
9. Alignment checked and corrected if necessary
10. Damaged plywood or slats replaced
11. "Touch-up" painting where necessary
12. Trailer completely lubricated
13. Vacuum system checked, moisture trap cleaned and drained



Several types of Army trailers.

14. Fifth Wheel checked for wear and necessary replacements made
15. King pin "Miked" for wear

In this particular shop reflooring is accomplished in a different method than heretofore. Instead of replacing the main floor, damaged boards are replaced. A heavy coating of hot tar is applied to the old floor, covered with No. 16 wet tar paper and over this is placed an oak floor similar to that used in houses (nailing this to the old floor with galvanized nails to prevent rust). The tar and tar paper combination absolutely seals the two floors together.

The above list furnishes a method of completely checking the trailer. Only the work actually required is done and the time required for the job is correspondingly less. Major commercial fleet operators have followed a similar routine in many instances with a great deal of success resulting in greatly reduced time in the shop and practically eliminating delays on the road.

Naturally on vehicles of this type the matter of brake maintenance is of particular importance, and, in cooperation with brake specialists, routines have been worked out which have resulted in increasing brake lining life from 8,000 to 30,000 miles while brake drum breakage has been just about eliminated.

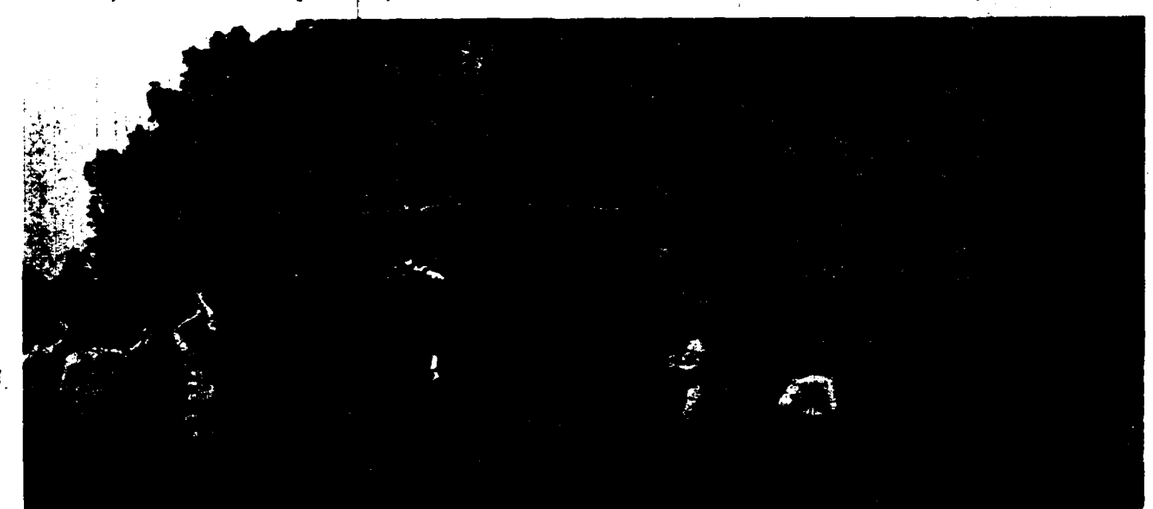
Delays due to such practical considerations as grease on brake linings, necessity for removing wheels and frequency of adjustment have been cut down due to proper brake analysis and maintenance to an amazing degree. At the same time, brake performance on the highway has been improved from 50 to 75%. All of this contributes materially to efficiency of transportation. The savings in time and money are high, beyond the possibility of estimation because they are so far reaching. One noticeable effect, for example, of properly maintaining the brake equipment is that tire blow-outs caused by heat have been practically eliminated.

Before the Society of Automotive Engineers at the annual meeting in Detroit, Michigan, January 6-10, 1941 this subject was exhaustively covered in a paper entitled "Brake Equalization Between Truck-Tractors and Trailers" by John W. Votypka, Chief Engineer, Fruehauf Trailer Company and E. Vance Howe, Bendix Westinghouse Air Brake Company. In this paper, developed as the result of a long series of field tests in which the brake drum temperatures were measured on truck-trailer combinations in the Allegheny mountains, it was found that where proper maintenance programs had not been followed a tremendous difference existed between brake drum temperatures on different wheels of tractor and trailer, indicating that the loads were being concentrated on one or more wheels resulting in uneven wear as well as uneven braking.

It is not intended here to go into the technicalities of brake balancing as manufacturers' service instructions cover this situation fully. It is intended, however, to call attention to this matter of brake maintenance as being essential to the best possible performance of the unit and as a necessary part of the education of the operating and maintenance personnel.

The rapidly growing use of truck-trailer equipment will do much to speed up mechanized warfare. Trailer equipment is capable of bringing slower-moving units up to the front lines where they can be valuably employed. It is useful in eliminating the necessity of unloading the vehicle because the trailer and its cargo can be dropped by the tractor unit and picked up again when required. The valuable time saved in the loading and unloading operations can not be even approximately estimated. At times it may mean the difference between saving and losing all-important matériel.

Above all the trailer is a most important means of getting the striking power of the cavalry unit up where it may be used and used quickly; and no one knows the value of timeliness better than a cavalryman!



Cavalry Portée equipment.

The German Armored Force

By Captain Carl T. Schmidt

EDITOR'S NOTE: Several of our members recently requested articles on "The German Armored Force." In our opinion, the best article on this subject immediately available to us is the one published in the December, 1941, issue of *The Infantry Journal*. Inasmuch as there is only about a 5% overlap in our respective subscription lists the Editor of *The Infantry Journal* courteously has authorized our republication of this valuable article.

* * * *

"A WARTIME expedient, successful against the Germans in 1918 when their infantry was greatly reduced in numbers and surprised by this new device, the tank cannot yield good results against an infantry forewarned and adequately armed." So wrote an observer of the civil war in Spain, three years ago. About the same time another writer declared: "The tank, as well as the artillery, is only an auxiliary arm, intended to assist the infantry. . . ."

These statements, made so shortly before the cables were telling the story of the panzer onslaught against the Low Countries and France, the story that the great French Army, without equipment to deal with such an attack, was being slashed to ribbons by a new and terrible instrument, greatly minimized the power of this instrument. And since the Battles of Flanders and France, the pendulum of mechanized emphasis has swung violently, and perhaps too far. For now there is too great an insistence that tanks, plus planes, are in themselves the key to victory.

The observers of the war in Spain were perhaps sound enough in their judgment of a specific matter—that is, of the combat value of lightly-armored tanks, employed in more or less piecemeal fashion, and with little in the way of coördinated support from other arms. But as broad generalizations, their findings were far from accurate. To make sweeping conclusions affirming universal truth on the basis of slender evidence is an all too common tendency, not least in military writing. It has now come to be just as easy to overgeneralize the decisive importance of the tank. It is as absurd to argue that the tank arm—or, for that matter, the air arm—is the "decisive weapon" as it is to insist on the eternal supremacy of the foot soldier or the cavalryman. War is a supremely complex, collective effort. Many kinds of men, and even more varied techniques, are required for victory on the battlefield. However, one thought seems patent enough: The machine technology is as surely molding the methods of warfare as it is transforming all other institutions of our times. And the army that adapts itself most completely to machines—machines which can move fire-power at maximum speed and with a maximum of protection—that army clearly has a margin of superiority over opponents who do not make the utmost practicable use of modern means of war.

The tank has amply demonstrated its powers on the plains of Poland, in the rolling countryside of Flanders, France and Russia, on the deserts of North Africa, and even through the rugged mountains of the Balkans. Yet it is not the tank alone. It is the tank working and fighting against the enemy with equally mobile infantry, artillery, engineers, signalers, aviation, and essential services—*a force of all arms*, that has hopelessly outmoded the slow-moving combat units of 1918 pattern.

If the Germans were not the first to recognize the tactical and strategic possibilities of the tank in large, independent units, they were at least the first to exploit these possibilities to a major degree.

Tanks were first developed as a weapon with which to dispute the supremacy of the machine gun. Thus the infantry, immobilized by hostile automatic guns, was to have at least a degree of maneuverability restored to it. The tanks of the World War moved ponderously across No Man's Land, destroying enemy machine guns by their crushing weight as well as by their fire, and acting as a protective shield for the advancing infantrymen. This World War concept of the tank dominated the military minds of the victorious powers in the postwar years. Especially was this true in the French Army. It was held that the tank existed only to serve the infantry. Both arms were to work closely together. The tank should move no farther than the immediate objective of the infantry; it was to withdraw once it had aided the foot soldiers to reach their objective. To be sure, this viewpoint did not go unchallenged. There were some who pointed to the strategic possibilities of a speedy, far-moving armored force. Their argument did not prevail.

When the Germans began to rearm, they rejected the theory that tanks must be tied closely to the foot infantry. They decided that the speed of the modern tank could best be exploited, particularly after a successful breakthrough or envelopment, by using it in large numbers and by supporting it with highly mobile infantry, artillery, engineers, and aviation. Once the main hostile defenses had been overcome, such a force would be capable of striking rapidly through the entire depth of a hostile position. The supporting elements would be mobile enough to consolidate the gains made by the tanks, as well as to assist the penetration. A further advantage was seen in the organization of a mixed armored force under single command. General Guderian—the best-known tank soldier of Nazi Germany—put it as follows: ". . . There are important strategic and tactical objections to the organization of separate low-speed tank units for the infantry. The tank units that are designed for strategic purposes may also be used tactically either as entire units or divided. On the other hand, it would be impracticable to combine the division tank battalions for strategic employment. Aside from the fact that their equipment is not suitable for missions of this kind, the combined force would lack the requisite headquarters and could not produce them at will. The greater the speed of an arm on the march and in combat the more important that it and its commanders be trained in units that are organized in peace the same as they would be in war. In this respect, we have a valuable lesson in the misfortunes suffered by the German cavalry in 1914 as a result of untrained staffs, poor communications, inadequate equipment, and faulty march technique on the part of large units; all of this can be attributed to its pre-war organization."[1] The Germans felt that the experiences with tanks after 1918—as in the Spanish Civil War—confirmed their decision to establish self-contained armored divisions.

PzKw I (light) Seven-ton model as seen in Poland. Apparently no longer being manufactured.

ORGANIZATION OF THE ARMORED DIVISION

The organization of the German armored division is quite flexible. Changes in the details of its structure and equipment appear to have been frequent. Units are recast to suit the expected requirements of specific tasks; the availability of matériel and the formation of new divisions also make for variations. Nevertheless, it is possible to detect a general pattern of organization:

DIVISION HEADQUARTERS

Armored Brigade

1 or 2 tank regiments plus staff, reconnaissance, communications, and maintenance elements (200 to 450 tanks).

Motorized Infantry Brigade

1 or 2 motorized infantry regiments, plus staff, assault artillery, reconnaissance and communications elements.

[1] General Heinz Guderian, "Armored Forces," *The Coast Artillery Journal*, November-December, 1937.

Artillery Regiment

Several battalions of motorized artillery – 75-mm., 105-mm., 120-mm., 150-mm., possibly on self-propelled armored mounts.

Motorized Antitank Regiment or Battalion

47-mm., 50-mm., 75-mm., antitank guns, possibly on self-propelled armored mounts.

Motorized Reconnaissance Regiment or Battalion

Light tanks, armored cars, motorcycles.

Motorized Antiaircraft-Antitank Regiment or Battalion

15-mm., 20-mm., 37-mm., 88-mm., AA-AT guns, possibly on self-propelled, armored mounts.

Engineer Battalion

Bridge and ferry equipment.

Communications Battalion

Telephone and radio equipment.

Supply, Maintenance, and Medical Services

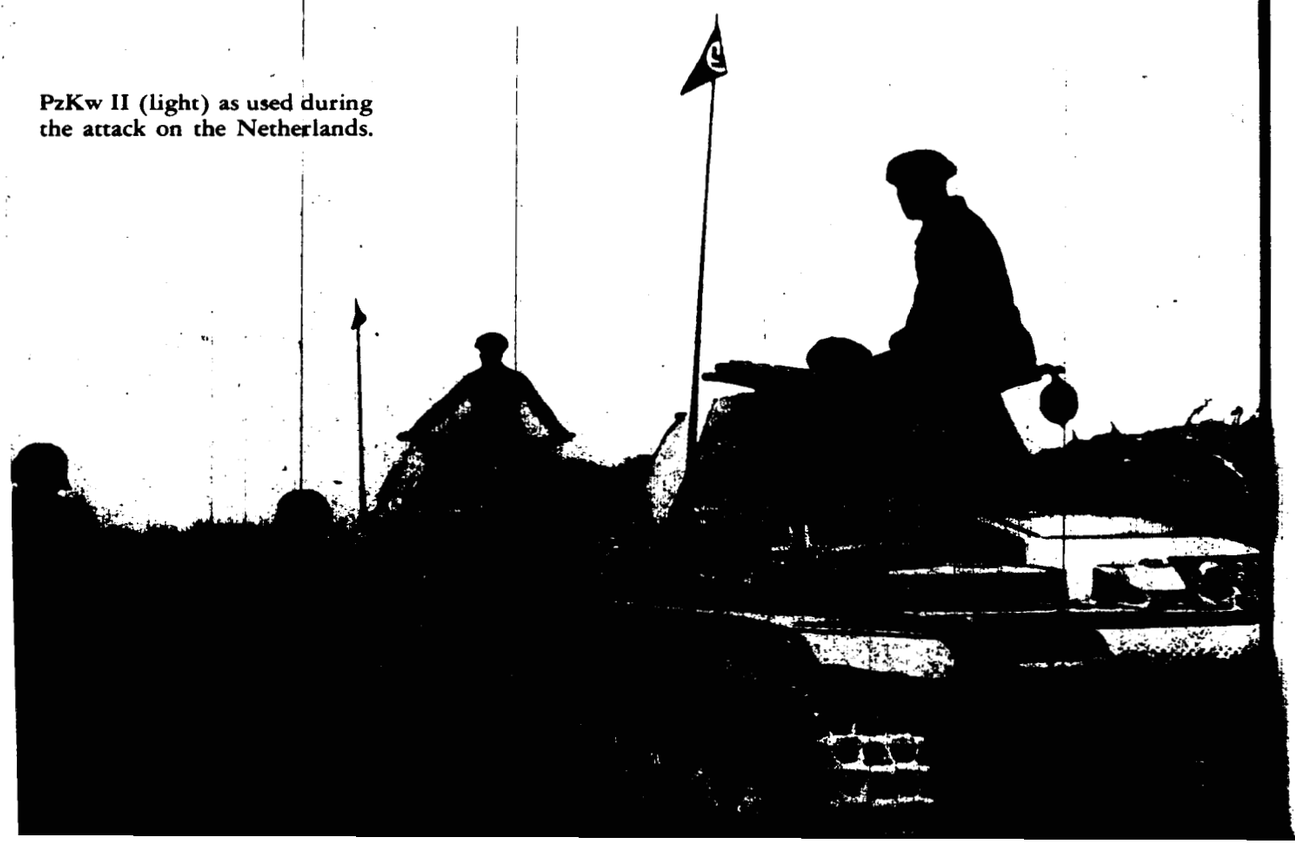
Motorized equipment.

Attached Aviation

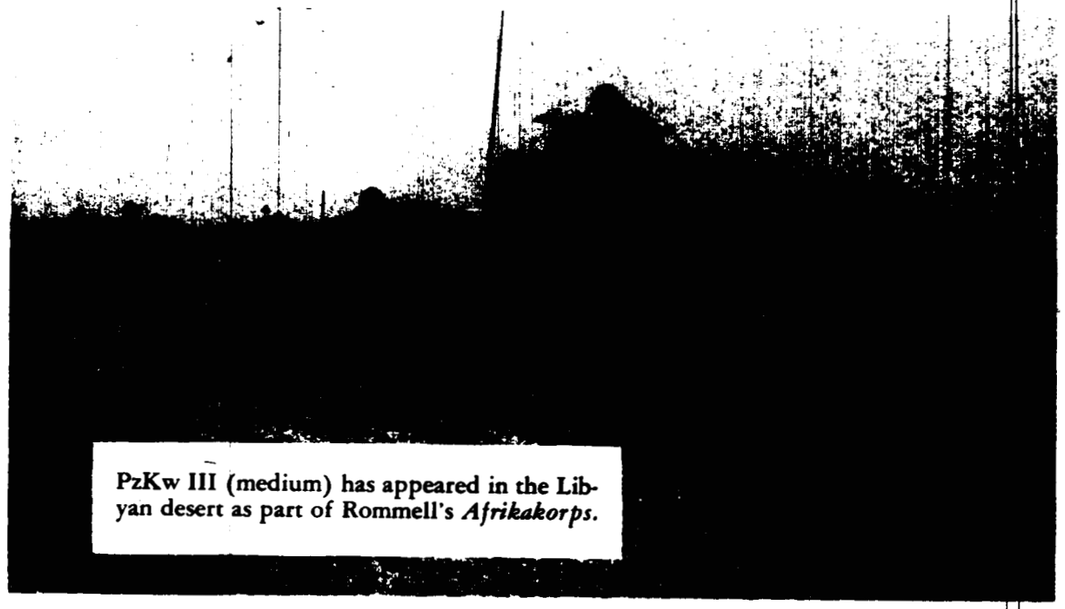
Reconnaissance and bombardment units, AA units.

The division has been designed to make the most of the speed, shock action, and protected fire power that modern technology makes possible. Its core is the tank brigade. All other elements—motorized infantry, artillery, reconnaissance, communications, engineer, antiaircraft, and antitank elements, attached aviation—are intended to assist the tanks' maneuver, to protect them, to hold ground that they have won, to exploit their successes. The tendency during the past year appears to have been to strengthen the antiaircraft and antitank defenses of the division, to provide more close-support artillery on armored mounts, to shift from light to medium and heavy tanks. Obviously, this is a hard-hitting, highly mobile force, capable of considerable independent action.

The tank brigade may consist of two identical regiments, each equipped with light and medium tanks, or of one medium and one heavy tank regiment. However, in certain divisions the brigade has only one regiment. The tank regiment consists of two tank battalions (each containing three light or medium and one medium or heavy tank company), and one antitank battalion. It also includes engineer, communications, and maintenance elements, and probably has antiaircraft weapons. There are about 200 tanks in the regiment. Apparently each tank is intended to have two complete crews—one in reserve transported in personnel carriers—but it is not certain that this standard has been maintained in practice.



PzKw II (light) as used during the attack on the Netherlands.



PzKw III (medium) has appeared in the Libyan desert as part of Rommell's *Afrikakorps*.

A "normal" division, consisting of the maximum number of units shown above, probably has a strength of 12,000 officers and men, and employs 3,000-3,500 vehicles—tanks, armored cars, automobiles, trucks, and motorcycles. A small division, with but one tank regiment and a corresponding reduction in the support elements, has been employed in North Africa. It is possible that difficulties of supply and maintenance in a region of poor communications have been responsible for this smaller-scale organization. A "heavy" armored division is also reported to be in existence. It is equipped with heavy tanks and is especially strong in artillery and antitank weapons. Light tanks are eliminated except for reconnaissance and liaison purposes.

It is said that the armored division may be employed as a unit, or in certain situations, as two separate forces. That is, the tank brigade may be used wherever supporting tanks are needed, and the support elements as a small motorized infantry division. However, this would not seem to be an efficient way of undertaking missions suitable to other organizations.

An armored corps consists of several armored divisions and motorized infantry divisions, plus aviation. Panzer armies, probably composed of two or more corps, have made their appearance in the Russian compaign.

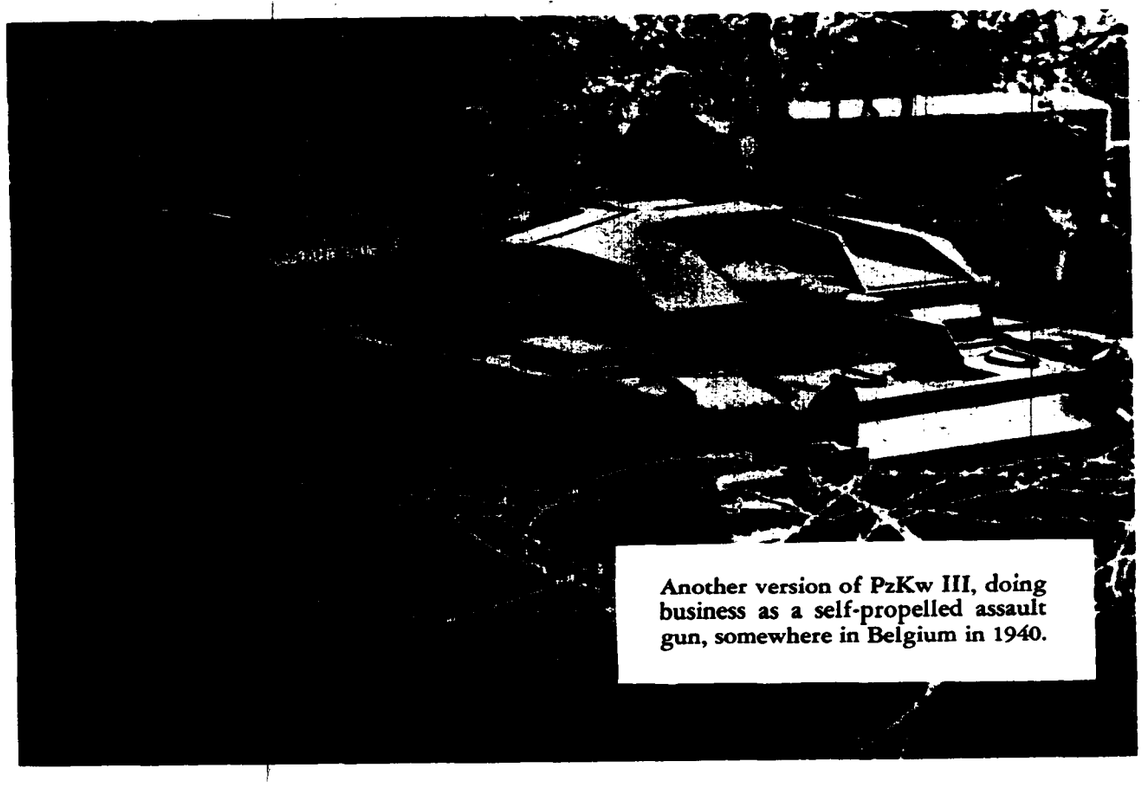
German Tanks

What are German tanks like? This, too, is a question that at present can be answered none too definitely. To be sure, certain types have been captured and closely studied. But others are known only vaguely.

In general, the quality of the vehicles appears to be good. But they are probably no better than tanks of other powers. It is said that their armorplate is not of the best (it is probably homogeneous), that joints crack rather easily, that the tracks do not stand up too well. On the other hand, German tanks have been carefully designed to make them tactically effective. Despite the relative inferiority of the steel, their armor is hard to penetrate, for the plates are set at such angles that many projectiles glance off. Moreover, there has apparently been a tendency to rely primarily on the tank's speed rather than on its armor for protection from antitank fire. Observation and communications equipment is believed to be excellent. Some models have power-operated turrets, periscopes, and smoke-screen equipment. In the newer production self-sealing fuel tanks have been installed, as well as fireproof walls between the crew and engine compartments. Collective antigas protection is a feature of certain types. All in all, the German tanks have proved themselves to be efficient fighting vehicles.

But the great strength of the German tank arm lies in its numbers. The emphasis has been on producing large quantities of vehicles just good enough to do their job rather than on making smaller numbers of technically more perfect tanks. For example, homogeneous armorplate is cheaper and easier to make in quantity than the more resistant face-hardened plate. This has entailed a good deal of improvisation, too. For example, when it was discovered that certain tanks were very vulnerable to antitank fire, their surfaces were reinforced simply by riveting extra plates over the spots subject to heavy fire. Thus it was not necessary to withdraw these vehicles wholly from service. In the meantime, no doubt, improved models were being designed and manufactured.

At least five types of German-built tanks are known



Another version of PzKw III, doing business as a self-propelled assault gun, somewhere in Belgium in 1940.

to have been in service since the outbreak of the war. Two other models have been reported. In addition, tanks of French and Czech, and possibly also Polish, manufacture are used. Not only did the Germans capture large numbers of vehicles, but—perhaps more important—they are also availing themselves of French and Czech production facilities.

Essential characteristics of these tanks are shown below. The Germans appear to classify their tanks, not by weight, but in terms of their weapons. Thus a "light" tank is one equipped only with machine guns.

(1) *PzKw I*. Light tank
Weight: 5.7 tons
Crew: Two
Maximum armor: 18-mm. (0.7 inch)
Armament: 2 light machine guns
Maximum road speed: 32 m.p.h.
Radius of action: 95 miles

(2) *PzKw II*. Light tank
Weight: 9 tons
Crew: Three
Maximum armor: 20-mm. (0.8 inch)[2]
Armament: 1 heavy machine gun
1 light machine gun
Maximum road speed: 24 m.p.h.
Radius of action: 125 miles

(3) *PzKw III*. Medium tank
Weight: 18 tons
Crew: Five
Maximum armor: 30-40-mm. (1.2-1.6 inches)[3]
Armament: 1 37-mm. or 50-mm. gun
2 light machine guns
Maximum road speed: 28 m.p.h.
Radius of action: ?

(4) *PzKw IV*. Heavy medium tank
Weight: 22 tons
Crew: Five
Maximum armor: 40-60-mm.[4] (1.6-2.4 inches)
Armament: 1 75-mm. gun.
2 light machine guns
Maximum road speed: 23 m. p. h.
Radius of action: ?

(5) *PzKw V*. Heavy tank
Weight: 32 tons
Crew: Seven or eight
Maximum armor: 60-mm. (2.4 inches)
Armament: 1 75-mm. gun, 4 machine guns; or
1 75-mm. gun, 1 37-mm. gun, 3 machine guns
Maximum road speed: 31 m.p.h.
Radius of action: 12 hours

[2]Additional 20-mm. plates may be welded on vulnerable surfaces.
[3]Additional 20-30-mm. plates may be welded on vulnerable surfaces.
[4]Including additional 20-30-mm. plates.

(6) *PzKw VI*. Heavy tank
Weight: 35 tons (?)
Crew: ?
Maximum armor: 75-mm. (3 inches)
Armament: 1 75-mm. gun or 1 105-mm. gun
2 20-mm. machine guns
4 light machine guns
Maximum road speed: 25 m.p.h.
Radius of action: 16 hours

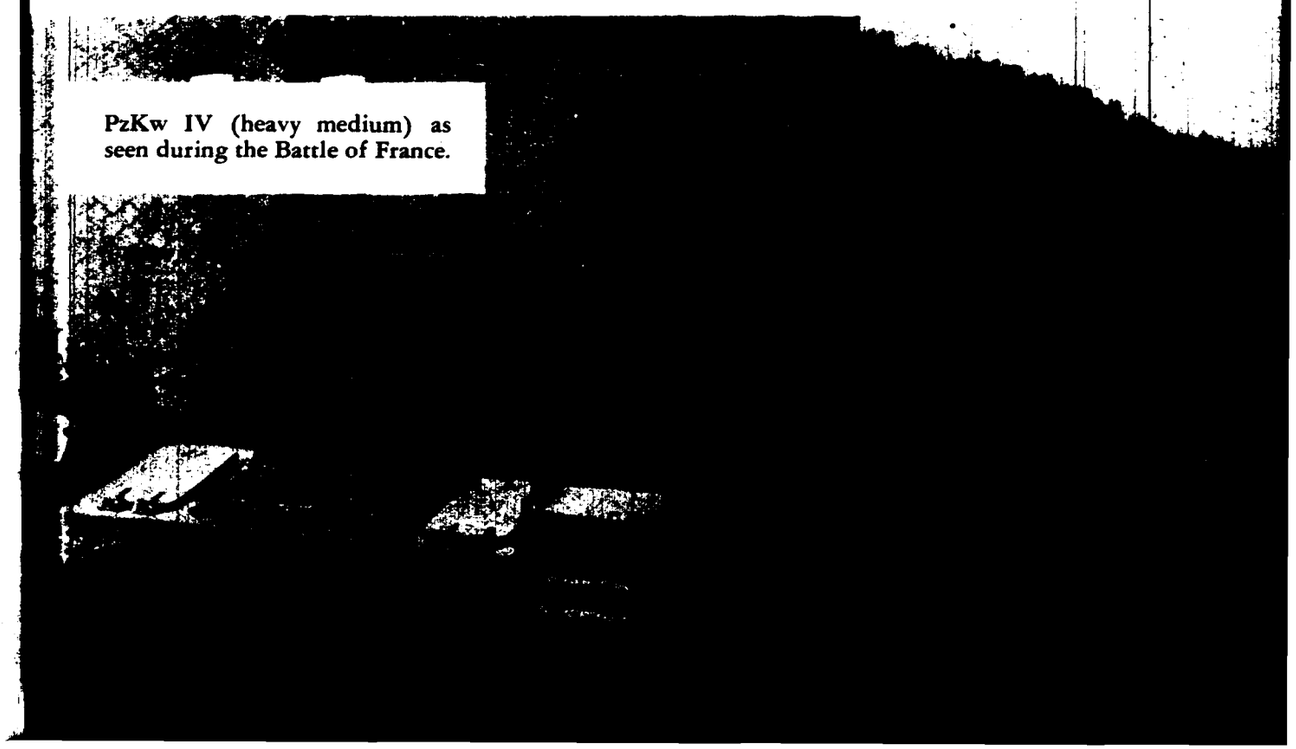
(7) *PzKw VII*. Super-heavy tank
Weight: 90 tons (?)
Crew: 18 (?)
Maximum armor: 90-mm. (3.6 inches)
Armament: 1 105-mm. gun
2 47-mm. guns
4 machine guns
Maximum road speed: 18 m.p.h.
Radius of action: 16 hours

The PzKw I and II (PzKw = *Panzerkampfwagen* = tank), too lightly armored for modern antitank weapons, appear now to be limited to close reconnaissance, security, and liaison missions. In fact, PzKw I seems no longer to be in production. Many of these light tanks, also some mediums, have been converted into antitank and assault artillery weapon-carriers. For major combat purposes, chief reliance is now placed on the medium and heavy tanks, that is on types III, IV, and V. These are very effective vehicles. It is doubtful that the heaviest types (VI and VII) have been issued to units in any quantity. In fact, it is not certain that more than a few of the PzKw VII have been produced.

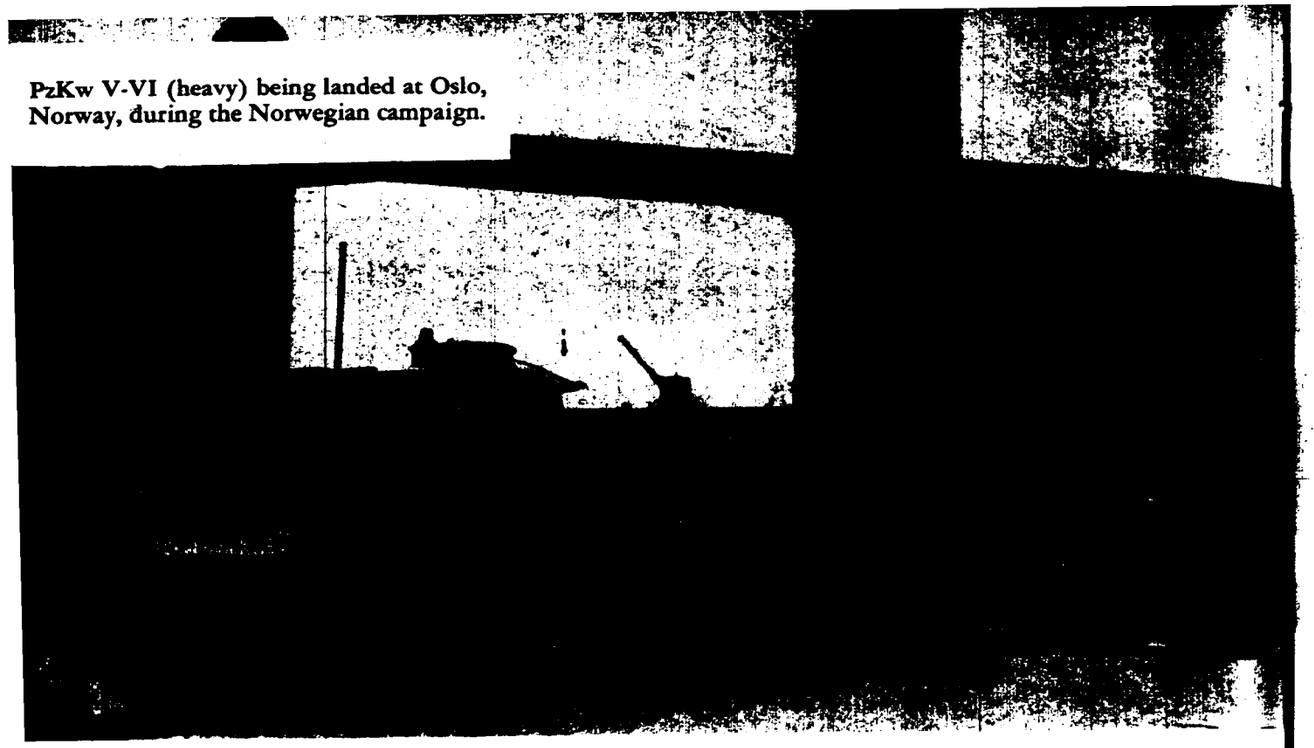
Experiments are said to have been made in transporting light tanks by airplane. That this is at least feasible was demonstrated by the Russians in 1936. But there are technical difficulties involved, and it is not clear that the advantages would be great unless somewhat heavier and better-armed tanks could be transported in sizable numbers. No real evidence had appeared up to November 15 of this year, that plane-transported tanks have been employed in combat. It is also believed that the Germans have several types of amphibian tanks, vehicles useful for reconnaissance and for establishing bridgeheads. Here again, there is no indication that these tanks have been used in great numbers. The Czech and French tanks most likely to be in use by the Germans have the following characteristics:

(1) *TNHP*. Light medium tank. Ex-Czech
Weight: 12.5 tons (?)
Crew: Five
Maximum armor: 50-mm. (2 inches)
Armament: 1 27-mm. gun
2 light machine guns
Maximum road speed: 26 m.p.h.
Radius of action: 125 miles

(2) *CKD V8 H*. Medium. Ex-Czech
Weight: 16.5 tons
Crew: Three or four
Maximum armor: 25-30-mm. (1-1.2 inches)
Armament: 1 47-mm. gun
2 light machine guns
Maximum speed: 27 m.p.h.
Radius of action: 96 miles



PzKw IV (heavy medium) as seen during the Battle of France.



PzKw V-VI (heavy) being landed at Oslo, Norway, during the Norwegian campaign.

(3) *Hotchkiss H 39* Light-medium tank. Ex-French
Weight: 12 tons
Crew: Two or three
Maximum armor: 40-mm. (1.6 inches)
Armament: 1 37-mm. gun
1 light machine gun
Maximum road speed: 26 m.p.h.
Radius of action: 130 miles

(4) *Renault 1937-38*. Light-medium tank. Ex-French
Weight: 12.5 tons
Crew: Two or three
Maximum armor: 60-mm. (2.4 inches)
Armament: 1 37-mm. gun
1 light machine gun
Maximum road speed: 15 m.p.h.
Radius of action: ?

(5) *Somua S35*. Medium tank. Ex-French
Weight: 18 tons
Crew: Three
Maximum armor: 40-mm. (1.6 inches)
Armament: 1 47-mm. gun
1 light machine gun
Maximum road speed: 29 m.p.h.
Radius of action: 140 miles

(6) *Char B*. Heavy tank. Ex-French
Weight: 31 tons
Crew: Four
Maximum armor: 60-mm. (2.4 inches)
Armament: 1 75-mm. gun
1 47-mm. gun
2 light machine guns
Maximum road speed: 17 m.p.h.
Radius of action: 150 miles

It may be that other types of French and Czech tanks are employed by the German Army. Furthermore, French and Czech manufacturers have been producing for the Germans; the quantity of their output, however, is not known. A number of Polish tanks, mostly light weight, also fell into German hands. These vehicles, if used at all, have most likely been converted into gun mounts. It is reported that the French Char B, too, has been modified into an artillery carrier.

The Armored Division in Combat

In the German conception, armored units must exploit to the utmost the speed inherent in tanks. To this end, it is essential to win surprise, to drive forward relentlessly in mass, to give the enemy no time for counter measures. Stubborn centers of resistance are enveloped or by-passed, to be reduced by troops coming up from the rear. Once the armored attack is launched, it must not be slowed down by foot infantry. For that would sacrifice the tank's speed to a dubious security. The armored force is above all an arm of slashing offensive.

But the tank, too, has its limitations. It cannot long hold ground without support. Terrain obstacles—natural and artificial—must be removed or beaten down by supporting troops. It is therefore necessary that these troops be able to move as fast as the tanks. Furthermore, an initial penetration must be hammered at by all arms, maintaining continuous pressure until the enemy's resistance disintegrates and a complete breakthrough is made. It is then, when rear areas are open to maneuver,

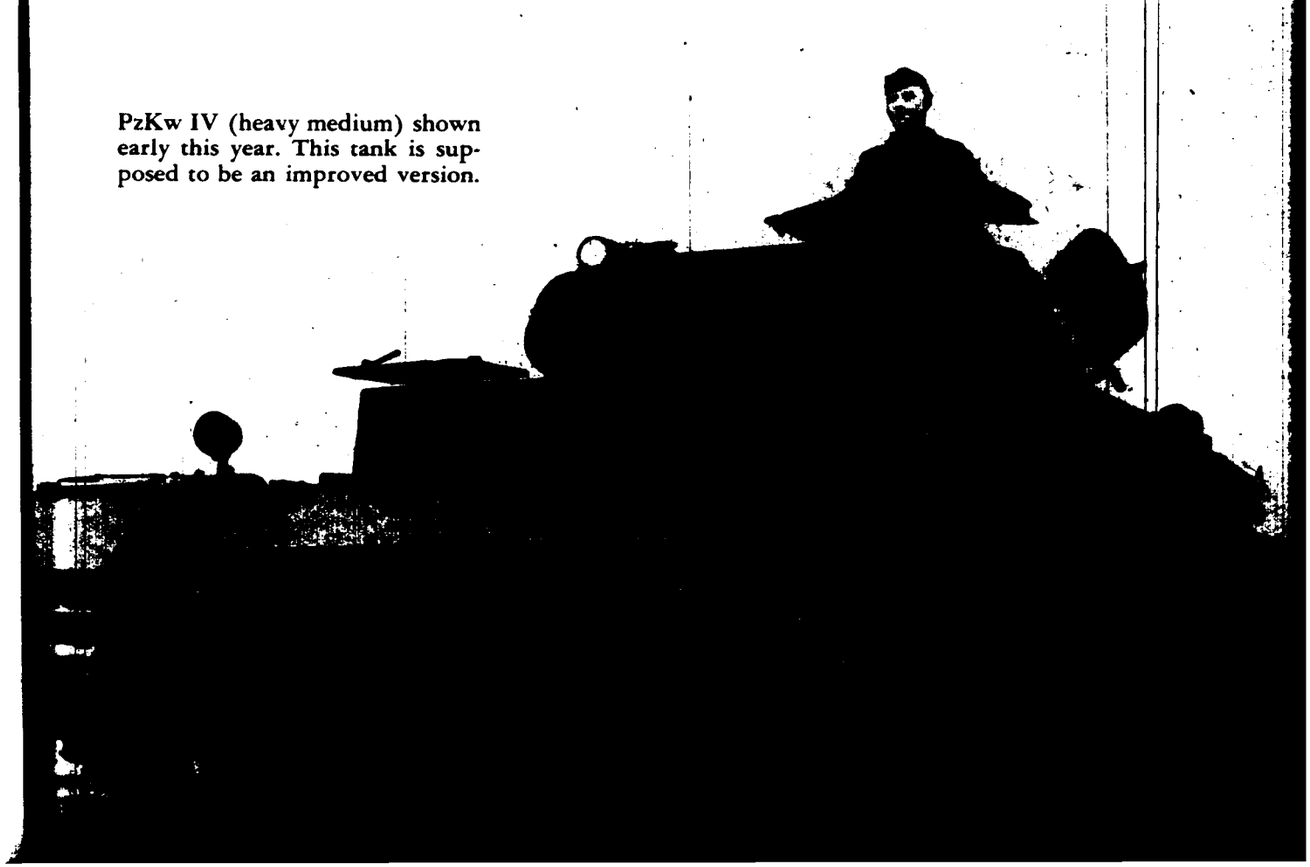
that the strategic possibilities of the armored force can be realized fully.

Obviously, there can be no hard-and-fast application of these principles to specific situations. As always, the ground and the enemy's dispositions must determine the precise mode of attack. The following is a summary of the doctrine on tank warfare as it appears in German commentaries.

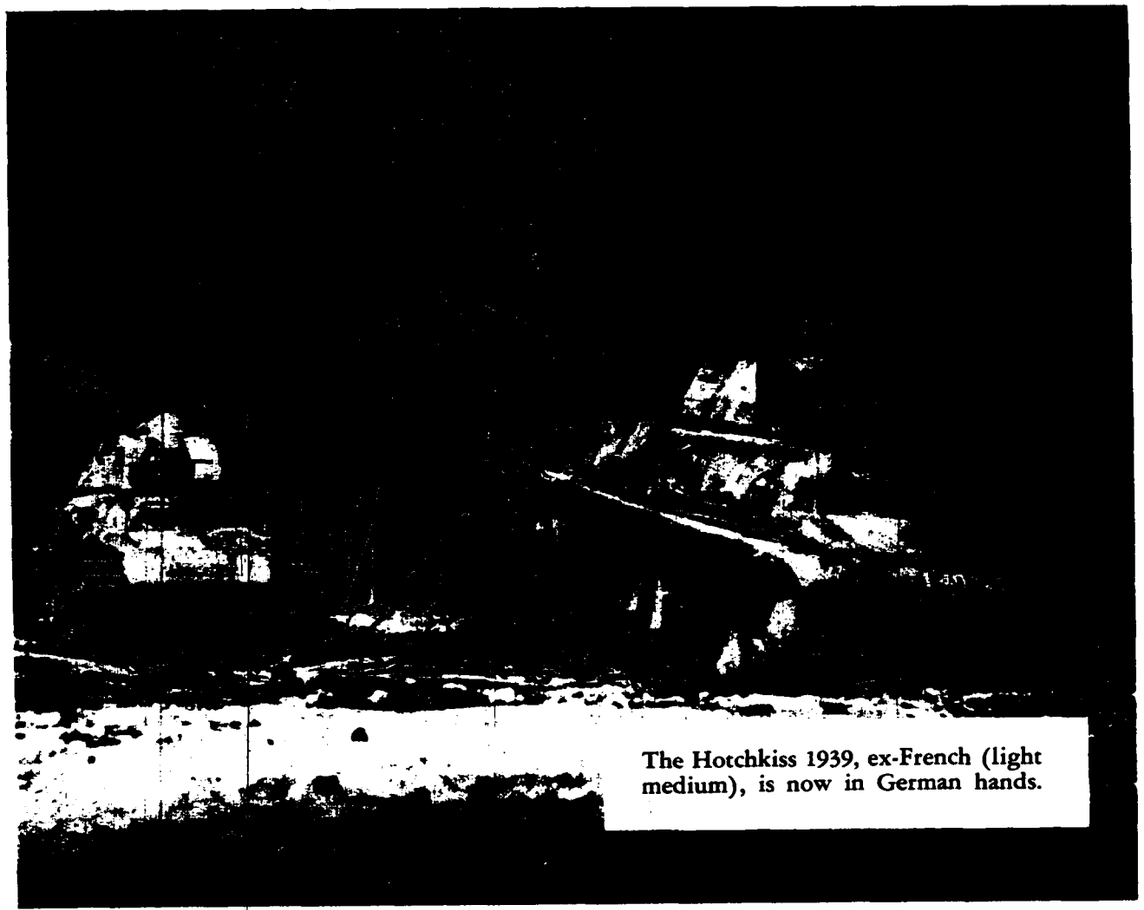
Terrain influences greatly the nature and direction of the tank attack. It is better that tank units advance over favorable ground than that their movements be coördinated with other arms over difficult terrain. At the least, obstacles will slow down the tanks and may rob the attack of surprise. Careful reconnaissance by every available means—including, perhaps, personal air reconnaissance by the tank commander—is therefore essential. Only rarely will the situation justify an attack immediately from the approach march. If obstacles are discovered, means must be found for going around them, or removing or destroying them. This is a task for the support elements. Thus, mines will be removed by the engineers; a river barrier is surmounted by establishment of a bridgehead by the infantry and engineers. Yet these preparations must be held to a necessary minimum. Obviously, too, concealment is important. Tank movements, even at this stage, should be swift. So far as practical, they take place at night. Under certain wind conditions, it may be necessary to blanket the noise of tanks by the sound of artillery fire or low-flying aircraft. Radios are generally not used until the attack begins.

In most cases, a tank attack is decisive only when it is a concentration of force. Against an organized opposition, certainly, the tank brigade will be employed in mass. A brigade of two regiments may have a front of 1-2½ miles, and a depth of 2-3 miles. The tanks are deployed in two or three waves, with intervals of 50-150 yards between vehicles. Once within enemy observation all movements prior to opening fire must be at top speed.

Ideally, the leading wave pushes through the main line of resistance to destroy the enemy antitank and artillery weapons. No effort is made to mop up. But hostile tanks may be encountered. If this is the case, every force must be concentrated on their destruction, for they are the most dangerous foe. Once the enemy's tanks and antitank guns are eliminated, the leading echelon attacks reserves, supply and communications depots, headquarters, and other installations. The objective is to isolate the hostile centers of resistance and make it impossible to send up ammunition and reinforcements. Subsequent tank echelons, which may be accompanied by mobile infantry, attack enemy defensive positions, especially the infantry heavy weapons,



PzKw IV (heavy medium) shown early this year. This tank is supposed to be an improved version.



The Hotchkiss 1939, ex-French (light medium), is now in German hands.

break passages through wire for the infantry, and go on to assist the leading wave in destroying forces in the rear. Tank units must press forward to their individual objectives rapidly. (Again, it is emphasized that the tank's best protection is its speed rather than its armor.) In some cases, however, important terrain features must be held until the infantry arrives.

A main task of the motorized infantry is to give fire support to tank units, to mop up and hold ground overrun by the tanks, and to protect the vehicles when they reassemble. But the infantry must also be ready to break open a route for tanks by finding a soft spot in the hostile position, and by attacking hostile antitank weapons and other defenses that endanger the tanks. In fact, at times—as when the terrain is unfavorable or the situation is obscure—the infantry must attack before the tanks can advance. This has marked disadvantages: The full momentum of the attack may be lost; friendly infantry may be hard for the tanks to locate; coördination between the various arms may be difficult. On the other hand, it is possible that the enemy's scheme of defense will be clarified, that some at least of his antitank guns will be destroyed, and that ground favorable for the tank advance will be captured.

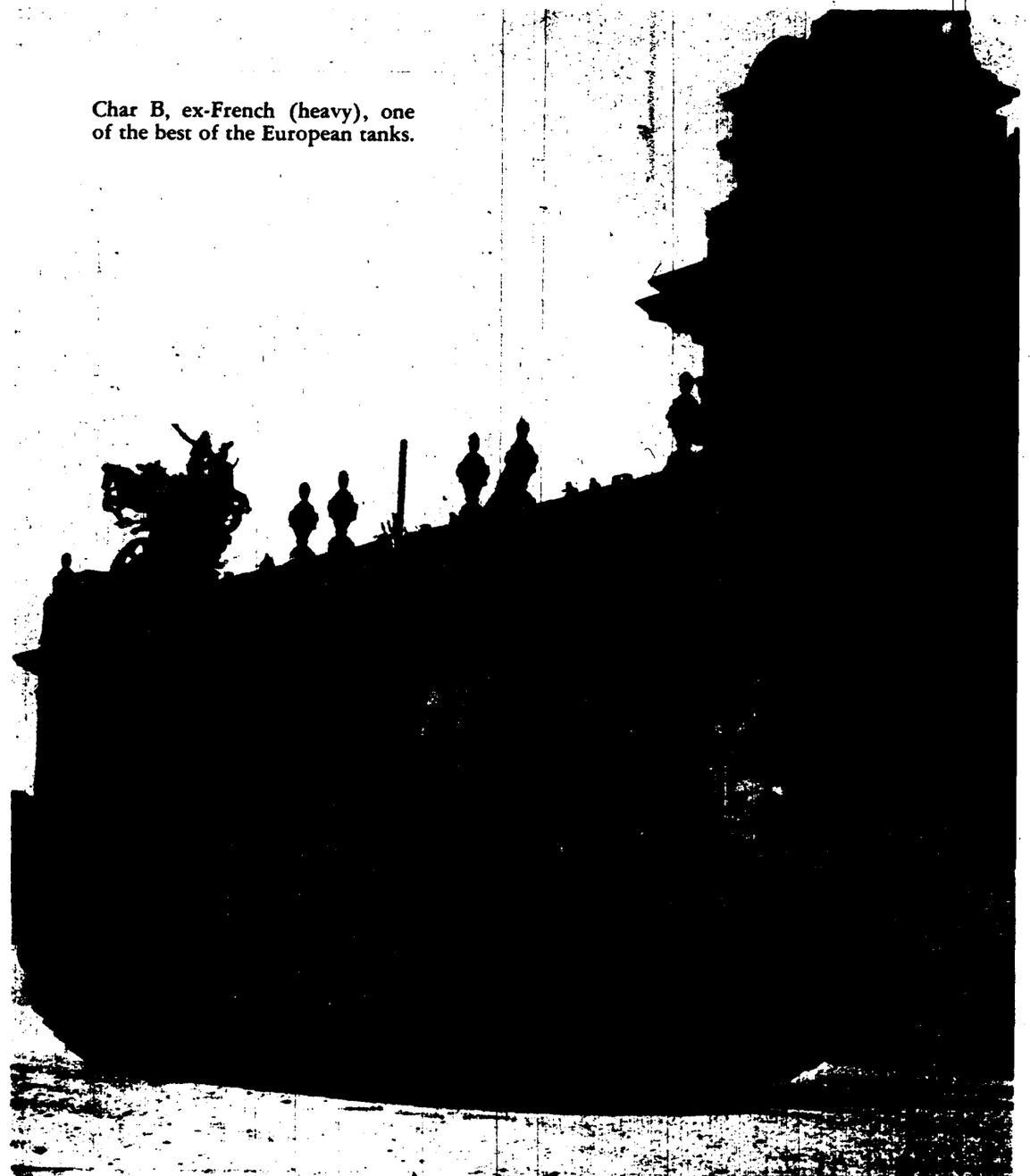
The armored force artillery, itself highly mobile, has as its prime mission the destruction or neutralization of hostile artillery and antitank weapons, observation posts, and tank obstacles. Woods, villages, and other areas unsuited for tank movement should be neutralized. At times, the tank attack may be preceded by a short, intense artillery preparation. During the tank advance artillery must pay especial attention to the flanks of the penetration, covering them with high explosive and smoke projectiles. Self-propelled artillery may actually accompany the tank echelon in order to engage enemy tanks. Antitank and antiaircraft units protect the tanks, particularly when they are most vulnerable to air and ground attack, that is, when they are in assembly areas. Mechanized antitank weapons may also give close support to the tank attack.

Engineers are of great importance in expediting tank movements. They bridge rivers, remove mines laid by friendly as well as hostile troops, and in other ways prepare routes of advance. (General Guderian has stated

that in Poland and France the engineers of his command built 208 bridges with a total length of 5,925 meters; 135 of these bridges had a carrying capacity of 16 tons or more.) During the attack, engineer units may have to keep up with the tanks in order to remove mines promptly, make crossings over trenches, blast barriers, and help stalled vehicles to move on. They may also be used with infantry to reduce prepared positions.

At least a local air superiority is a prerequisite to successful employment of armored formations. Short of

Char B, ex-French (heavy), one of the best of the European tanks.



this, it is unlikely that the essential surprise can be obtained. The supporting air force must be under command of the armored force leader. Air reconnaissance plays an important rôle before and during the attack. Supplemented by fast ground reconnaissance, it helps locate feasible routes for the tanks, enemy concentrations and movements, antitank and artillery emplacements. Bombardment aviation acts as flying artillery. It attacks hostile centers of resistance, antitank obstacles, reserves, and obstacles. Air-borne troops may be landed in the enemy's rear, to seize and hold vital points and then to organize areas of support for the tank breakthrough. Such attacks may also divert the enemy's attention from the armored onslaught.

When tanks break down or are knocked out by enemy weapons and mines, they must be recovered by the maintenance echelon. So far as possible these tanks must be repaired and put back into action promptly. The ultimate decision may well turn on the number of tanks that can be salvaged. Therefore maintenance crews are kept well forward during the attack. Similarly, relief crews are provided whenever feasible. Tank units are reorganized in covered positions. Ammunition, fuel, food, other supplies, and reinforcements are brought up—sometimes by air. Damaged equipment is repaired or replaced. Much of the efficient combat operation of the armored division depends upon its supply and maintenance units.

As soon as the hostile main defenses are pierced, the armored force may attempt a deep incursion into the rear areas. Advanced elements make no effort to occupy or consolidate their gains. They push on rapidly, with little regard for their flanks and communications, prepared to live off the country. The objective is to cut across roads and other routes, to destroy or disrupt reserves and supply installations, to spread general alarm, thus wrecking the enemy's rear organization. The armored force is a powerful means for rapidly exploiting a penetration. German doctrine therefore insists that a faltering enemy must be completely broken up and annihilated by unremitting pursuit.

This, then, is the German panzer division, its organization and the doctrine of its employment. It contains no mysteries. Obviously, hard work has gone into its construction and its successful leadership in battle calls for a high order of ability. These qualities are a monopoly of no army.

Strategy that Encompasses the Globe

We see in Germany today a nation which has been devoted to arms for a period of about seven years. It has been imbued with the offensive spirit completely antagonistic to the defensive attitudes of all of its victims. It has 300 divisions under arms—9 to 10 million men; England has only a fraction of that number; we have 33 and a cavalry brigade. Its air force alone is as large as our entire army. It is estimated that perhaps 100 of its divisions have yet to be engaged in Russia. The tanks and airplanes which Germany can muster on any one day exceed all the tanks and planes which were engaged in all of the last war on all sides. With these weapons Germany wages war on the basis of a strategy that encompasses the globe. People speak of the European war, but today Europe is but a base of operations. It is no accident that Germany in the course of one generation finds herself in two world wars. In spite of all protestations to the contrary, the world feels an urge on the part of Germany toward complete domination, and it is because of this that wars instituted by Germany have a disconcerting way of becoming world wars. Germany knows that the future world belongs to the country which controls the greatest number of strategically situated air and naval bases of the world, and such a concept allows her to draw no geographical lines on which to wage a last ditch fight. It is across the path of this force that we have thrown a challenge.

It is possible to debate the wisdom of that challenge, I suppose, even though it is but a continuation of the debates which took place before and after Munich. I happen to believe that it is a wise and necessary challenge, and that to continue to debate about it is something of a waste of time, but I am *more* concerned that we should realize what large forces are in the field, and that the field is not European but truly world wide and all absorbing. If we think and plan our affairs in any other terms, I fear we are in for a very rude shock and one which is just around the corner.—*The Honorable John J. McCloy*, September, 19, 1941.

Keep 'em Rolling*

EDITOR'S NOTE: The following is an article prepared by Lieutenant Colonel R. N. Atwell, QMC, Commandant, Quartermaster Motor Transport School, Fourth Corps Area, Fort McPherson, Atlanta, Georgia. It's timely publication may assist Commanding Officers in the initiation of corrective measures within their organization.

PUT THE BLAME WHERE IT BELONGS

"TODAY our Army has the largest and finest fleet of motor vehicles that has ever been manufactured and assigned to any military unit. In each vehicle there are a definite number of 'built-in' miles. Whether this be 50,000 or 100,000, it is the duty of every member of the Army to take steps to secure the last mile of this 'built-in' mileage with the least amount of unnecessary repairs. But right now, we find that at least 90% of the vehicles which reach Fourth Echelon Shops are there on account of vehicular abuse, due to careless or thoughtless operation. This can be corrected only through proper education of all concerned; this education, together with the plans for carrying it out effectively, must be promulgated from the top down.

"No commercial fleet operator is ever called upon to have his vehicle perform under the severe conditions of operation that confront the operators of Army fleets of vehicles. Therefore, it behooves us to exert even more care than is usually exercised by commercial fleet operators. We have a more difficult problem at the very start. The majority of the personnel that we receive has had no experience as truck drivers. We put them on vehicles more complicated to operate than commercial vehicles, yet expect them to prove satisfactory. This practice is being carried out in our entire Army. Either the driver is given no training, or the training is so superficial that it is of little value. Hence, we should not be surprised at the thousands of accidents of Army vehicles being dragged into Fourth Echelon Shops. The blame should be placed where it belongs. It begins with the driver and the officer in charge of operation of small fleets of vehicles, as are found in the troop, company, or battery.

"We might as well face this problem now, for if no effort is made to correct existing conditions with the least practicable delay, we will find thousands of vehicles on the dead line a year from now. This is very likely to run to fifty per cent of our total number of vehicles. We must teach our drivers and fleet supervisors to conserve the 'built-in' mileage by careful operation. If we do not, the 'built-in' mileage will be exhausted, long before we should reasonably expect it, through neglect and careless operation.

"By care in operation, we must include proper driving instruction, close supervision, and immediate corrective measures. A standard driver's test should be instituted for the entire Army. No man should be allowed to operate vehicles without supervision of an experienced non-com or exceptionally well qualified private, until he has qualified and passed the standardized test. The instruction should include not only the usual tests for driving, but should include cross-country operation and tests as to the duties of the driver, before, during, and after operation of the vehicle.

"We have little, if any, trouble with the operation and maintenance of machine guns and other automatic weapons. The reason lies in the fact that we have a systematic plan for the care of these weapons. Let us, therefore, put into effect a definite plan, simplified in manner, which will include the duties of the driver.

"Heretofore, we have called this 'First Echelon Maintenance,' but we can make it sound less complicated by simply calling it 'Driver's Duties.' These duties can be listed as follows:

Before Operation:
Check engine, oil, water, gas
Check tire pressure
Check lubrication against mileage since last lubricated
Check oil pressure
Check charging rate of generator
Check for overloading of cargo
Have correction made by 2nd Echelon Shop before taking vehicle out.

During Operation:
Observe oil pressure
Observe generator charging rate
Observe water temperature
Observe engine RPM or tachometer of vehicles so equipped
Note brake action
Note engine performance
Listen for unusual noise in all units.

At Halts:
Check engine oil for proper level
Check for oil leaks front, rear axles, transmission and transfer case
Check for low tire pressure
Check for loose wheel lugs
Check for loose parts
Check for shifting of loads

After Operation:
Refuel and refill radiator

*This Motor Transport Letter emanated from Headquarters Fourth Corps Area, Office of the Quartermaster, Atlanta, Georgia.

Replenish engine oil to proper level
Check water level in battery
Wash vehicle, if necessary
Check steering gear for unusual looseness
Check for oil leaks
Check for loose parts
Lubricate where required
Have 2nd Echelon mechanics make corrections
Park vehicle.

"A gummed sticker should be provided to be placed on the cowl of every vehicle showing miles by speedometer reading when the vehicle was last serviced. A suggested plan for a sticker is shown below:

SERVICED

Check Made	*Speedometer*
Engine Oil	
Transmission	
Transfer Case	
Chassis	
Wheel Bearings	
Springs	
Air Cleaner	
Oil Filter	
Shock Absorbers	
Brakes	
Front Axles	
Rear Axles	
Battery	
Steering Gear	
w/s Wiper	
All lights	
Tires	

A sticker of this nature will not only provide valuable information of the driver, but will facilitate inspection by the officer, fleet operator, and the tactical commander.

"In almost every instance, except probably in pool operation, the suggested checking of the several points can be performed under supervision of the officer in charge of the fleet. In fact, it can and should be done 'by the numbers.' However, when vehicles are operated individually, greater care must be exercised in the selection of drivers, and only such men as have demonstrated ability and dependability should be allowed to drive on individual trips.

"All of this is simply preventive maintenance. The fleet operator must put this maintenance on the highest priority of duties in his organization. It is analogous to proper care of animals in horse cavalry, horse artillery, or wagon trains. No one thinks of personal comforts in these organizations until the animals are cared for. Such should be the case in all motor equipped organizations. No tents should be pitched, no camp made, or mess served until all the vehicles are cared for and 'bedded down.' If such a rule is followed, you will find that the majority of your fleet will be in operating condition all of the time. Wars, such as are being waged today, cannot be won when vehicles are in poor operating condition or are on the dead line.

"Accidents cause a large number of vehicles to be brought to Fourth Echelon Shops. Accidents not only cause the loss of life, loss of a vehicle, and many hours of shop maintenance, but involve hours of investigation and the preparation of administrative reports. There is no such thing as 'an accident-prone driver'; the answer is that the man in question has not learned to drive properly, is not capable of learning, or is simply careless and negligent. In nine cases out of ten, or even more, accidents are due to carelessness or recklessness, and surely recklessness is carelessness. Surveying officers are generally too prone to excuse the driver. If the driver knew he would have to pay the cost of repairs, he would certainly be more careful. In addition to more severe action by surveying officers and boards of investigation, the driver should be 'Grounded'—'One accident and Out' should be the rule.

"Unauthorized use of Army vehicles is doubtless causing an unusual amount of avoidable repairs. In a small town in a maneuver area not long ago at 9:30 PM, it was observed that the streets were filled with parked and running Army vehicles. These included passenger cars, command cars, and trucks. Stores and restaurants were filled with soldiers, but there was not an officer or a Military Police to be found. This condition gave the impression that the authorities were very lax in the control of Government transportation. Vehicles should be dispatched properly for each trip. Inspection for damage to the vehicle should be made by a capable inspector before and after each trip.

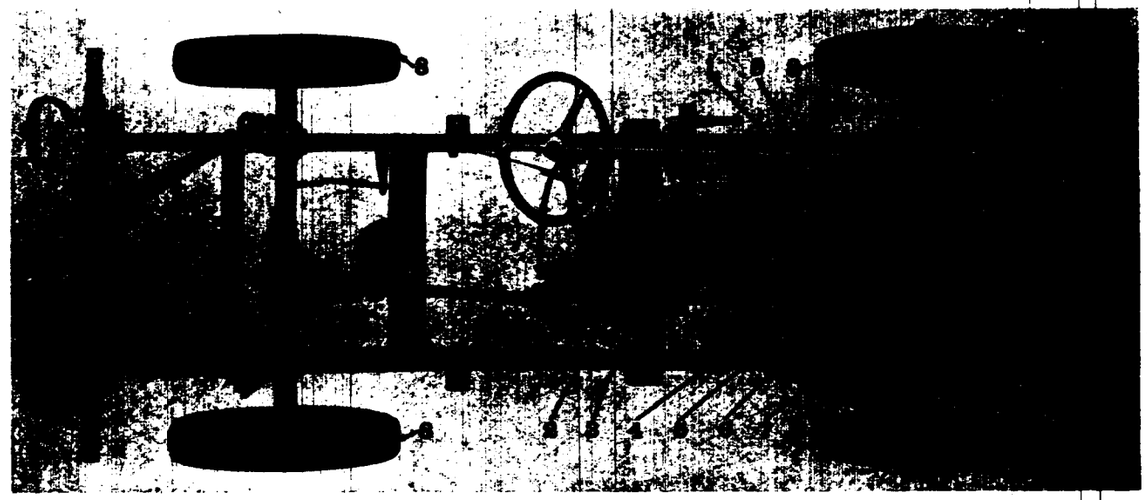
"Routine inspections, such as the 1,000 mile and 6,000 mile inspections, must be conscientiously performed. As a matter of fact, inspections by the Motor Officer and Motor Sergeant should be daily routine. The Motor Officer can readily check the condition of the vehicles as to performance during maneuvers by observation of the vehicle climbing a steep grade on the highway. The Motor Officer and Motor Sergeant should personally drive each vehicle once a month. Immediate corrective measures must be taken on report of failures received from drivers and other operating personnel.

"It is thus seen that the operating personnel can do much to reduce the number of vehicles which find their way into, and many times their end, in the Third and Fourth Echelon Shops. Certainly all the care necessary for long, efficient operation rests with the using services. The care required to properly put back the 'built-in' mileage rests with the Supply Services, namely, the Third and Fourth Echelon Shops."

"KEEP 'EM ROLLING"

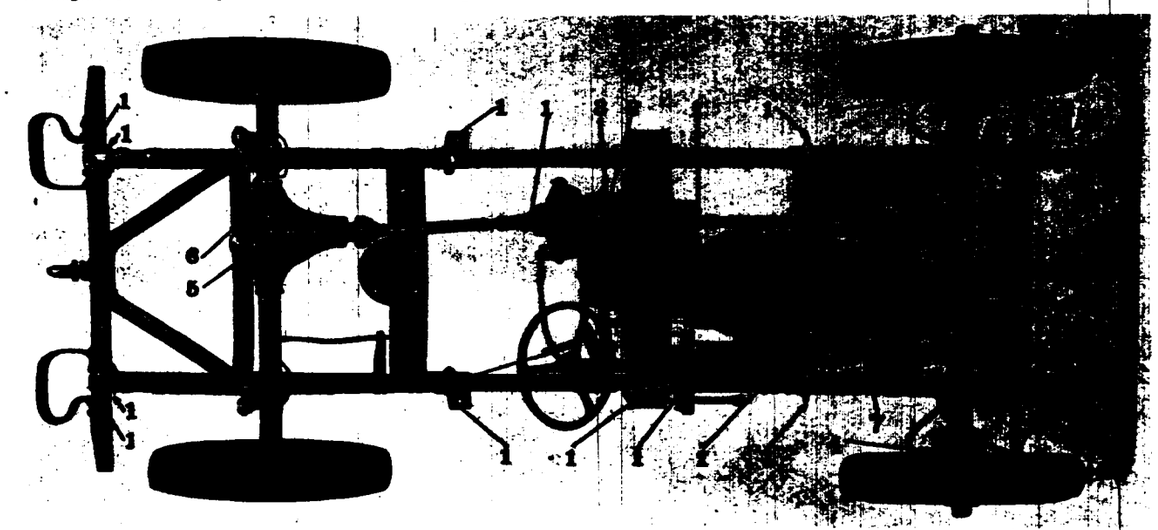
GENERAL CHASSIS LUBRICATION

—WILLYS MODEL ¼-TON 4 X 4 TRUCK★



CHASSIS LUBRICATION CHART, TOP VIEW—FIG. 1

1. Hydraulic Pressure Fittings—Lubricate every 1,000 miles with Compressor S.A.E. NLGI No. 1 Navy NLGI No. 1 Lubricant.
2. Transfer Case Filler Plug—Drain and refill with 3 Pts. S.A.E. 90 Navy 1100, Army 110ᵃ Lubricant every 6,000 miles.
3. Transmission Filler Plug—Drain and refill with 2 Pts. S.A.E. 90 Navy 1100, Army 110ᵃ Lubricant every 6,000 miles.
   Transmission Drain Plug—Remove Skid Plate and Plug in Bottom Transmission Case.
4. Starter Slip Cover Oiler—3 to 5 drops of engine oil every 1,000 miles.
5. Distributor Oil Cup—3 to 5 drops of engine oil every 1,000 miles.
   Distributor Shaft Wick—Under Rotor 3 to 5 drops every 1,000 miles.
6. Engine Oil Filler Pipe—Drain and refill with 5 Qts. S.A.E. 30 Navy 1065 every 2,500 miles in Summer; S.A.E. 30 Navy 2110 in Winter.
7. Generator Oil Cups—3 to 5 drops Engine oil every 1,000 miles.
8. Wheel Bearings—Remove and clean and repack every 6,000 miles with S.A.E.—NLGI No. 1 Navy NLGI No. 1 Lubricant.
9. Steering Gear—Remove plug and check every 1,000 miles—use S.A.E. NLGI No. 1 Navy NLGI No. 1 Lubricant.
   Every 1,000 miles put a few drops of engine oil on all joints and clevises throughout the chassis. Remove Propeller Shaft Universal Joint Bearings—Clean and repack every 12,000 miles with S.A.E. 140, Navy 1120, Army 110ᵃ Lubricant.
   Air Cleaner—Remove and clean and refill with 1 Pt. S.A.E. 50 Navy 1100 Lubricant every 2,000 miles.



CHASSIS LUBRICATION CHART, BOTTOM VIEW—FIG. 2

1. Hydraulic Pressure Fittings—Lubricate every 1,000 miles with compressor S.A.E. NLGI No. 1 Navy NLGI No. 1 Lubricant.
2. Transfer Case Drain Plug—Drain every 6,000 miles.
3. Transfer Case Filler Plug—Fill with 3 pints S.A.E. 90 Navy 1100 Lubricant every 6,000 miles.
4. Front Axle Shaft Universal Joint Filler Plug—Check every 1,000 miles and add lubricant to level of filler plug. Remove, clean, inspect and refill with ½-lb. S.A.E. NLGI No. 1 Navy NLGI No. 1 Lubricant every 12,000 miles.
5. Front and rear Axle Differential Drain Plug—Drain every 6,000 miles.
6. Front and rear Axle Differential Filler Plug—Check every 1,000 miles. Drain and refill with 2½ Pts. S.A.E. 09 EP-Navy Fed. Spec. VVL 761 Class 2 Lubricant every 6,000 miles.
7. Engine Oil Pan Drain Plug—Drain and refill every 2,500 miles.

★These charts were furnished by courtesy of Willys-Overland Motors, Inc., Toledo, Ohio.

Two Cavalry Patrols

With the Smell of Gasoline

By Lieutenant S. McC. Goodwin, 6th Cavalry

THE WARS OF LOUISIANA 1941 will long provide the subject of many bitter controversies, the source of examples both horrible and perfect, the basis of many mimeographs of explanation and correction. Without an attempt to intensify any of these issues but in an effort to present an interesting set of experiences as recorded by a junior officer of cavalry the following accounts are written. Both are taken from the soiled notebook of the officer in question, pages written in pencil, in ink, or for one whole day with a "Phano" china pencil. Many of the inked sheets had been washed by rain or the seepage of human perspiration through a khaki shirt pocket. Some had been written in a moving vehicle shown by the scarcely legible longhand. Arranged in chronological order by their author just as he jotted them down, these notes were certainly not intended for publication. But at our troop mess table one evening, just as the gasoline lantern was lit, we noted the author chuckling over his notebook as he scribbled in a few additional remarks. Our inquiry led to a chance to hear one of the stories those notes could unfold.

The author of that notebook had twice been designated to command a distant officer's patrol, mechanized. For those who doubt that romance is disappearing from the life of gasoline cavalrymen, we present these narratives as an argument. Severing all connections with his regiment, save the power of radio to breach the gap, this officer accompanied by four men on his first trip, two on his second, struck deep into enemy territory before infantry battle lines were formed. Roaming wide across lines of communication, these patrols searched for information vital to the commanders of higher echelons.

But here are the narrative accounts prepared from that patrol leader's notebook. A few preliminary words to orient the general situation have been added before each account.

Distant Officer's Patrol Number Two, Field Exercise IV Army Corps, August 19-20, 1941

The heights of WINNFIELD were the terrain objectives of the invading Red army. By superior air and naval strength that army had made a landing on the LOUISIANA shore of the GULF OF MEXICO. Bridgehead troops had immediately and rapidly begun a push to the north between the MISSISSIPPI and SABINE RIVERS. The advance was unopposed except by unfriendly natives until the line of the RED RIVER was reached. On August 18 the Blue army was known to be concentrating near SHREVEPORT and EL DORADO, ARKANSAS. On 18 August advance elements of Blue force were reported by Red air corps to be occupying the high ground west of WINNFIELD. The 6th Cavalry was moving in advance of the IV Army Corps, Red, composed of but two divisions at this time, the 4th (triangular, motorized) and the 43d.

"My patrol completely equipped in accordance with the several experimental loadings performed in the regiment, spent the night of August 18-19 restlessly sleeping by our two quarter-ton trucks parked not more than two hundred yards from the dim, brown glow of the S-3 tent. We were ready, alerted, as were two other patrols completely equipped parked beneath the scrub pines near by. My radio equipped car was a Willys recently received by the regiment; the SCR 245 mounted in the rear seat was also new. The second car was an American Bantam, one of the first experimental models that in turn had borne the brunt of many experiments performed on it. Without confidence in the ability of that car to withstand punishment, I selected a driver who was a graduate mechanic fresh from the Cavalry School. And in command of this car, as my place was in the radio car, I had chosen an experienced motorcycle scout corporal. My radio operator and the driver of the radio car, which I shall hereafter refer to as car number one, were men selected and assigned to that vehicle for their proven ability as specialists.

"At 6:30 that evening the general situation had been presented to the assembled officers of the regiment. At 3:00 AM I bumped my head on the tree root that was my pillow as I awoke with a start at the roar of a cold motorcycle engine. Assembling around the S-3 tent with many a yawn were all organization commanders.

"Soon we three patrol leaders were called into the source of that brown glow of the tent. Bent over a large map of the area the commanding officer issued his order to each patrol leader. This order to me, in part, was as follows:

a. (1) General situation—No change.

(2) Enemy force estimated one division reported holding high ground west of WINNFIELD along Highway 84.

(3) IV Army Corps, less one division, advancing north along axis Highway 167.

b. The regiment moves at 5:00 AM to reconnoiter high ground west of WINNFIELD to determine strength, identification, disposition of any enemy forces there.

c. Patrol number two, Lieut. Goodwin:

(1) Zone: West boundary, WILLIANA, ATLANTA, GUM SPRINGS, thence north to DUGDEMONA RIVER.

East Boundary, WILLIANA—State Highway 232—COLGRADE—RINGWOOD (all inclusive).

(2) Report location, disposition, and movement of enemy encountered.

(3) Moving in the right of zone attempt to swing around and determine location enemy left (east) flank believed near WINNFIELD. Patrol number 3 swinging farther to east will cooperate in an attempt to locate flank.

(4) As soon as practicable answer questions:

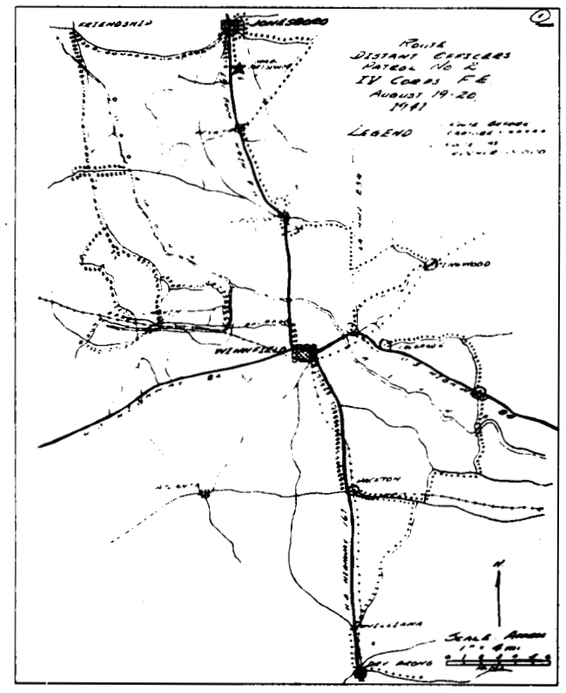
(a) Is PACKTON occupied? If so send message XX-Yes, if not XX-No.

(b) Is COLGRADE occupied?

(c) Is R.J. U.S. 84-LA 234 occupied?

(d) Is RINGWOOD occupied?

(5) Cross O P L R SUMMERFIELD—WILLIANA—BREEZY HILL at 4:40 AM.



Sketch 1

(6) Cross back into friendly territory and locate regimental C.P. not later than 21 August.

d. Your patrol is equipped for three days. Obtain breakfast at troop kitchens before departing.

e. Communications as instructed. Any questions? Move out.

"The patrol crept out of the C.P. now under strict blackout discipline at 4:00 AM. Under the cover of the railroad station at DRY PRONG a final inspection was made of all equipment and orders were issued to the patrol.

"A certain tense anticipation was obvious in each man's enthusiasm. At 4:25 we reached the O.P.L.R. and waited in the shadows of a church yard for the control time of 4:40 AM. The faintest streaks of the dawn were on the eastern horizon as our two engines began purring northward. Car number two preceded, cautiously moving from curve to curve, signalling my car to follow by a flash from a shielded light.

"We made for PACKTON moving as fast as possible. Two hundred yards short of the grade crossing there, the patrol halted. I sent the scout corporal forward to move through the ditch along the road to an observation point while I covered his advance, leaving both cars with a driver ready to move in either direction. A vertical flash from the scout corporal's light indicated no enemy in sight. I moved forward. PACKTON evidently consisted of nothing more than a railroad station and a switch operator's house. As I reached the railroad a column of motorcycles and scout cars passed on the main highway 500 yards to the west. This noise must have warned a sentry of the enemy outpost platoon sleeping on the station platform. Suddenly I could distinguish the figures of drowsy men frantically folding blankets; could hear the starting motors of cold engines. A weapons carrier pulled away from the one road leading into the station.

"Quickly I realized the danger of my situation—that weapons carrier would pass my halted Bantams. The faint light was still in my favor. I called to my scout to follow as I ran toward the cars. As we pulled away I saw a second weapons carrier moving. The first had not seen my cars and apparently fled to the west into the Blue column still passing on the highway. The second carrier turned in my direction. We had a 300-yard lead and a knowledge of the road, having just travelled it. My radio operator frantically sent the message 'XX—yes 5:30 A.' I remembered a country lane where I considered halting at our first crossing of the east-west logging railroad into PACKTON. We turned into that lane, traveled 'til a slight curve cut off observation from the highway, and backed both cars into the woods off the trail ready to jump behind our possible pursuer. Just then a roar and a cloud of dust passed on the road; two minutes later my scout now observing at the entrance to the lane reported a weapons carrier passed

moving west. Our mission accomplished here, the next objective was COLGRADE.

"The route selected for all movement was over unimproved roads throughout this mission. Crossing Highway 84 was ticklish business. A dismounted reconnaissance here disclosed that we had evidently been passed by a detachment from one of the advance reconnaissance troops indicated by a familiar, small, route-marking arrow. We continued, car number two still preceding. Light was now good; the sun was rising. Farmers milking their cows offered no information of military vehicles or men in the vicinity. Among the several churches of COLGRADE there were no signs of any activity. A short distance to the junction of Highway 84 and 234 we found only a filling station, as yet unopened.

"While moving toward RINGWOOD we received a message 'to push aggressively to the northwest to locate enemy's east flank.' As I was near RINGWOOD at that time, I elected to complete my initial mission. Just south of the village I passed a platoon of Troop 'F,' 6th Cavalry, whose reconnaissance had led them directly to RINGWOOD. There was no Blue activity observed or reported in the vicinity. Arrangements were made with the scout car platoon commander to relay my messages to the regiment should my patrol go beyond radio range of the C.P.

"I then plotted a route on the map which would lead to the northwest touching Highway 167 at points from DODSON to RUSTON, then turn southwest behind the DUGDEMONA RIVER. We moved rapidly, bounding from ridge to curve to crossroad. Car number two preceded my car by about 300 yards communicating by visual signals. Our speed averaged about 25 m.p.h. Radio contact was still excellent. The spirit of the patrol was now determined; free of that earlier tenseness.

"Cautiously we entered DODSON concealed the cars among piles of rubbish and inquired among the unfriendly inhabitants. But there was no trace of the enemy here. WYATT was similarly reconnoitered and similarly failed to yield any information. These negative reports tended to make the patrol less cautious as we neared JONESBORO, a town of about 3,000 inhabitants.

"Entering the village from the southeast I selected an open lumber yard as concealment for my cars and moved to position to cover by fire the dismounted reconnaissance of my scout corporal. He returned with negative information. In the meantime I was told by a young boy of high school age that there was still one Blue car and some men concealed in the center of JONESBORO. He would meet me in the center of town and show these Blues to me but he flatly refused to ride in the car with me. I became suspicious but nonetheless inquisitive. Moving cautiously around the town without seeing a sign of military activity, we reëntered, this time from the west. From a position in defilade behind the slight hill on which the parish courthouse was situated I could observe most of the main street. Ah! there in the deep shadow of a narrow alley was a Blue weapons carrier partially concealed by the curious civilians lingering around it. As I reached to get my field glasses the enemy weapons carrier moved forward. We had been seen.

"Quickly I indicated that the two cars were to separate and run for it. With the radio car I turned south on Highway 167. Madly the cars raced down the straight concrete strip as gradually the enemy closed the gap between us. Amidst an exchange of Tommy gun fire, I ordered my driver to jam on his brakes, pull over to the right shoulder, and as the heavy enemy car passed us to spin around in the road and run in the opposite direction. That move caught my pursuer by surprise. I gained about 500 yards, enough to try slipping off to a side road. Selecting a logical place for a lane we turned off to the east. But my choice was poor. Two hundred yards off the highway we ran into a barbed wire fence running through a heavy bog, banked by fallen timber. We were caught. I vaulted the fence but slid gracelessly in the thick mud as I landed on the other side. I picked myself up with the pistol of my pursuer over my shoulder. I was his prisoner. My radio operator had remained at his post and as our fate became obvious he sent this message: 'Patrol now being captured south JONESBORO' at the same time he safely concealed all valuable communication instructions in his possession. The driver attempted to return the fire of the enemy as they closed in upon his car.

"Our captors were evidently part of an isolated combat patrol assigned the task of ambushing any Red troops entering JONESBORO. They returned us under guard to that town. We then moved west to the nearest crossing of the DUGDEMONA RIVER. Here I was ordered to accompany the Blue patrol leader leaving my car and men under guard on the east bank of stream. I travelled north with my captor along the DUGDEMONA perfectly free to observe all installations on that line. I was taken directly to the enemy, infantry division command post at CALVIN, examined by the division G-2, and sent to the forward echelon prisoner enclosure. Several hours later I was evacuated to the rear echelon. At all times I was very courteously treated but viewed as a rare specimen of some strange animal by all who observed my marked uniform.

"At 6:30 PM the evening of August 19 I began a trip back through the Blue infantry lines to be exchanged as a prisoner of war in WINNFIELD. Again I was permitted to observe all installations passed. At 9:30 PM I was unconditionally released and reported immediately to my regimental commander.

"In the meantime the driver and operator in car number one (radio-equipped) took advantage of a fortunate situation. Their guards being weary infantry soldiers fell asleep and thus permitted my men to seize

their arms, obtain the keys to the car and flee. They later joined the advance reconnaissance platoon which I had contacted in RINGWOOD and had the satisfaction of seeing this scout car platoon pursue and capture the remnants of the Blue patrol that had made us their prisoners. Car number two avoided capture until about 2:00 PM when a mechanical failure of the fuel pump let them fall into enemy hands north of JONESBORO. The driver and car were held prisoners for thirty-six hours. My scout corporal was committed to the enemy field hospital as a prisoner, ill with influenza."

Distant Officer's Patrol Number One, III Army Field Exercise September 5-6, 1941

The initial success of the Red IV Corps was short lived. As a bridgehead force the Corps had stepped beyond supporting a distance of the III Army and early in September was attempting to force a breakthrough to the south in an effort to escape virtual encirclement. On September 4, the Corps succeeded in crossing to the south bank of the RED RIVER near ALEXANDRIA, LOUISIANA.

"The 6th Cavalry was bivouacked on the evening of September 4, 1941, at INGLEWOOD. At 6:00 PM the commanding officer explained the situation to his assembled officers. Three officers' patrols each equipped with a single quarter-ton truck (Willys, radio equipped) were alerted at this time. The orders to the regiment arrived from Corps at about 6:45 PM. An hour later I was called to the C.P. and issued a verbal fragmentary order in part as follows:

a. Familiarize yourself with the general situation.

b. (1) Move behind this G Troop section, down Highway 26 to BAYOU COCODRIE. If that outpost section is in contact, request instructions. Be prepared to move both east and west along the bayou.

(2) Determine the "what and where" of any enemy contacted. Be especially alert for any part of the armored force. You are concerned with large groups.

(3) Once south of BAYOU COCODRIE, make ST. LANDRY as quickly as possible. Watch to southeast. Move to VILLE PLATTE and there request further instructions. Check Highway 71 to MORROW. Do not move on main highways.

(4) Contact must be maintained once made. Use radio relay through advance reconnaissance units if necessary. Telephones are available. Watch for air contact.

c. Any questions? Move out.

"Unimpeded by a second car that had proven of no particular value on my first patrol other than a convenient method of carrying supplies, I departed from the command post at 8:15 PM; with a heavily loaded car, the same driver as on my first mission, a new radio operator.

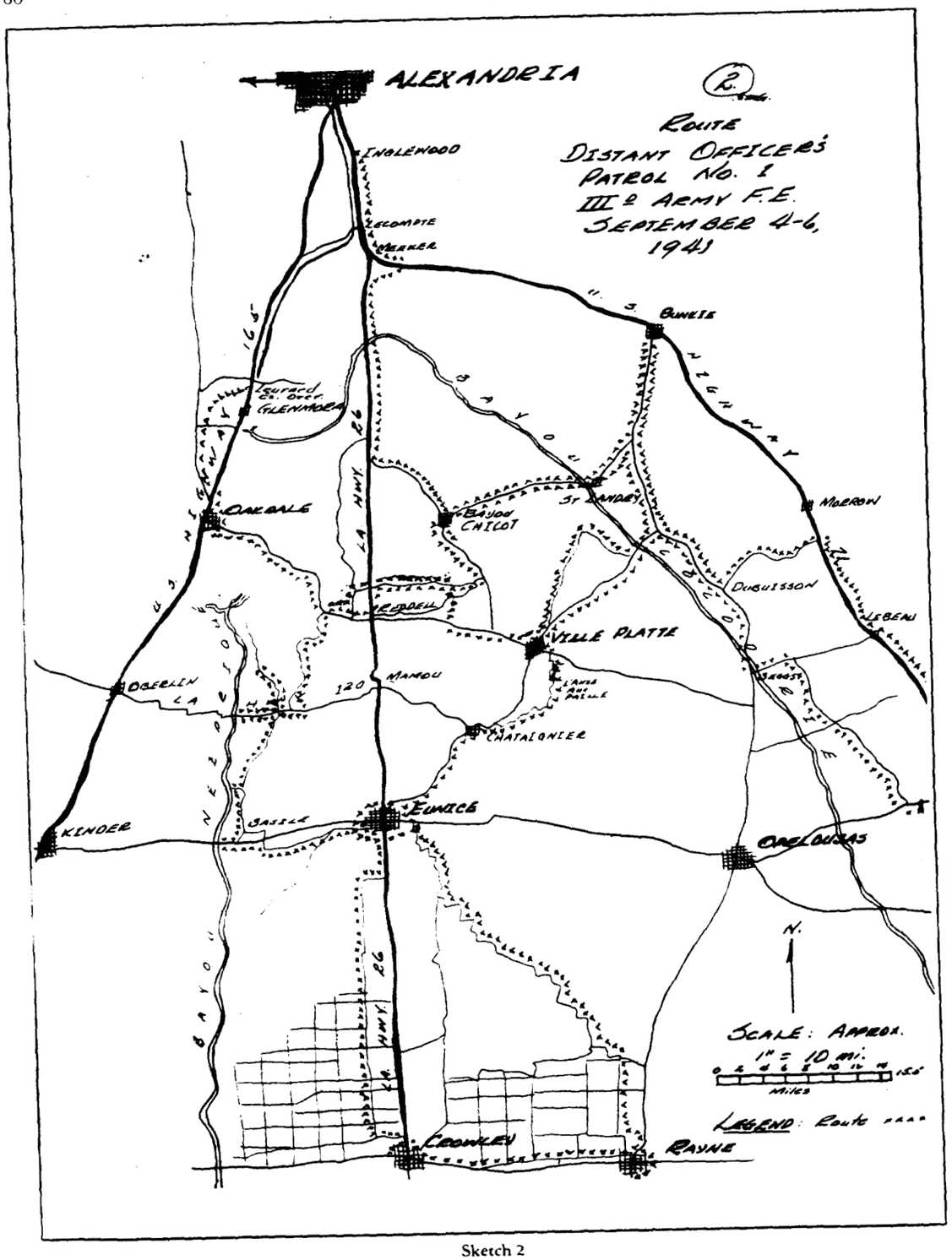
"We crossed through the local outpost line and reached the picket at BAYOU COCODRIE at 9:30 PM. This was swampy country where rice and sugar cane were the main products grown in the rich soil. Most of the roads were virtual causeways through swamps and tall fields of sugar cane rising eight to ten feet. The moon was full; a romantic night from the pages of fiction. The Red platoon at BAYOU COCODRIE had made no contact up to this time. We attempted here to make a radio report in accordance with a schedule arranged with the communications officer. Contact was impossible. Throughout this patrol radio contact was extremely difficult. Local electrical disturbance and constantly fading signals overcame the most persistent efforts of my radio operator on all but two occasions. We cleared no incoming message during this mission.

"During the entire night of September 4-5, 1941, we cautiously searched from village to village moving generally southeast. At no time did we contact any Blue troops or receive reports of their presence from friendly natives.

"A protracted halt was made in VILLE PLATTE at 6:30 AM. Here we erected a flat top antenna in an effort to establish radio communication. At 7:20 AM a signal was discerned in the static. At 8:15 while still attempting to clear a message, a section of enemy scout cars slowly and deliberately cruised through VILLE PLATTE on Highway 22, moving southeast. We were not observed.

"I verified the direction of movement of that enemy section, apparently toward OPELOUSAS. With the possibility that this single detachment might be part of a reconnaissance screen covering a mechanized movement west to east deep in this enemy territory, I turned again to the south with EUNICE as my objective via L'ANSE AUX PAILLE and CHATAIGNIER. We were deep in French Louisiana farmlands amidst a wonderfully hospitable people who were fascinated by our strange vehicle. But we were the only 'soldats' they had seen.

"We reached the vicinity of EUNICE at 11:30 AM. While successively checking the highways into and out of the town, a convoy of three trucks was observed moving into EUNICE on Highway 190. A position of observation about seventy-five yards south of Highway 190 was selected in the yard of an unoccupied farm house. Here for three hours we maintained constant observation on the highway. We were on a rear cross-communication route. Cargo trucks passed at irregular intervals going in both directions. Few actual troops were moving on this route. A message reporting the patrol's position was cleared at 1:00 PM just after a brief thunder shower. At 1:30 PM I left my driver in observation, and with the radio operator moved via section



Sketch 2

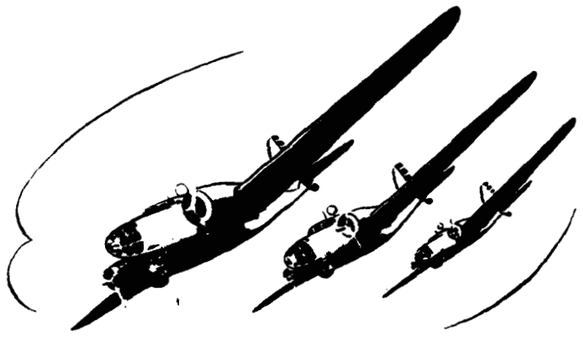
line roads to RAYNE and CROWLEY. Both places were unoccupied; the inhabitants of both had seen only an occasional army truck; were startled by my inquiry about tanks, 'army tractor.'

"On returning to EUNICE each member of the patrol was able to sleep for an hour. As darkness fell we began slowly moving to the west parallel to Highway 190. Unexpectedly at BAYOU NEZPRIQUE we were challenged by a sentry. Our answer was a quick turn into a country lane. A dismounted reconnaissance revealed a strong road block at the bridge over the bayou. I elected to try other possible crossings to the north. An indicated crossing north of BASILE ended in an impassable swamp. The crossing of Highway 120 was held by an enemy squad. We attempted to make a prisoner of drowsy sentry at this bridge, but he awoke with a start sounding the alarm as we fled to the east. We found a motorcycle section guarding the bridge over the east fork of the stream which forms the headwaters of BAYOU NEZPRIQUE. The road was impassable into and beyond their position. Exhausted, we concealed ourselves behind a country school house and each man slept for three hours.

"Soon after resuming our route to the north at dawn we emptied our last two and one-half gallon reserve tank of gasoline into the main tank. Our range was at most seventy-five miles. We were, to the best of my knowledge, that far from the nearest friendly troops. Certainly the time had come to return to friendly territory. We began a slow movement northward.

"At BAYOU CHICOT we halted to again attempt communication with the regiment. As my operator tried to pick the code from the roar of static, I learned from natives of the concentrations of Blue troops that had been in this vicinity the day before. No Red troops had been seen. So we started northeast toward INGLEWOOD via familiar roads through ST. LANDRY.

"Unknown to me as I travelled cautiously along rutted, country lanes, an armistice was signed at 9:00 AM that day, September 6, 1941, by the commanders of each force. We stalked a squadron of portée cavalry until 3:00 PM that afternoon purchasing gasoline for the purpose. At 5:00 we learned of the armistice. At 7:00 PM I fortunately located a vehicle from the 6th Cavalry in ALEXANDRIA and received directions to the command post which had been forced back to the south bank of the RED RIVER. In forty-eight hours my patrol had roamed 504 miles through hostile lines reaching at one time a position opposite enemy corps command posts. All information of armored forces reported was negative and correctly so. All armored units of the Blue army were employed west of the zone of my patrol."



Dive Bomber Tactics

A few words are necessary on the tactics employed by the power-dive bombers in attacking objectives protected by antiaircraft artillery. A group of five airplanes, two of which are power-dive machines, approach the target at an altitude closely within maximum range of the antiaircraft fire. The power-dive bombers then immediately descend upon the target, acting as if they had been hit by the antiaircraft fire below. The fire of the antiaircraft artillery is then concentrated on the airplanes continuing their flight—meanwhile the power-dive bombers complete their bombing missions.—*Krasnaya Zvyedza*, Moscow.

Evolution of the Horse*

By Captain Robert A. Boyce, Veterinary Corps

THE horse came into being about 55 million years ago. The possible progenitor of the horse is the Phenacadus, a 5-toed creature about the size of our common cat. The probable progenitor is the Eohippus, commonly spoken of as "The dawn horse." This horse was about the size of a fox, and had 4 toes in front and 3 behind. A vestige of the fifth toe was found in front. This horse roamed both the Eastern and Western Hemispheres.

Forty million years ago, the horse was about the size of the Whippet, and all visible trace of the fifth toe had disappeared.

Thirty-five million years ago, the horse was walking on 3 toes, front and hind. A vestige of the first digit was found in front. This horse was about the size of a sheep and had a span of life of only about 6 years because of his low-crowned teeth. It has been noted that the second and fourth digits were rapidly decreasing in size and that the third was increasing in size.

About 19 million years ago, there was a marked increase in the size of the second and fourth digits as the horse was living in marshy lands and these digits were coming back into use.

Then about 10 million years ago, there was again a marked decrease in the size of the second and fourth digits. Also, the teeth were higher crowned, which increased the span of life of the horse. By this time the height had increased to about 3 feet. Then all of the horses of the Eastern Hemisphere died off and the entire horse population of the world was here in North America.

About 7 million years ago, the horse started walking on 1 toe (the third), and the second and fourth became mere splints. So, here we have the progenitor of the modern horse.

In the beginning of the fourth Glacial Period, about 250,000 years ago, many of the horses migrated to Asia and North Africa by crossing over the stretch of land that is now covered by the Behring Strait; some wandered south to South America. Those remaining here perished in the snow and ice that became several hundred feet deep. All that went to South America soon died off, but those that migrated to Asia and North Africa prospered. So now we have the entire horse population of the world in Asia and North Africa.

About 2000 B.C., the Lybians were breaking and training the horse of North Africa. This horse later became known as the Arabian, and has been used to improve the common horse of Europe for centuries.

At the present time there is only one group of wild horses in the world, the Equnus Pravasky, found on the steppes of Russia. This is a blocky, dun-colored horse, standing not more than 13 hands, and has a grey beard.

The so-called wild horse or western bronc of this country is not a true wild horse but a modern horse brought to this country by the Spaniard and set free. It is known that horses were brought over by Cortez in 1519, De Vaca in 1527, and De Soto in 1541. These horses were Barbs that were bred in Spain.

Our modern horse still carries some vestiges of the pre-historic horse, namely the chestnuts, the splints and the ergots.

Man has brought about great changes in the conformation and temperament of the horse through his selection of sires and dams, and has thus established various breeds of horses. The oldest breed known is the Arabian; principal colors bay, brown, chestnut and grey. Black is a very rare color, and dun is unknown; seldom is higher than 14/2 or 14/3, and weighs from 850 to 950 pounds. The tail is set very high and carried to one side; handsome head, with broad forehead, large kind eyes, straight or concave face line, large nostrils, well carried ears and the head is carried a trifle high. His hocks are the chief point of weakness.

The Thoroughbred is the English running race horse, originated about 1660 when Charles II imported the Royal or Barb Mares. The other foundation horses of the breed are the Byerley Turk, Imp. 1689, the Darby Arabian, 1706, and the Godolphin Barb, 1724.

This breed represents the speed type in the extreme, having a straight face line, long lean neck, walk and trot low and pointing and has been used to improve all breeds except the draft. Bay and chestnut with more or less white markings are the common colors. Typical weight is about 1000 pounds and stand from 15 to 16 hands.

The Standard Breed is the harness racing type. Messinger and Justin Morgan were the progenitors of this breed which was founded on speed about 1790. To be registered as a Standard Breed the horse must trot a mile in 2:30 or pace a mile in 2:25. These horses are of all colors, sizes and shapes, but a uniform type is gradually being evolved.

The Hackney Breed was founded about 1760, by Shales, Son of Blaze, a Thoroughbred out of a hunting mare. This was formerly a road horse, but is known chiefly as a harness show horse. This breed is characterized by short legs, rarely standing over 15/3 hands. The head is square in outline, deep in jowl; neck well crested and heavy, and a heavy forehead. High flexion of knees and hocks. Chestnut color with flashy white

*Courtesy, *The Veterinary Bulletin*, July, 1941.

markings all around are most common, although bays, browns, blacks and roans are acceptable.

The Morgan type, founded by Justin Morgan, was foaled in Springfield, Massachusetts, in 1789. This was a small horse, about 14/2 and weighing 950 lbs. The colors of this breed are bay, brown, and black and chestnut; stands 15 hands or under; very compact; short, strong back, a broad head, short heavy neck, short legs.

The American Saddle Breed horse, during the days of the Western frontier was a source of excellent transportation, but now he is used chiefly as a show horse. This breed of horse was founded by crossing a Thoroughbred top line with native saddle mares. This horse is characterized by its "stand-up" appearance; has a flashy way of moving, with head and tail carried high.

The best known breeds of the draft horse type are Percheron, Belgian, Clydesdale, Shire and Suffolk. From 55 B. C. to the 18th century the draft horse was the war horse of Europe; first used to pull the chariots; later to carry infantry troops to the field of battle, and later still as a cavalry horse. Due to the fact that when used as a cavalry horse the mounted men were clad in heavy armor, and later both horse and rider were protected with armor, it was necessary to have horses of great size and strength. Up to the 18th century draft work was done by oxen or horses unfit for war service, but during the 18th century the draft horse was used as a beast of burden and has been used as such ever since.

The Shetland pony is really a draft horse type, but his growth has been stunted for centuries because of poor forage. The standard height of this pony is 42". The colors are solid, black or cinnamon brown being most common. Many ponies of this breed are of very poor conformation.

The Western Bronc, which is really a Spanish Barb is small, wiry and tough.

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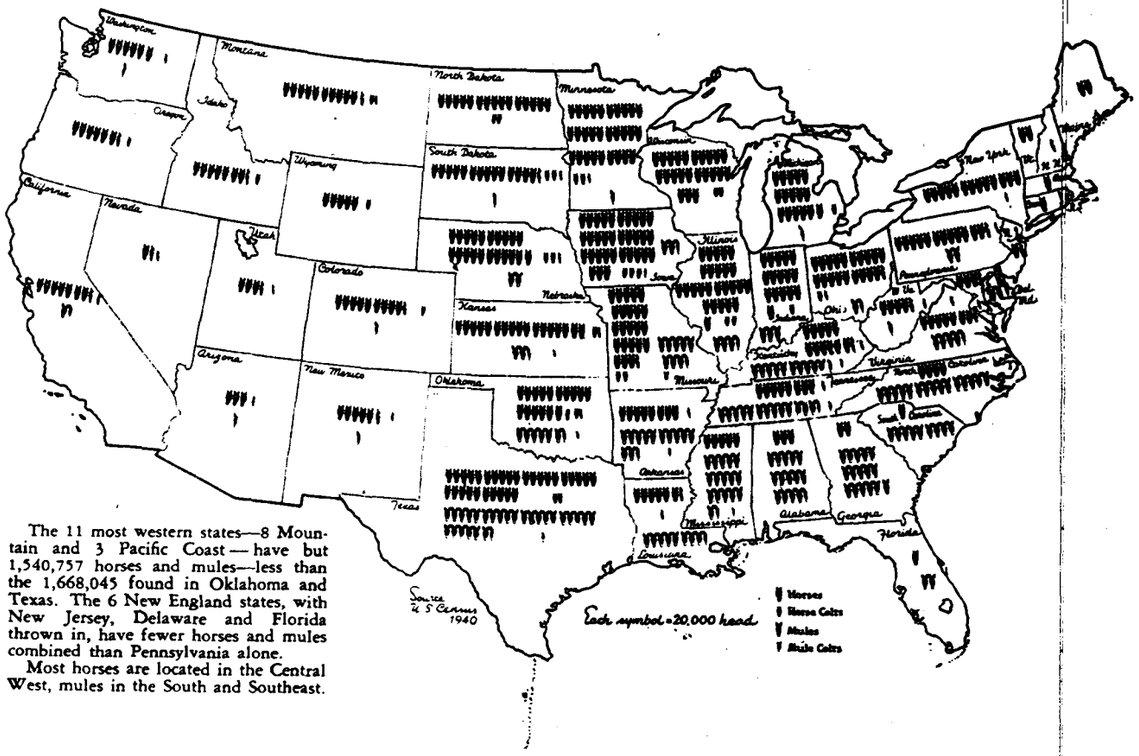
Distribution of Horses and Mules



The 11 most western states—8 Mountain and 3 Pacific Coast—have but 1,540,757 horses and mules—less than the 1,668,045 found in Oklahoma and Texas. The 6 New England states, with New Jersey, Delaware and Florida thrown in, have fewer horses and mules combined than Pennsylvania alone.

Most horses are located in the Central West, mules in the South and Southeast.

Purpose of Remount Service Breeding Plan

By Major F. L. Hamilton, Q.M.C.*

THE REMOUNT SERVICE, a Division of the Quartermaster Corps, is an integral part of our National Defense Machinery. As such, the activities of the Remount Service can be justified only when they contribute directly or indirectly to the preparedness of the Nation. The Army Breeding Plan is a part of long range preparedness planning, looking to future as well as immediate security. These long range plans, in the case of the United States with its peculiar geography and uncertain fields of military operations, must be general and all-inclusive in the extreme. It is impossible to predict where, when, or under what circumstances the Nation might be compelled to fight. It is not enough for the people in the United States to follow the fashion of the present times resulting from a deliberate choice of time, place, and terrain by aggressor nations, and to prepare mechanically to the exclusion of all else. It is necessary also, in a small way, looking toward the innumerable possibilities of the future, to give some thought to horse preparedness.

That is the mission of the Remount Service and the purpose of its breeding plan. In the operation of this plan there is, of course, a limit to what can be done. Stallions can be supplied to civilian breeders; information can be disseminated; and some encouragement can be given breeders through limited purchase of military horses. Thereafter, one relies, in accordance with God-given democratic practices, upon the cheerful, voluntary work of civilian associates to produce and to use good horses that might be made available to the defense forces in an emergency.

The Remount Service makes no pretense of dictating to any state or community the kind or type of horses to use or to produce. It is recognized that the military service must, to a large degree, adjust itself to the economic life of the nation at peace, and that the Army must in wartime adapt to military uses the livestock that farmers and ranchmen have produced in the course of their normal peacetime endeavors.

Suitable military horses are to be found in practically all sections of the country and in use in a great variety of ways. Pleasure horses, hunters, race horses, polo horses, stock horses, light farm horses; all are readily absorbed by the military service, provided they possess in common those qualifications so essential to any *good* light horse: They must be good tempered horses and they must be durable.

*Officer in Charge, Southwestern Remount Area.

Temperament is occasionally the result of breeding, but often it is a reflection of the temperament or the horsemanship of owners and handlers. Durability is the result of type and conformation, raising, and of training. If the type of the horse is such that it wears a saddle comfortably; if it is so shaped that it is naturally balanced and light on its feet with weight on its back; if it travels straight and freely at the walk, trot, and gallop; if it has been so raised that at maturity it is a horse of substance and strength; and if its respiratory and circulatory systems have been developed through intelligent work and use, it is almost certain to be a durable horse.

With the hope of improving these qualities, the Remount Service places mostly thoroughbred stallions* with civilian agents. This is done with the firm conviction that the thoroughbred is the proper foundation from which to develop light horses for any particular or general purpose. The past proves it so. Practically all the light horse breeds, worthy of a name, have their tap roots in thoroughbred ancestry. *Messenger*, a thoroughbred, was the foundation sire of standard or trotting bred horses. *Denmark*, a thoroughbred, fathered the famous American saddle horse. *Steeldust*, all controversy aside, was probably a thoroughbred or nearly so. The same may be said of *Justin Morgan*.

These facts, together with the great improvement in the horses of this country during the past twenty years, resulting from the use of Remount Stallions, furnish ample physical evidence that the Army's breeding plan is sound.

There is an awareness at this time, however, of an unsatisfactory trend. It now becomes apparent that *in some sections* there is a limit to the number of thoroughbred crosses that can profitably be put on native mares. Originally, the thoroughbred springs from small, slight, desert-bred horses that in their natural habitat are little more than ponies. Through generations of forced feeding and care, almost to the point of pampering, the thoroughbred has come to have considerable size. Deprived of this feed and care and left to make his own rough way the breed is likely to revert to type and become small and weedy.

To derive the maximum benefit from these stallions;

*The Remount Service at present has 724 stallions dispersed throughout the United States which are used in carrying out the Army Horse Breeding Plan. As to breeds, these stallions are divided as follows: Thoroughbred, 686; Arabian, 18; Morgan, 15; Saddlefield, 4; and Cleveland Bay, 1.

Every horse in this picture was sired by a Remount stallion.

to develop a line of horses suitable to local needs; to produce horses that will find a reasonable market; and to help in placing a military reserve of suitable horses in the country—individual breeders should look farther ahead. While the Remount Service can continue to furnish stallions, the mere pouring of blood in at the top will not insure the production of good horses. Selection of brood stock, proper matings, and a long period of adaptation, blending, and absorption is necessary if anything worth while is to be produced.

Strangely enough, the improvement resulting from breeding to thoroughbred stallions is most obvious and most encouraging in the first cross. Bred to a big, straight, roomy mare, the resulting half-bred generally shows an unbelievable improvement. From there on, the number of crosses that can be made with profit and pleasure will depend almost entirely on the amount of intelligent care and feed that can be given to the growing colts; especially during their first two winters.

It is the hope of the Remount Service that those who take pride in the ownership of nice horses, and who have the experience and facilities necessary to produce them, will make full use of Government stallions, to the end that the light horses of the country may become military assets available to the armed forces in an emergency.

Pure-Bred Horses Donated to Army

DONATION of 12 pure-bred Arabian horses to the Army by the Arabian Horse Club of America, Chicago, Illinois, was announced recently by the War Department. The horses were delivered to the Robinson Remount Depot, operated by the Quartermaster Corps at Fort Robinson, Nebraska.

Eight mares, two fillies, a stallion and a colt were given to the Army. The step was taken, according to the club, not only to assist the national defense effort, but also to perpetuate the Arabian strain which is being seriously threatened by the European War.

By careful breeding for more than 3,500 years the Arabian has developed as a superior type of saddle horse. Arabian blood is the foundation of the thoroughbred and other modern breeds of riding horses. Mares mature when about five years old and stallions when six years old, but they often live to be 30 years old.

Arabian colts are considered by horsemen as easy to train. Courageous and high-spirited, the Arabian horse usually is unafraid of men, noises, and other animals.

Members of the Arabian Horse Club of America who made donations and the names of the horses are:

From Mr. Henry B. Babson, Chicago, Illinois, bay mare, *Fadahman*. From Mr. J. M. Dickinson, Franklin, Tennessee, chestnut mare, *Babolna* and chestnut colt, *Mazeppa*, foal of 1941. From Mr. A. W. Harris, Chicago, Illinois, grey mares, *Horma* and *Kehefe*; bay mare, *Niht*; and bay stallion, *Katar*. From Mr. W. K. Kellogg, Pomona, California, grey filly, *Sonata*; chestnut filly, *Rifnetta*, and chestnut mare, *Surana*. From Mr. Roger A. Selby, Portsmouth, Ohio, chestnut mare, *Mirzaia*. From Mr. L. W. Van Vleet, Denver, Colorado, grey mare, *Ragia*.

Troop B, 252d QM. SQ. (Remount) On Maneuvers

By Captain James P. Burns, Quartermaster Corps

ON April 28, 1941, the first Remount Troop since World War I was activated at Fort Robinson, Crawford, Nebraska. The enlisted personnel consisted of young men, primarily from the states of Missouri and Nebraska, who had received no training at a Replacement Center. Officers were Reserve officers from the states of California, Kansas, South Dakota, Utah, and Virginia. After intensive training under ideal conditions, but only for three months, this troop was ordered to Louisiana to participate in the maneuvers.

On August 5, 1941, a permanent change of station from Fort Robinson, Nebraska to Fort Bliss, Texas, and a temporary change of station to the Army Maneuver Area (ARARAT, LA.), were ordered for Troop B, 252d Quartermaster Squadron (Remount). The troop was assigned to the Third Army.

The Troop movement was accomplished by troop train (four officers and 174 enlisted men, Captain James P. Burns, commanding) and truck convoy, (1 officer, 3 enlisted men and 2 trucks) without incident. The Troop went into the field without the following Table of Basic Allowance equipment: one half-ton pickup-truck, one motorcycle with side car, one 1½-ton cargo truck (left at Fort Robinson for repairs) and one two-horse trailer. Throughout the period of the maneuver the Troop was equipped with one inadequate, old style, wood-burning field range. This was also used to mess the outfit while on the train. This field range has been replaced with three gas-burning ranges since our return to Fort Bliss.

The Troop arrived at ARARAT at 10:15 PM on August 7th and because of surrounding swamps, bivouacked along a road bed. Every effort had been made to contact the Third Army Headquarters but no one in authority could be located. Contact was established with Third Army Headquarters early August 8th, and the Troop moved by motor transport to a bivouac area north of REEVES, LA. The period August 8th to 13th was spent at REEVES. A picket line area and bivouac area were cleaned out and a water point was built on an adjoining creek. The motor convoy from Fort Robinson joined at REEVES on August 11th. On August 14th the Troop was ordered to a bivouac area southeast of SEALE, LA. The move was accomplished by motor transport (Motor Pool Third Army) without incident. The period August 15th to September 2nd was spent in the bivouac area at SEALE. During this period 676 animals were received and 339 animals were issued.

On August 15th a long-contemplated reorganization of the Troop was effected. A horse record section was established, and the following system of identification was set up: each Cavalry Regiment, Field Artillery Battalion and Separate Troop was assigned a color, and a short piece of yarn of this color was tied into the halter of each animal received; this was left on when the animal was shipped. A copy of the color code was furnished the 1st Cavalry Division veterinary officer who was in charge of evacuating and receiving 1st Cavalry Division animals. A horse record card system similar to that used at a Remount Depot was also put into effect. These two systems enabled the Troop to complete the maneuver without an instance of a lost animal. Each training platoon was assigned all animals from certain front line units and kept this assignment for the duration of the maneuver.

Most of the animals received from the front line units were very thin and about 65% of the animals received had sore backs. The daily routine was devised to take cognizance of these two facts. Animals were exercised by tying two or three animals together with halter shanks and leading the near animal from astride a riding horse.

At SEALE, three attempts were made to prepare watering points. These ways were unsuccessful, due to the nature of the soil underlying the creeks. A bucket brigade was used to fill water troughs on August 15th, and on August 16th a gasoline pump and hose were borrowed from the 8th Engineer Squadron. This was used successfully for the duration of the maneuver. The small canvas water tanks supplied were found to be impractical in that too much time was consumed in watering 300 to 400 animals. A large tank, composed of a large paulin and timber, was constructed and used for the duration of the maneuver. This tank had a watering capacity of twenty-five horses.

On September 3rd the Troop was ordered to a position about one and one-half miles southwest of REEVES, a distance of 33 miles by road. Since 25 miles of this distance was fenced, paved highway, with shoulders unsuitable for animal traffic, an alternate cross-country route was laid out. By using the cross-country route it was possible to strike a dirt road and also to cut off six miles. Particular mention is made of this march because of the interesting features it involved. No aerial photo maps of the area were available and prior reconnaissance was impossible due to lack of time and lack of a light scouting vehicle. One small privately owned compass and one copy of the standard army maneuver (uncontoured) map were available. The march was accomplished in three echelons. Eight escort wagons, lightly loaded, eight men, with rations, and sixteen draft horses moved out on the afternoon of

September 2nd. Behind the escort wagons were tied fifteen horses that were judged to be physically unable to make the trip in one day. This echelon made eight miles on September 2nd, and the remainder on September 3rd. The second echelon, headquarters section and the stable platoon, moved out by truck and highway at 10:00 AM on September 3rd. The third echelon, 4 officers, 101 men and 374 horses moved out at 7:00 AM on September 3rd. This group consisted of the Veterinary Detachment and the three training platoons. A torrential rain set in soon after the Troop departed and continued until about 2:00 PM. Four unbridged streams were crossed on this march. The first was bridged by the Troop on September 2nd. The second was forded but the bottom went out so rapidly that the other two were bridged with whatever timbers were handy. These four crossings were completed without accident, but at the cost of several grey hairs in the Troop Commander's head. Men and horses reached the new bivouac area at 4:00 PM. 374 animals were taken cross-country a distance of 12 miles, and by dirt road for 15 miles, total 27 miles in a total elapsed time of nine hours including all halts. Morale was extremely high on this march.

At the bivouac at REEVES the Troop built seven earth and timber crossings so that horses could be led from water to the picket line and to the Veterinary dispensary. This was made necessary because of continual rain and mud. At this camp the Troop reached the saturation point as far as horse exercise was concerned, and a 100 horse corral and feed bunks were constructed. The material for this work was obtained without charge from a local sawmill. Forty-five of the thinnest horses were put in this corral and maintained.

At REEVES we received orders to go to the KISATCHIE NATIONAL FOREST to pick up three loose, unidentified, government horses. This was a round trip of 160 miles and the only available motor transportation was a 1½-ton cargo truck. The executive officer was charged with the transportation of these animals and devised a stock rack body for a cargo truck which carried the three animals without a hitch. These horses were later identified as belonging to the 12th Cavalry.

Weather conditions were extremely bad during the period the Troop was at REEVES. It rained every day, and the picket lines had to be drained every morning. Morale was much lower during this phase than at any other part of the maneuver. During the period September 3-10th, 85 horses were received and 8 were issued.

Late on September 11th, orders were received to move to MERRYVILLE, LA., a distance of 45 miles. This involved another cross-country move of 15 miles, 19 miles by dirt road, and 11 miles by gravel road. The move was made in three echelons and was accomplished in two marches of 23 and 22 miles respectively. The weather was extremely hot and it was necessary to evacuate 6 horses, suffering from heat exhaustion, at the end of the first day's march. The Troop bivouacked at a stream crossing about two miles west of LONGVILLE, LA. A total of 423 animals were moved by the third echelon. Morale on this march was again very high.

The period September 15th-19th was spent in bivouac at MERRYVILLE. This period was very pleasant as we were only 400 yards from a fine supply of deep well water and only 200 yards from the 30th General Veterinary Hospital, from whom we received a number of animals. On September 14th we issued 266 animals to the 1st Cavalry Division. On September 19th, the 30th General Veterinary Hospital made a shipment of horses to the home stations of the several units and Troop B, 252nd Quartermaster Squadron (Remount) furnished 22 head for this shipment.

The value of cover and concealment was amply demonstrated at this camp. The Troop had bivouacked in a scrub oak grove and was well concealed from the air. On September 17th Red bombing planes passed directly over our area and bombed the area of another unit only one-quarter of a mile from the Troop.

On September 20th, the Troop was ordered back to its old bivouac area near SEALE, a distance of 25 miles. The move was again made in three echelons with the third echelon covering 20 miles, all cross country. Orders to make this move were not received until 11:00 AM and the horse elements moved out at 1:00 PM. Morale was again extremely high on this move and all men and animals finished in fine shape.

On September 26th, Troop B rode and led 105 horses to DE QUINCY, LA. (a distance of 8 miles), and shipped 4 carloads of horses to Fort Bliss. (Two attendants were sent with this shipment.) On September 27th the Troop and its remaining horses (66) were ordered to DE QUINCY. The period September 27th to September 29th was spent at DE QUINCY, cleaning equipment and washing clothes, in preparation for the movement back to home station. The remaining horses were gradually let down and were shipped, with one attendant, to Fort Bliss on September 30th. On September 30th the Troop loaded its heavy equipment on a box car, retaining only what was necessary for the trip home.

On October 2nd the Troop moved to a concentration area near MANY, LA. On October 3rd, Company "I," 29th Quartermaster Regiment, one radio equipped reconnaissance car, a gasoline type field range and stock rack truck, and one semi-trailer were attached to the Troop for the march to Fort Bliss. This composite organization made the journey, as a march unit, without incident and the Troop arrived at Fort Bliss at 1:00 PM on October 8th.

During the maneuver the Troop received a total of 860 animals, and issued 646 animals to the front line units, issued 19 to the 30th General Veterinary Hospital, shipped 171 to Fort Bliss and 22 to Fort Clark.

Plans are now being made to open a field remount depot.

First Army Reconnaissance*

By Captain Chauncey E. Howland, 102d Cavalry

ADMINISTRATIVE

ON 27 October, 1941, the C.O., 2d Squadron, 102d Cavalry (H-Mecz), was informed that the Squadron was to be attached to 1st Army and based in the vicinity of Albemarle, N. C. Quartering parties were sent out to reconnoiter and the necessary attachments of Regimental personnel, vehicles and equipment were made to provide supply, medical, administrative, motor maintenance and radio repair facilities. It was realized that the Squadron, a tactical element, must be self sustaining as far as possible. Personnel, vehicles and tools were provided in a very satisfactory degree by the C.O's of Headquarters, Service Troops and the Medical Detachment.

The Regimental Commander was ordered to report to General Drum at 1st Army Headquarters and was accompanied by the Squadron Commander. The General pointed out that the reason for the attachment was to provide an Army Reconnaissance element to operate similarly to Corps Cavalry, but over a wide area with greater distances involved. It was to move rapidly outside the sphere of Corps Cavalry, reporting directly to Army.

On November 1, 1941, the Squadron moved from the KERSHAW area to the ALBEMARLE bivouac prescribed in the following march table:

HEADQUARTERS, 2D SQUADRON
102d Cavalry (H-Mecz)
Vicinity of Kershaw, South Carolina

31 October 1941

2D SQUADRON MOVEMENT)
:
No. 1)

Maps: Esso Road Map of South Carolina and North Carolina, 1941.

1. The Second Squadron plus attachments will move to the maneuver area, vicinity of Albemarle, N. C., Saturday, 1 Nov. 1941.

2. a. *Route of March:* Route U. S. No. 521 to Lancaster, Route 200 to Monroe, Route 151 to RJ 151-27, Route 27 to eight miles east of Albemarle.

b. *Initial Point:* U. S. Route No. 521 and dirt road leading south into Bivouac Area. Head of First Serial will pass IP at 8:00 AM. Five-minute interval between serials. The first serial will clear the bivouac area at 7:30 AM and form with its head at the IP. Serials will leave the area at 10-minute intervals.

c. *Rate of March:* Average speed 25 miles per hour. Leading vehicle each march unit not over 30 miles per hour. Individuals regaining lost distance not in excess of 35 miles per hour. Distance, 100 yards between vehicles. Through Heath Springs, Lancaster, Monroe and Albemarle 15 miles per hour, 5 yards distance.

d. *Order of March:*

2d Sqdn Hq. Troop D less, kitchen & combat	Serial No. 1
Troop E, less kitchen & combat	Serial No. 2
Troop F, less kitchen & combat	Serial No. 3
Radio Jeep, Sqdn ½-ton, kitchen & combat vehicles of D-E-F Troops, 5 trailers (D-2d Sqdn Hq.-E-F-(2),) Radio Maint. Two Sqdn gas trucks, Medical Det Two Squadron Motor Maint. Trucks	Serial No. 4

3. *Uniform:* Breeches, woolen, elastique; shirt, woolen; boots; cap, field; belt, pistol or cartridge with suspenders. (FIELD Jackets may be worn.) Squadron & Troop Motor Maintenance crews will wear coveralls or denims.

4. *Rations:* Sandwich lunch for Saturday, noon, will be carried.

5. *Communications:* Net opens 7:30A. 2320 KC. VOICE.

By Order of Captain Howland:
(Signed) FRANK A. TEOFANI,
Second Lieutenant, 102d Cavalry (H-Mecz)
S-1-4.

* * *

A satisfactory base camp had been picked 3 miles north of Pee Dee Bridge, Route 27 on the east side of the river. No telephone installation was available due to the remote location, and radio contact was maintained with few interruptions to 1st Army at HOFFMAN, a distance of 60 miles. This was accomplished by using an antenna cut to ½ wave length and oriented on HOFFMAN.

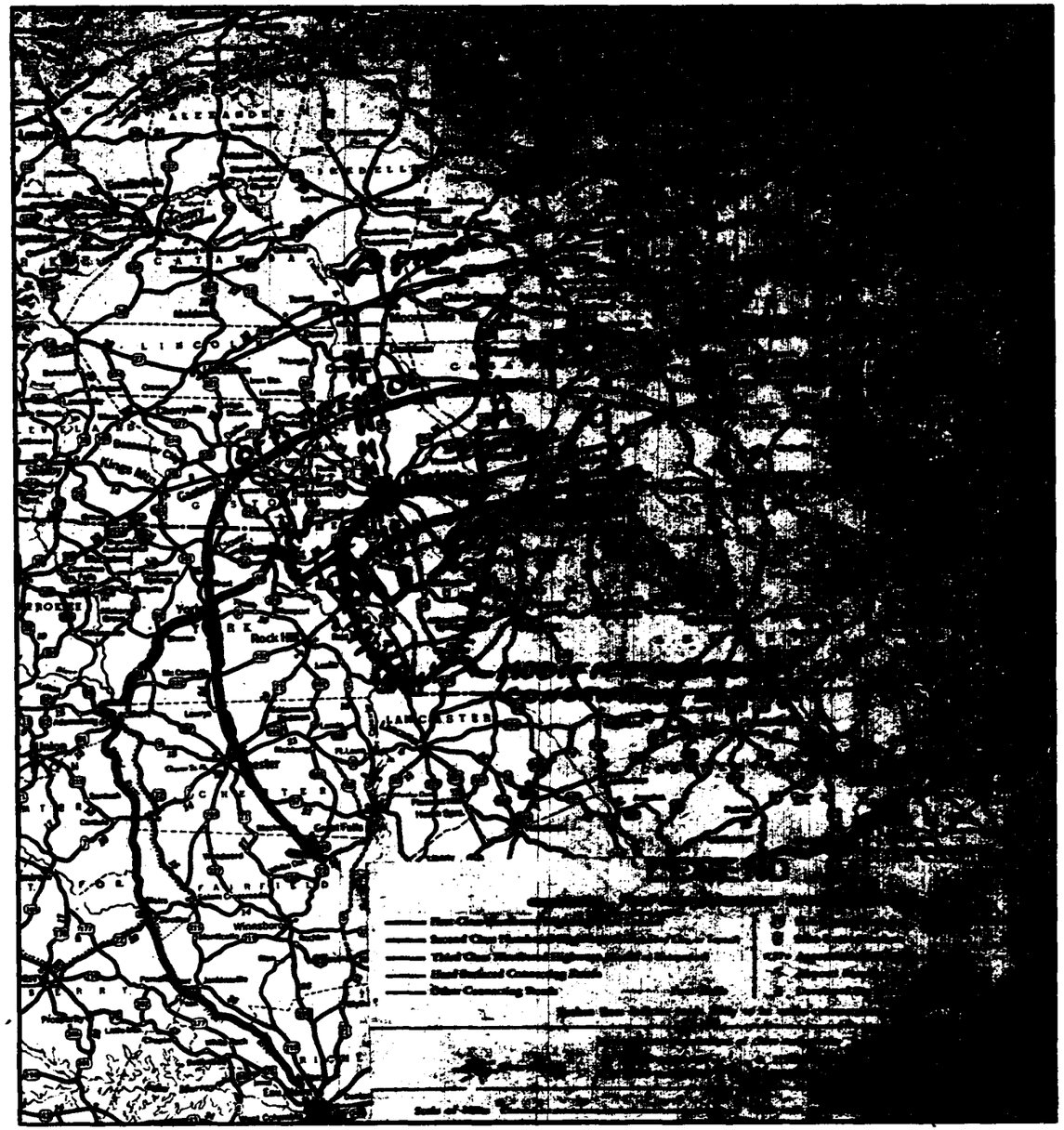
Staff Sections of 1st Army were contacted and the details of all classes of supply, communication, ordnance and quartermaster repair, and medical evacuation were worked out. Alternate supply points and rail heads were provided. Provision for a reserve of 2 days' B and 2 days' C ration were made in addition to the regular daily A ration. A 5,000-gallon Gasoline Tanker and Dispenser was provided. Racks to hold five cans of gasoline on the rear of each car had been fabricated by Service Troop from salvaged steel cots before leaving. The balance for all cars was rushed through and installed at ALBEMARLE. This, plus two 6 x 6 Squadron trucks with 120 spare cans each, contributed greatly to the long range

*Report of Detached Service of 2d Squadron, 102d Cavalry (H-Mecz), Fort Jackson, S. C.

operating ability of the cars which was so necessary considering the distances to be covered: (A number of cars traveled over 700 miles in a single maneuver). They were especially helpful reservoirs to long range patrols in enemy territory whose source of gasoline was the ambush of enemy supply.

The Squadron operated through Army Reconnaissance (Prov) commanded by Brig. Gen. Lindsey McD. Silvester and later by Brig. Gen. Henry Terrill, Jr. It was designated Army Reconnaissance Det "N"—and in the three maneuvers covered the north or west flank of the Army. An Army Reconnaissance Det "S" composed of portions of the 1st Tank Group covered the south or east flanks.

The procurement of motor vehicle parts and the Troop and Squadron Maintenance insured that all cars remained in good running condition. No cars were towed back to base camp.



Map 1

The health of the Command was excellent although the temperature at base camp was below freezing nearly every night. The only medical evacuations were those occasioned by an overturned scout car.

The arrangements made with Army to provide alternate emergency supply points proved to be very helpful, providing freedom of action.

The Army provided thirteen 245 radios and one 193 radio car making a total of 27 sets in the Squadron; one set per section, although our own 203 sets were inadequate. The communications set-up is the limiting factor in all successful reconnaissance. The efficiency of the Squadron was enhanced greatly by the amplified radio set-up.

The use of extended ½ wave length antennas increased the range of all the radio sets in some cases to three times the normal range.

Base camp luggage of the entire Squadron was transported satisfactorily both ways by 4 horse tractors provided by Service Troop.

The return trip to Fort Jackson proceeded according to schedule 1 Dec. 1941, no vehicles being towed.

TACTICAL

Missions, changes, modification, dispositions and hours are drawn from memory as the Squadron was operating constantly in enemy territory throughout all phases, requiring that orders be burned, SOI's and authenticators memorized before jumping off. Operations maps were sparingly marked and overlays burned as soon as information was transferred.

FM 3

Mission: To cover with reconnaissance the north flank of the Army, discover, report, and delay armored elements. Ordered not to cross initial line (Route 52) before 4:00A. I decided to place Troop E on the left and Troop D on the right to move forward rapidly to Route 21 with particular attention to Routes 21, 29 and 29a, and 27. I ordered an officer's patrol from Troop E to move rapidly south of CHARLOTTE to the vicinity of FORT MILL and from Troop D to move in a wide swing west and south through YORK behind red main body (this patrol eventually reached COLUMBIA). The Squadron axis was Route 27.

Troops D and E moved out from base camp at 3:00-A. The Squadron with Troop F in reserve followed at 4:00A. The Squadron advance guard, composed of a platoon of Troop F had a serious accident on a precipitous road a short distance out. A scout car overturned causing the immediate death of the driver and pinning all of the occupants under the car, blocking the road. At this time a message from Army ordered the Squadron to jump off at 5:00A. Messengers were sent out, the car lifted, occupants evacuated and the balance of the Squadron moved in 25 minutes due to the excellent state of training of the troop, medical and communications personnel. The attack was launched on time.

The Squadron was immediately successful in getting back valuable enemy information reaching its first phase line and patrolling while officers' patrols moved by stealth through enemy territory. A combined reconnaissance and counterreconnaissance screen was operated. Through the medium of radio and messenger they furnished information of enemy elements, armored supply depots, rail heads, ponton bridges and when the Armored Division moved into the area the composition, identification of units and direction of movement was reported. Numerous prisoners were taken, causing a disposal problem but gaining valuable identifications, SOI's and marked maps.

A modification of mission was received from Army at 1:00A of the morning preceding the cessation of hostilities. Troop commanders were ordered to a rendezvous at LOCUST and arrived at 2:30A simultaneously with the Squadron Commander. Troops were swung into a new position with a concentrated reconnaissance ordered in the area CHARLOTTE, PINEVILLE, FORT MILL, VAN WYCK, WAXHAW, INDIAN TRAIL, MIDLAND.

When the maneuvers ended, Army was being informed of the presence of 171 Tanks with company designations; 69th Armored Regiment, companies (D E F H I) crossing Ponton Bridge near VAN WYCK.

The work of the patrols, cut off for 5 days, obtaining gasoline by capture, and subsisting on C rations was superior.

Communication over the extreme distances (130 miles from Army) was difficult until the expedient of extended antennas was used. It then became satisfactory and was the lesson needed to provide wire for improvised ½ wave length antennas for troops during next phases. SCR 245 and SCR 193 radios were used.

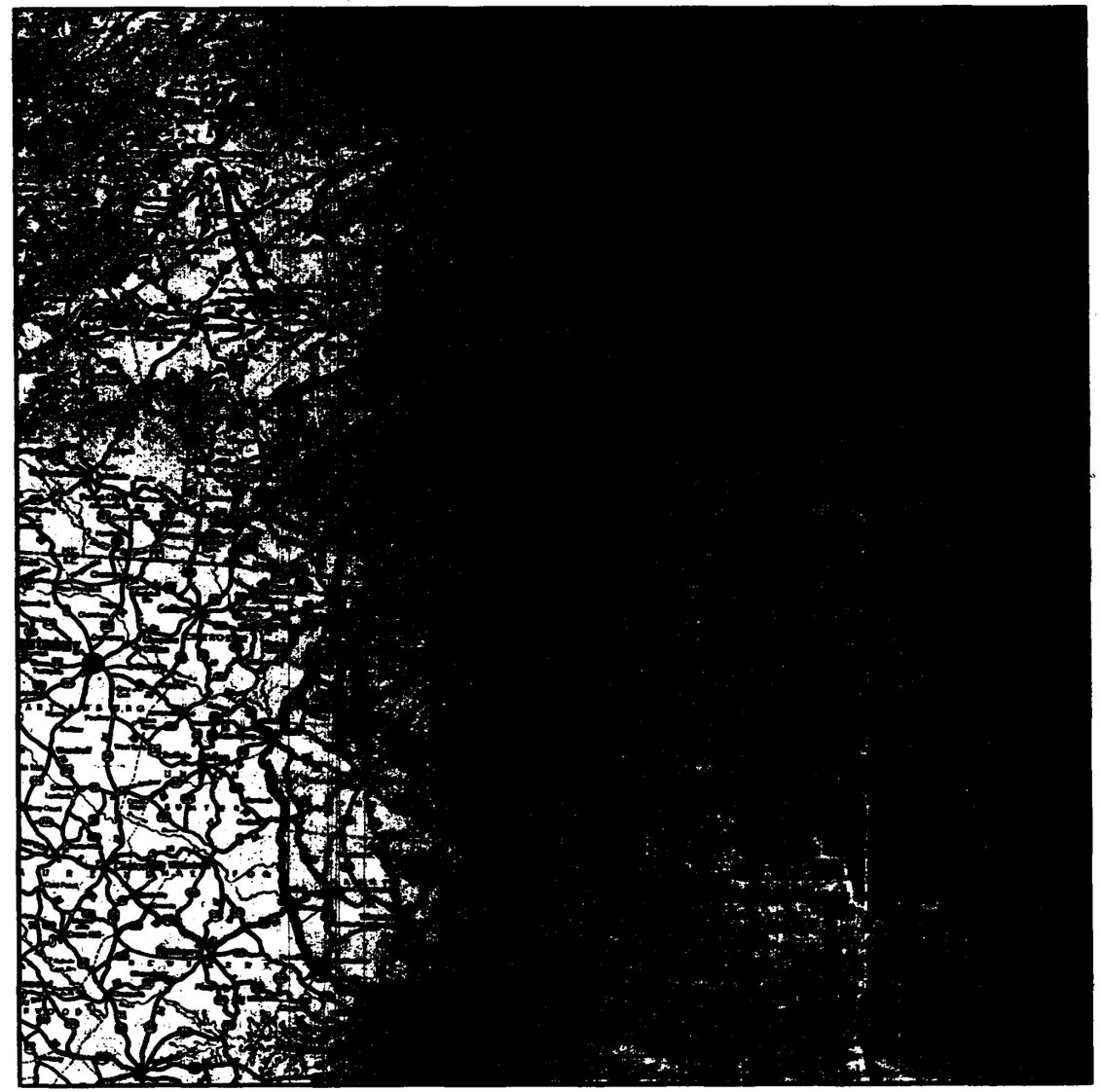
The Squadron averaged 80 messages per day to Army by radio, and telephone, the radio being the most consistent.

At the conclusion of the maneuver Troops were ordered to assemble and proceed to base camp by unit, thus reducing the traffic congestion. All elements except the distant D Troop Officer's Patrol were returned within 12 hours with all vehicles intact.

GHQ PHASE NO. 1

The realization of communications difficulties was anticipated prior to this phase. Thirteen SCR 245 radios were provided by Army and installed in our scout cars. Two thousand feet of wire was obtained and operators were instructed how to figure a half wave length for the frequency to be used. Arrangements were made to obtain homing pigeons from private lofts at LEXINGTON, N. C., and a relay station was established there with Army birds to Army HQ. One company less a platoon of the 38th Engineers was attached with additional supplies of explosives and land mines.

Mission: Initially to cover all bridges of South Branch YADKIN RIVER from Route 29 northwest to



Map 2

Route 21, thence north to INDEPENDENCE, VA. At jump off move rapidly west mining all bridges until contact was obtained, then delay by mines and fire.

This initial front was 100 miles long. Bridges to Route 21 were to be taken over by a company of the 61st Engineers and blown immediately, leaving no means of exit. Squadron to cover by fire until their arrival. I contacted the Engineer Commander and ascertained that they could arrive about 8:30A.

Attached engineers were divided between troops keeping Company Headquarters and one squad as reserve. This provided a kitchen for the Squadron and just sufficient personnel for the troops to drop off at mined bridges in the area. Troops were given areas of advance, E on the south, with an Officer's Patrol south of CHARLOTTE, F in center and D on north. A first phase line was designated, CHARLOTTE, Route 16, HICKORY, Route 321, BLOWING ROCK. The night of 13-14 Nov. the Squadron moved to the vicinity of COOLEEMEE, N. C.

Sixty-three pigeons were obtained and distributed to troops to be divided down to sections and patrols. Instruction in their care and use was given. Final supplies were issued, instructions on strength reports and ration

returns given and the last G-2 information available. At dark, 14 Nov., troops moved into positions with orders to push forward at 7:30A, Nov. 15, leaving a section with engineers at each bridge. These sections on being relieved by Combat Engineers were to cross the river, converge at Route 801 to establish bridgehead for Squadron Headquarters if necessary and then rejoin their troops, except for platoon of Troop D kept in reserve.

Troops moved out on time. Engineers did not arrive as scheduled and Squadron Headquarters at 8:30A crossed the river without resistance moving to WOODLEAF. During the day engineers arrived releasing the sections left behind and blowing the bridges. Troops moved rapidly into positions and established a screen covering area of 4,500 square miles. Troop D on the north flank was 135 miles from Squadron C.P. and established successful uninterrupted radio communication with 245 sets at both ends.

As the maneuver progressed movements of the 1st Armored Division and all reconnaissance elements were obtained and sent to Army. The 1st Armored Division moved in through the maneuver area and cut along behind the reconnaissance elements of the VI Corps. This was reported to Army and I started to draw sections from Troops D and F to keep contact with this force. They moved into the area GOLD HILL, MEISEN HEIMER and were surrounded by tank attackers. Their means of exit was mined on the north by a section of the Squadron. At this time a patrol from the reserve captured six 6 x 6 trucks containing 3,600 gallons of Diesel oil and gasoline for the Armored Division. The gasoline was dumped into the Squadron Tanker and the personnel and trucks turned over to friendly troops of the VI Corps.

As the maneuver progressed and it became apparent that no wide encircling move was imminent, the two troops on the north, D and F were depleted of platoons to be used directly by Squadron toward the south in order to properly protect by reconnaissance the north flank of the Army. Patrols were sent into the maneuver area and reported strength, disposition and direction of movement of numerous units, sending back captured officers and releasing unimportant prisoners.

No action developed to an extent north of the maneuver area. The enemy counterreconnaissance screen was ineffective and 90% of the information requested directly by Army was obtained as well as the normal flow of information. Enemy radio intelligence was active and necessitated changes of frequency and call letters under adverse circumstances, a lesson which provided the advance planning of a coded change for frequencies and call signs in the following maneuver.

At the conclusion of the maneuver the Squadron was covering a line in the form of an "L" over 150 miles long with majority of bridges and main roads in the "L" mined and guarded. The 1st Armored Division was unable to extricate itself. Eighteen hours were required to assemble the Squadron at base camp. There was no disabling vehicle damage and only minor casualties.

GHQ PHASE NO. 2

Prior to the beginning of this phase General Terrill assumed command of Army Reconnaissance (Prov). On 24 Nov. 1st Army moved to TROY and closed at HOFFMAN at 3:00P. Orders were issued at TROY for the new mission. The maneuver was laid out in a north-south direction. The INTERNATIONAL BOUNDARY extended from ROCKINGHAM west on Route 74 to CHARLOTTE, thence north along Route 21 to MOORESVILLE.

Mission: To cover the right flank of 1st Army in an area east of the CATAWBA RIVER to flank of VI Corps-MOORESVILLE, CHARLOTTE, Route 21 to crossing of CATAWBA, ROCKHILL—not to cross INTERNATIONAL BOUNDARY before 5:00A (25 Nov).

Troops were disposed with D on north facing the river to the west and E on south facing south. Troop boundary between troops Route 74 west of CHARLOTTE. D Troop to send patrol to GASTONIA, YORK, CHESTER. Troop E to send patrol to VAN WYCK, WAXHAW area. F Troop in reserve with Squadron at NEWELL. Each troop had engineers attached.

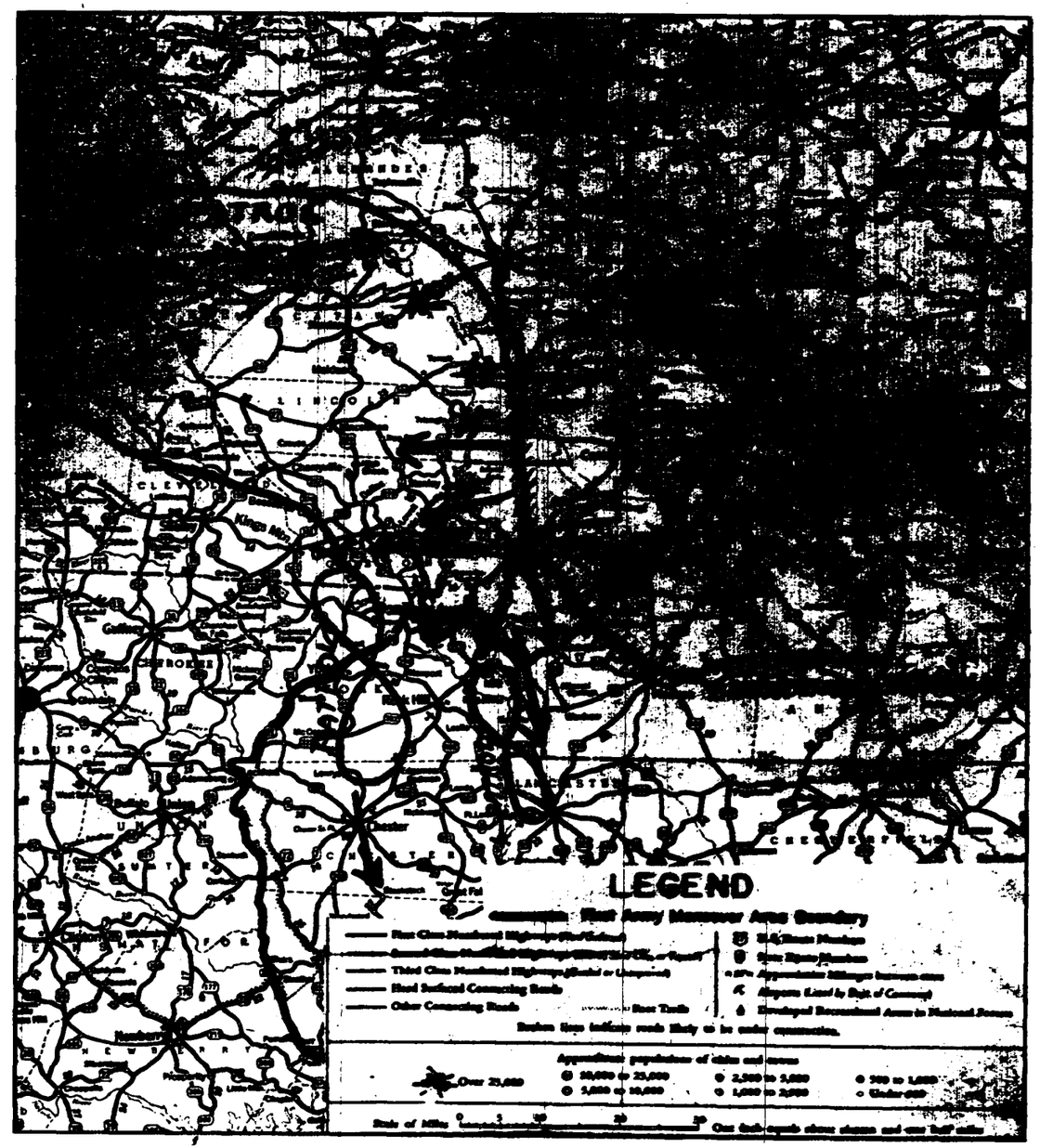
At 5:00A (25 Nov.) the troops crossed the line and immediately ran into a strong counterreconnaissance screen composed of entire 6th Cavalry with the Mechanized Squadron of the 107th Cavalry on the north portion and 6th on the south. Troop D (107th), sent out sufficient force to seriously engage the Squadron C.P. and it was moved at 9:00A to a point south of CONCORD. Operation outside the maneuver area on this and preceding maneuvers made the problem of concealment difficult as all roads were considered defiles and the Squadron Headquarters with attached engineers, supply and maintenance sections was unwieldy.

Troop D proceeded west to the river and ran into determined resistance at all bridges. They blew the northernmost bridges and got the patrols across the others.

Troop E was in constant trouble with superior reconnaissance elements but managed to get out patrols and effectively cover the assigned zone. The flow of information was immediate. Disposition of armored and motorized elements and cavalry reconnaissance elements and ponton bridge was constant throughout the entire maneuver. Contact with Army was excellent.

During the maneuver Army ordered a change of reconnaissance zone in a more southerly direction. Troop F relieved Troop E and penetration into hostile territory was increased. Troop D sent 2 platoons across the river, by fording, then south to CHESTER. Elements of Troop F were preceding the VI Corps in its last drive to the CATAWBA when the maneuver ended.

During the previous night Troop D had captured the C.O. of the (107th Cavalry) Squadron of the 6th Cavalry and reported constantly the whereabouts of the C.P. 6th Cavalry.



Map 3

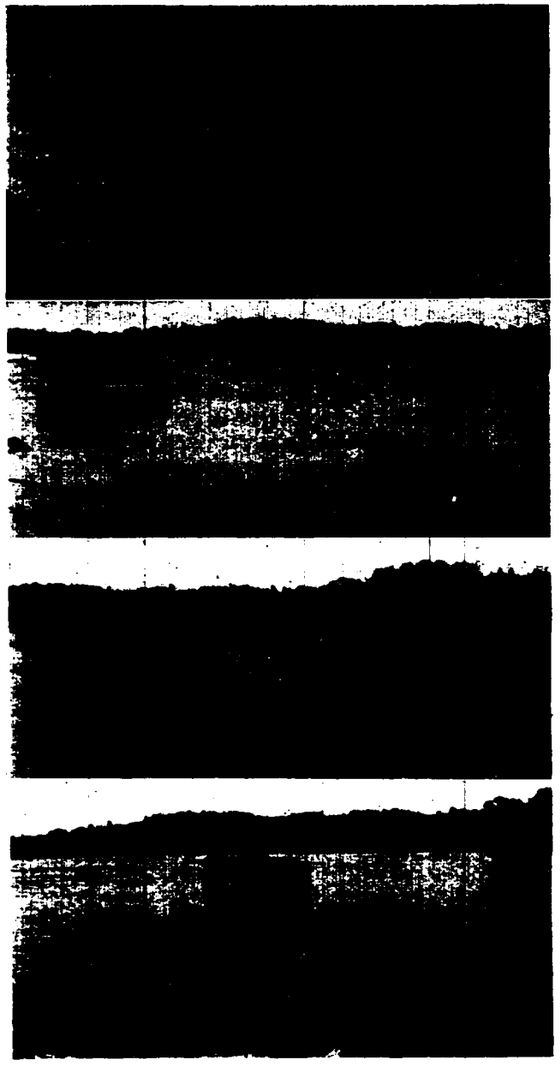
At the end of the problem 28 Nov., Troops D and F were completely engaged without reserves. Troop E was in Squadron reserve.

Losses in this maneuver were severe. On successive days each troop in action lost as high as 40% of its cars due to the heavy screen and all out missions given.

Communications were excellent, all vehicles were in running order. Numerous prisoners were taken. The Squadron C.P. cleared over 500 messages.

COMMENTS ON DETACHED PLATOONS

One platoon each from Troops D, E, and F were detached late in Sept., 1941, to form the nucleus of the reconnaissance elements of 1st Army Tank Attackers



1—Type of terrain, field of fire. 2—Fording Catawba River. 3—Another view of fording the Catawba. 4—Coming ashore.

and Antiair Borne Troops. These platoons moved out on the secret mission taking all of the organic equipment of a platoon plus certain troop equipment with them. Infrequent reports indicated the satisfactory manner in which each was working. Comments of superior officers and observers were highly gratifying.

The loss of these platoons reduced the capabilities of the Troops by 25% and made each troop the approximate counterpart of a Division Reconnaissance Troop.

NOTES AND RECOMMENDATIONS

Especially when the Squadron is to operate as a separate unit and often as a part of the regiment the following notes and recommendations are considered to be of interest:

Radio: Powerful sets such as the SCR 193 are desirable. Failing this, each car should be equipped with sufficient wire (at least 250 feet) stranded No. 14 with ceramic insulators and rope to extend its normal range of operation through erection of a fairly efficient antenna.

Pigeons: When possible pigeons should be used. When a unit is cut off this is an excellent means of communication. Birds good for 100 miles of travel are trained easily. With proper care they can be kept several days. (They are very susceptible to carbon monoxide.)

Liaison: Better liaison planning for a reconnaissance element is necessary. The larger unit must provide an officer equipped with all possible information concerning his commander's plan and with call letters, frequencies, etc.

Food: A kitchen is almost an absolute necessity for an augmented Squadron Headquarters. Troops need more ½-ton 4 x 4's to take food to platoons. On distant patrols requiring several days platoons might be equipped with a ½-ton truck and one section of kitchen unit. Kitchens should not be called back to get rations. They must stay hidden with Troop Headquarters. Half-tons can be used.

Gasoline: Two 2,500 gallon tankers would be better than one of 5,000 gallons. The gas can racks are an aboslute necessity. Before going into combat in war they could be dismounted easily.

Medical: The present method is inadequate for a Squadron on the type of work done in these maneuvers. Distances are too great and operation in enemy territory would lose ambulances. They are one more piece of equipment to conceal. Personnel should be given an intensive course in first aid and the Air Corps type first aid kit should be a part of the equipment of each car. A person wounded or injured can be cared for by his mates and left by the road or evacuated when the car can come in. Working adjacent to a Corps the personnel could be evacuated directly by the nearest friendly troops equipped with an ambulance or other transportation.

The state of health of the command was excellent. There were no medical evacuations and few treatments for illness.

Clothing: Warm, Armored Force type clothing for winter is desirable. The present cavalry issue is insufficient.

Equipment: Each scout car or half track should be equipped with a winch. It is a time saver and often the only means of getting vehicles across a ford. The 6 x 6 can out-perform the scout car in rough going. A scout car on a 6 x 6 chassis may be feasible. The half tracks observed leave much to be desired as reconnaissance vehicles.

NONCOM QUIZ

In view of the fact that the Noncommissioned Officers' Course at The Cavalry School has been temporarily discontinued, the contributor to the "Noncom Quiz," for this issue of The CAVALRY JOURNAL, feeling that the regular readers of the column may be interested in comparing their individual ability as "solvers" with that of their more fortunate contemporaries who were members of the last NCO Class to graduate, has substituted in full the written quiz given to this class on November 22, 1941, which pertained to some of the theoretical instruction on defense.

An analysis of the results of grading the papers of the 95 students to whom this quiz was recently given reveals:

16 Solutions were graded at 90% or better as follows:

1 Solution graded 100%
2 Solutions graded 99%
3 Solutions graded 96%
1 Solution graded 95%
3 Solutions graded 94%
1 Solution graded 93%
1 Solution graded 92%
4 Solutions graded 90%

15 Solutions were graded between 75% and 80%.

15 Solutions were graded as Unsatisfactory, or less than 75%.

The lowest grade awarded was 60%.

15 men failed to answer question No. 3 correctly
6 men failed to answer question No. 4 correctly
11 men failed to answer question No. 5 correctly
15 men failed to answer question No. 6 correctly
45 men failed to answer question No. 7 correctly
21 men failed to answer question No. 8 correctly
8 men failed to answer question No. 9 correctly
16 men received no cut on question No. 1
22 men received no cut on question No. 2

Only 2 men received no cut on question No. 10, which was weighted at 16 of the possible 100 points to be made on the quiz, and only 31 were cut less than 5 points, (i.e., made 75% on this particular question).

The preceding analysis may be of interest as a basis for comparison should you decide to determine your own "I.Q." for the test. More than half the class completed their solutions during the first half hour of the one hour and fifty minutes allowed. Nine students of the 95 used the entire period.

	Paragraphs
SECTION I. Questions	1-10
II. Solutions and Comments	1-10

SECTION I
QUESTIONS

1. In the course of a conversation with several new selectees in your own organization, after your return from The Cavalry School, the question was raised as to what the *general object* of "defensive combat" is. You have answered that: *"Briefly, the general object of defensive combat is either to gain time or to economize forces."* Your answer brought forth *the following additional questions:*

a. What is the purpose of gaining time?

b. How can you economize forces by resorting to defensive combat?

How would you *briefly* answer each of these questions? (Use space below for answers.)

a.

b.

Value—10.

2. You have been taught that Cavalry in defensive combat, *when required to defend in position*, operates and fights *the same as Infantry (within the scope of its powers and limitations).*

Answer the following questions that pertain to some of the "powers and limitations" noted in parenthesis in foregoing statement.

a. Based on combat power will corresponding *Cavalry units* (i.e., such as battalions and squadrons; companies and troops, and platoons) usually be organized on a *broader* or *narrower* front than Infantry units?

ANSWER (One word is sufficient):

b. What piece of essential individual equipment does the Infantry soldier have (and the Cavalry soldier does not have), that is immediately available, for providing himself protection in organizing a defensive position?

ANSWER:

c. What useful defensive weapon is found in the Infantry rifle platoon that does not exist in the Cavalry rifle platoon?

ANSWER:

d. How many light machine guns are usually available to the Cavalry rifle platoon in organizing a front line platoon defense area?

ANSWER:

e. Where do these light machine guns come from?
ANSWER:

f. Are they usually "attached" to your platoon or "supporting" it?
ANSWER:

g. If they are "attached," do they operate *directly* under your command as platoon leader; under the LMG platoon leader or the troop commander?
ANSWER (State one only):

h. How many and what caliber mortars are there in the Cavalry Regiment (Horse), and in what unit are they found?
ANSWER:

i. Under the new (tentative) organization of the Troop in which these mortars are located, are they transported in pack or by motor?
ANSWER:

j. Is the 81-mm. squad armed with any special purpose weapon for AA defense?
ANSWER (Yes or No): .....

k. If you answered "j" in the *affirmative, what type weapon is provided* and *will it add to the "combat strength"* of your front line (rifle) platoon defense area if this mortar squad is "attached" to your platoon *after* emplacement of the mortar?
ANSWER:

l. Where does the Cavalry rifle troop secure tools for clearing fields of fire and digging fox holes?
ANSWER:

m. What "close-in" individual defense weapon does *every soldier* in a Cavalry rifle platoon have that *some* soldiers in an Infantry rifle platoon do not have.
ANSWER:

n. What individual weapon do *some* of the soldiers in the Infantry rifle platoon have, which is useful for "close-in" personal defense, and which none of the soldiers in the Cavalry rifle platoon are equipped with?
ANSWER:

Value—14.

3. The following statement appears in FM 101-5:
"No matter what type of terrain and no matter what the tactical situation, terrain can always be evaluated in terms of the following five factors:

Observation.
Fields of fire.
Concealment and cover.
Obstacles.
Communications."

You are in command of a dismounted rifle platoon, and are now engaged in making a *detailed reconnaissance* of an assigned defense area just prior to forming your final plan for occupying it with your platoon. Which of the above five factors do you consider first as being the most essential?
ANSWER:

Value—10.

4. You have just completed explaining to some selectee replacements, recently assigned to your platoon, the difference between the terms *cover* and *concealment*. If your explanation has been correct and understood by them, *how should they answer the following questions:*

NOTE: Write "*Yes*" or "*No*" in the space provided after each question.

a. Does "concealment" always include protection from fire? .....

b. Is it possible for individuals in a squad to have "*concealment*" without having "cover"? .....

c. Can led horses have cover and yet be exposed to observation from the air? .....

d. Is it possible to place either animals or men in position which have both "*cover*" from ground fire and "*concealment*" from both ground and air observation? .....

Value—12.

5. An *ideal field of fire* for Infantry, or Cavalry, has been defined as an open stretch of ground in which the enemy can be seen and in which he has no protection from fire as far as the limits of effective range of the Infantry and Cavalry weapons. Such *fields of fire, though sought for by both attacking and defending troops, are seldom found.*

Which does the presence or absence of good fields of fire have the greater influence on, the successful conduct of *defensive* or *offensive* operations?

NOTE: Answer by stating *either one* or the *other*, i.e., "defensive" or "offensive."
ANSWER:

Value—5.

6. *a.* Is the following statement correct? (Answer Yes or No.)
"As a general rule long gentle slopes afford better conditions for *defense* than do abrupt elevations."
ANSWER: .....

b. What type of action are positions along commanding heights especially suited for?
ANSWER:

Value—6.

7. *a.* What is the maximum "front" that *a troop* operating as part of a Squadron is normally assigned to occupy in defending *in position?*
ANSWER: ..... Yards.

b. What is the maximum "front" it will normally be required to defend in *delaying action* when deployed with "extended frontage"?
ANSWER: ..... Yards.

c. How will a troop deployed as in "*a.*" adjust itself to deploy as in "*b.*" *so far as the maximum area physically occupied by its platoons* is concerned? Will the adjustment be made by:

(1) Uniformly increasing the area physically occupied by each platoon, or
(2) by increasing the distances between platoon positions and covering these intervals by fire.
ANSWER by *underlining* whichever method, i.e., (1) or (2), you consider best.

d. What is the maximum depth of a troop defense area?
ANSWER: ..... Yards.

Value—12.

8. A commander of a front line platoon defense area should give first thought to locating his *rifle squads* (or half squads), so they can:

(1) Protect machine guns, antitank guns or mortars located within or near the platoon defense area.
(2) Fire at long range targets as soon as they appear.
(3) Place protective bands of fire in front of the platoons on the right and left.
(4) Cover with fire all avenues of approach to the position.
ANSWER: ..... (Insert the *two* numbers which apply.)

Value—10.

9. A rifle squad, in a platoon defense area is assigned and organizes a supplementary position to which it will move:

(a) when the primary position is rendered untenable by armed hostile fire, or
(b) when it becomes necessary in order to defend the platoon position against attack from the rear or flank.

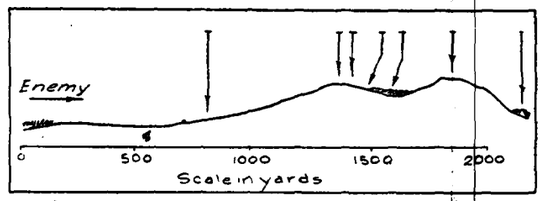
ANSWER by *underlining* whichever reason, i.e., (a) or (b), you consider to be correct.

Value—5.

10. *Considering only the six locations* indicated by arrows on the terrain profile below, *identify by placing numbers above any or all* of the arrows, thus, (3), which of the locations you would use for the following:

a. In a *defense over a long period* of time.
(1) MLR.
(2) Led horses.
(3) Forward HMG's.
(4) 81-mm. mortars.

b. In a *delaying position.*
(5) MLR.
(6) Led horses.
(7) HMG's.
(8) 81-mm. mortars.



Value—16.

NONCOM QUIZ
SECTION II
SOLUTION AND COMMENT SHEET

1. *a.* Any answer which contains the thought that by "gaining time" more favorable conditions may arise for undertaking the offensive later, is a satisfactory answer.

b. By resorting to the defensive in one locality you may be able to concentrate superior forces for a decision elsewhere. (See Par. 597, FM 100-5.)

2. *a. Broader.* Due to organization and characteristics, cavalry units usually occupy comparatively broader fronts with less depth than do corresponding Infantry units. (See Par. 73 *c*, FM 2-15.)

b. The intrenching tool. It is an essential article of equipment of the Infantry soldier. It is important in attack as well as in defense in order to hold ground without excessive casualties during interruptions of the advance.

c. The automatic rifle. Two of these guns, on bipod mounts, exist organically in each Infantry rifle platoon.

d. Two light machine guns are usually available to

the Cavalry rifle platoon in organizing a front line platoon defense area.

e. The light machine guns come *from the light-machine-gun platoon* of *the rifle troop to which the platoon belongs.*

f. They are usually attached. In some cases they may be *initially* emplaced by the LMG platoon leader or the troop commander and subsequently "attached."

g. When the LMG's are "attached" to your rifle platoon they operate *directly under your command.*

h. There are four 81-mm. mortars in the mortar platoon of the Special Weapons Troop.

i. By motor. In the new tentative organization of the Special Weapons Troop, *the mortar and the squad are transported in three ¼-ton trucks.*

j. Yes.

k. One truck of each squad of the Mortar Platoon is armed with *a MG, cal. .50 AA on pedestal mount.* Unless the ¼-ton truck on which this AA machine gun is mounted is camouflaged and *parked in the platoon defense* area (which is unlikely to be the case) it will *not* add to the combat strength of *your platoon defense area.* It does provide protection to the mortar squad against low-flying aircraft attack while the squad is mounted.

l. Tools for use of the rifle troop in clearing fields of fire and digging fox holes *are furnished by the Engineers* when they are available. An Engineer Squadron is an organic unit of the Cavalry Division. Elements of this Engineer Squadron may or may not be "attached" to a Cavalry Regiment depending on the situation. They may simply drop tools at a designated location.

(*NOTE*: Any answer indicating that the tools are furnished by the Engineer Squadron of the Cavalry Division or unit to which the troop is attached is a satisfactory answer.)

m. The automatic pistol, cal. .45.

n. In the Infantry rifle platoon every soldier *not* armed with a pistol is equipped with a *bayonet.* If a *hand grenade* is indicated as an answer to this question it will be considered satisfactory. Actually each Infantry Company carries 102 grenades (approximately one per two men), *in the weapons carriers of the company* (they are *not* available to the soldier until issued).

3. *Fields of fire are essential to the defense.* (Par. 2 c, App. 2, FM 101-5.) Observation, cover, concealment and obstacles, no matter how excellent, in this situation, will be of little help to you in conducting the defense unless you have good fields of fire at mid and close range.

4. *a. No.* Concealment from view, both from the air and from the ground, may afford "cover" only while the enemy does not know that the natural or artificial obstacle is occupied. (See Par. 2 c, App. II, FM 101-5.)

b. Yes.

c. Yes.

d. Yes.

5. *Defensive.* The presence or absence of good fields of fire (for Infantry weapons), generally has a greater influence on the successful conduct of defensive operations than it does on offensive operations.

6. *a. Yes.* (Par. 605, FM 100-5.)

b. Positions along commanding heights are especially suited for *delaying action.*

7. *a. 600 Yards.* In the defensive organization of a battle position the Cavalry rifle troop is assigned an area which may vary between *300 and 600 yards* in width. (See Par 75 c (4), FM 2-15.)

b. The maximum front that a Cavalry rifle troop will normally defend on is *1,500 yards.* A frontage of such great width might be assigned to a troop employed on a mission of delaying action as part of a larger force. (See Par. 373 *d*, FM 2-15.)

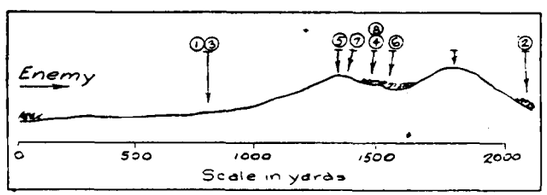
c. Normally the increased frontage will be covered by increasing the distance of the intervals *between* platoon positions, and *not* by increasing the maximum area normally occupied by each platoon, which is 150 yards. (See Stencil T-201.)

d. 400 Yards. (See Par. 75 c (4), FM 2-15.)

8. (*1*) and (*4*).

9. (b). Movement to a supplementary position is for the purpose of undertaking new fire missions that cannot be executed from the primary position. Movement to an alternate position is to prevent casualties and still continue with the same fire missions.

10.



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The IIth Goes Home

--A Diary of Events!

IF ever an enemy nation wants to catch a cavalry unit with its pretty woolen breeches wrinkled right down around their ankles, the thing for them to do is start shooting the day before the unit is scheduled to change its base.

We were ordered to move from Camp Seeley to our new home, Camp Lockett, on December 9th.

December 7th (remember the date?) found our camp half dismantled. Practically whatever could be moved to Camp Lockett by truck had been sent up the hill already.

It was a sunny, cheerful Sunday after a week of bad weather, and the usual number of officers and enlisted men were on 1-day passes to El Centro and San Diego, relaxing and having fun after the busy week of packing.

The gentle, peace-loving Mr. Kurusu was still benignly pushing his gilded olive branch into chary Washington hands, and *Life* magazine was graphically illustrating why it was a physical, scientific, economic and religious impossibility for Japan to so much as point a B.B. gun in the direction of Uncle Sam. It was a day in which to yawn, to do light tasks between naps, to lie in the sun, to sleep. Certainly, it was not the day in which to get news of war.

At 12:37 (the sun was lazily painting bright Mexican colors on Signal Mountain with a big, sloppy brush) the 11th Naval District advised us by radio of the ruckus at Pearl Harbor.

Eeeeeeeeeeoooooooooow, went the fire sirens at El Centro, signalling all our men to report back to camp. The local radio stations gave the same orders. So did the highway patrols. In less time than it takes to say "Japs over Honolulu," the camp was functioning on a wartime basis. Scout cars were whipped into formation, machine guns mounted, men were in uniform, armed and ready for duty. Hurrying up and down troop streets, past officers' and enlisted men's quarters, we picked up fragments from the radio news commentators who (either because they themselves had received misinformation, or because they had received none and resorted to creating their news) variously reported that (1) Hawaii and the Philippines were totally destroyed and that the victorious Nipponese fleet and air armada were pointing their bloody prows toward the Golden Gate, that (2) only one Japanese gentleman had run amok in Hawaii and that the whole exaggerated affair had already been covered with a tailor made, "Oh, so sorrow, excusing at us, please?" that (3) hundreds of Japanese and Axis bombers, long rumored to be in Mexico, had received the word to soar from Sonora to San Francisco, dropping their Blitzkriegettes as they flew, and that (4) various Pacific coast cities had already received their share of gas bombing.

As if to stimulate us into acclimating ourselves from a peacetime to a wartime frame of mind, our C.O. (Lieutenant Colonel Frederick Herr at the time, since Colonel H. M. Rayner was convalescing in a Santa Barbara hospital) was phoned at 1:00 PM by the Fourth Army who ordered that a certain defense plan, one of many previously created for such an emergency, be put into effect. Let's call it Defense Plan No. 0, since its name can't be mentioned here.

In accordance with Defense Plan No. 0, three scout cars bristling with machine guns were dispatched to Camp Lockett, Lieutenant F. I. Putnam in command. We'd seen these scout cars leave camp before, but this was a new sight. It wasn't new just because we weren't accustomed to seeing the cartridge belts grimly in place, and full of shiny bullets all seemingly eager to be dispatched on their destructive armor-piercing missions. It was a new sight more because, as the roll was called, the men mounted the cars, and the cars went into gear and sped out, we realized, swiftly and with surprise, that we could no longer regard these men as draftees, as civilian dudes in the army ranch, but that these were soldiers, trained, and ready to kill or be killed in the line of their duty.

The rest of that Sunday passed swiftly. Hourly reports of enlisted men and officer strength were made by troops to the Adjutant. Maps containing areas that we were defending according to Defense Plan No. 0, were rushed back from Camp Lockett. Other maps were quickly made on improvised drafting tables and rushed to other army headquarters, as asked for.

Near chow time officials of the local railroad phoned and asked that we send protection for certain strategically located tunnels, bridges, gorges. Squads were sent to each point. The radio had whipped everyone into a fine frenzy of sabotage-suspicions. The guards at the Mexican border, 12 miles away had been doubled, and redoubled.

One does not give away secrets when one says that this area is generously pock-marked by dams, canals, power stations. That's why Defense Plan 0 had been created in the good old lazy days of peace. That's why we kept arming and sending out squad after squad to these vital spots. That's why midnight found almost every important dam, highway bridge, railroad bridge in the area playing silent host to our patrols. The day had been slow in getting under way, but its third act curtain certainly came down with a bang!

Would we go to Lockett or, now that we were in the war, stay at Seeley? That's the question we asked one another Monday morning. Although the radio news commentators had localized the fighting to the Islands, there was still persistent reports of Japanese plane carriers right off the coast, Japanese bombers overhead. A phone call from higher headquarters settled the question. We were told to continue with our plans.

That was our last day in Seeley, a place we had carved from the desert ourselves. We had come to it last November, found nothing but a vast plain of adobe mud made pasty by the rain. We had built mess halls, erected tent frames, carved a rifle range out of an old river bed, converted a pond into a horse swimming place, installed a filtering system, a swimming pool. We had endured a winter of rain and a summer of intense heat. We had done a lot of living in the year we'd spent at Camp Seeley.

Appropriately enough, it rained that last Monday. Canvas came off the tent frames, was folded and sent on its way. Barracks bags, beds, mattresses assumed mountainous piles in troop streets. Tents were stripped of everything except what was needed for one more night.

The war did not touch us that day. Some squads on patrol duty were relieved. Others were sent hot meals. The big business on hand was the move to Camp Lockett.

Late in the afternoon (the sun had come out again for a few moments) we received a good sized report from a higher headquarters. The news at the moment was that a certain coastal section of Mexico not too far from us was believed to be the center of Japanese activity. There were some unauthenticated but nonetheless vivid reports of small boats landing in that vicinity.

There was a slight rain that night. Just a little misty drizzle as if the elements were playing cat-and-mouse, saying, "This is just a taste of what I can do, but wait until I give you a really hard poke."

Tuesday was moving day. We kept putting our raincoats on and taking them off as the rain took a poke at us and ducked, poked and ducked. At 7:15 AM we were phoned by the 11th Cavalry's 2d Squadron (they had all moved into Camp Lockett several weeks ago) whose C.O., Lieutenant Colonel A. W. Howard, uneasily advised us that a large flight of unidentified planes were flying over their camp.

At 10:45 AM we were all in the saddle, waiting to hear Colonel Herr's order "Forward—Ho!" Colonel Herr was passing the last telephone in the camp—at the guard house. It rang. It was the Signal Officer at Fort Rosecrans telling us the latest about the enemy carriers right off the coast, and about the enemy planes that had circled over San Pedro and Long Beach last night.

With many a repeated anxious look skyward, the command group clattered past the Camp Seeley gate at 11:05 AM. It did not rain that day. Those of us that wore raincoats took them off and secured them to our saddle bags as we rode. Those of us that wore field jackets did ditto. And those of us that still wore the heavy woolen undershirts we had slept in, scratched, and wished we hadn't. It was a hot ride.

The march that Tuesday was all on the highway through desert. Two thirty PM was the time we were scheduled to arrive in Skull Gorge.* We hit it on the split second.

We had bivouacked here several times before. Picket lines went up quickly. Horses were watered. Food was served.

Night, with an occasional grumbling accompaniment of thunder, reported for duty quickly. It was dark by 5:30. By 7:00 most of the men were under their pup tents, or in their sleeping blankets.

It was not a good night for sleep. A near-by freight train switch-off, dormant since time immemorial, sprang into noisy action, banging and crashing its cars' couplings. Occasionally a plane or number of planes, droned overhead, unseen but throbbing with the possibilities of menace. It rained. Not the gentle misty drizzle of the night before, but a good solid, salt-and-pepper stinging rain that woke us up, marooned our tents and sleeping bags and made things miserable, in a steady, industrious style.

Reveille was at 5:00 that Wednesday (December 10th, if you've lost count). We laced boots in the dark and rain. In the dark and rain we ate, saddled up and moved on toward Moose Mesa.*

The mist lay its ghostly shroud on the desert. Little scrub mesquite bushes looked like puffy snowballs that morning. And the snaky Ocatillo cacti bobbed into view and disappeared behind curtains of mist like gibbering witches in macabre pirouettes. There was no wind. One could see no farther than the back of the horse in front of him. From behind and in front echoed the steady rhythmic clickity click of the horses' hoofs as we took to the highway.

By 9:00 AM the mist had lifted, the sun was slugging his way through the clouds, and we were watering our horses at Sulpher Geyser.* A motorcycle messenger brought the C.O. a message from Camp Lockett's C.O., "Higher Headquarters reasonably sure there are 11 enemy aircraft carriers right off the coast here."

Later confirmation reduced the number to two enemy carriers. But, two or eleven, it made our position (mounted men on the open road) an easy target for the bombers from the land of the rising sun. We forsook the highway for less travelled paths for the rest of the trip, lengthening the distance appreciably.

At 10:40 AM we reached Moose Mesa. Last July the trip from Skull Gorge to Moose Mesa was considered a tough one, and we had rested at Moose Mesa, spent the night there. This time we paused only to feed our horses, and eat our lunches.

A little before 12:00 another motorcycle messenger

*Fictitious.

brought us another little tid-bit of information, "Japanese 'farmers' around Tia Juana are congregating at location as yet unrevealed."

Our raincoats were on again by the time we watered at Star Valley.* Lost Valley,* our scheduled bivouac area, was reached by 1:30 PM, after a ride over a snake-like road that included desert, gorge, valley, narrow bridges, jumps, streams, and narrow passes in its varied itinerary.

Rain. And more rain. We fed our horses, rubbed them well, and (for the first time in a year) attached their covers. Then, in punishing rain, stood in the chow line to take care of the inner man.

We had finished preparations for the night's bivouac when the rain, evidently deciding it had played around long enough, and that it was now or never, let loose with both barrels. It came down in sheets, oversize, double bed sheets. Horses neighed in terror and drenched men talked about taking off their boots and swimming out of the flooded valley.

One could not sleep in such a rain—it would be better to keep moving. At 5:05 we broke camp and faced the driving rain, toward Camp Lockett.

It was the kind of a ride one could not film or forget. It was the kind of an experience one would never trade for a million dollars—or repeat again for a million dollars. It was bitter cold. The terrain was mountainous, uncertain, full of holes, scrub oak, mazanita, cacti, unexpected right angle curves banked by barbed wire.

*Fictitious.

There were times when we splashed forward ankle deep in flooded valley bottoms. And twice, when we reached mountains' summits, we plodded along in the clouds, like the characters in "Lost Horizon" seeking Shangri-La. The rain had a stingy, snowy quality up there, and the heavy rolling movement of the spongy mist made us wonder if it weren't all a dream.

Shoes, pockets, saddle bags became filled with cold water. Saddles sloshed and gurgled with their riders' weight. Mounts had to be pulled along when they were led, squeezed unrelentingly when walked, kicked when trotted.

At ten o'clock the rain, as if having given its best, abated, slowed up to a drizzle, died. By 10:30 PM just as the first column of the Command Group led their indignant horses into Camp Lockett's stables one star came out and, by the time the last of the column was in, all the stars were out.

The camp was in blackout. Wet, frightened horses were slowly, inch by inch, led into strange, dark stables, tied, unbridled, unsaddled, and rubbed.

We had completed a three-day march in two days. We had been on the way 16½ hours since reveille. We were wet, tired, sore, but we were not unhappy. We had come home. For the first time since we left the Presidio of Monterey, November of last year, we would have hot showers in a really enclosed room. We would eat from real chinaware tomorrow, but, best of all, tonight we would sleep in real beds under a real roof. It was good to come home.

"Silence The Agitator"

Pointing to the death penalty as a requisite of military organization, he (President Lincoln) inquired: "Must I shoot a simple-minded soldier boy who deserts, while I must not touch a hair of a wily agitator who induces him to desert? This is none the less injurious when effected by getting a father, or brother, or friend into a public meeting, and there working upon his feelings till he is persuaded to write the soldier boy that he is fighting in a bad cause, for a wicked administration of a contemptible government, too weak to arrest and punish him if he shall desert. I think that, in such a case, to silence the agitator and save the boy is not only constitutional, but withal a great mercy."—*Abraham Lincoln: The War Years*, by Carl Sandburg.

THE SALINA FLOOD

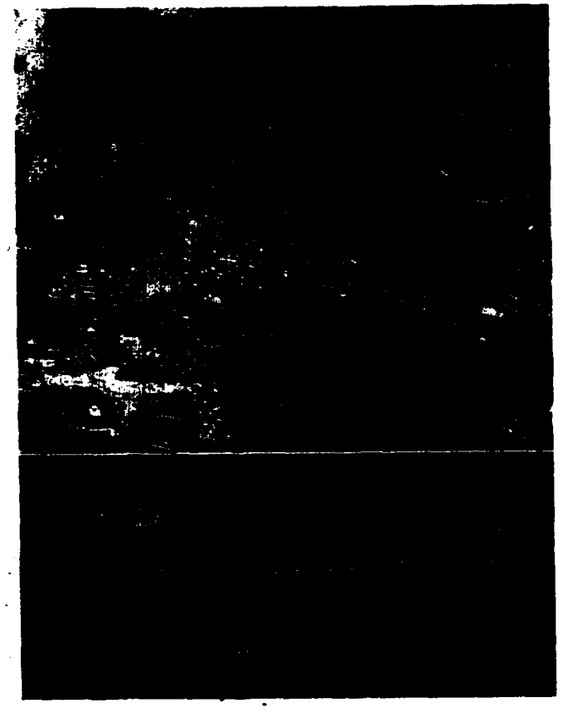
By Lieutenant George E. Roush, Signal Corps

EDITOR'S NOTE: It is believed that this will be of interest to all Military Posts as the Army is often called for such duty.

* * *

NORMALLY the Smoky Hill River which flows through the city of Salina, Kansas, lies quietly and peacefully within its banks save for an occasional spring freshet. However, during the night of October 19-20, 1941, after swelling for several days it overran its banks to flood the lower portion of the city.

By noon, October 20th, the civic officials were sufficiently alarmed to request aid from the Second Cavalry Division located at Camp Funston, 65 miles distant.



Top—Emergency Dock, Iron Avenue, the principal north-south thoroughfare in Salina, served as an emergency dock for flood relief boats serving the city's inundated eastern section. Some of the boats seen here were sent to the flood area with an engineer company from Camp Funston, and several of the soldiers taking part in the rescue work appear in the photograph. The camera is pointed toward the east, where a large part of the town was under water from the flooded Smoky Hill River. *Bottom*—74th Engineer Light Ponton Company loading pontons for trip to the Salina flood.

Mayor Morganstern of Salina first asked for radio aid preferably mounted in vehicles. Major Mason H. Lucas, Division G-2, was immediately dispatched to Salina to look the situation over and Major General John Millikin, Division Commander, also dispatched 4 radio equipped scout cars under command of Lieutenant George E. Roush, in addition to 2 SCR-193 and 2 SCR-145 radios installed in the scout cars, 3 SCR-194 radios (walkie-talkie) were taken as their use in boats was anticipated. The latter radios were furnished by the Division Artillery.

Upon arriving at Salina, Major Lucas found no central control of aid and Mayor Morganstern was very anxious that the Major take over the relief. In line with Army policy, the Major declined to take over direct control but recommended that a civilian director be found under whom the Army personnel would be eager to assist in any way possible. The principle need at that time was boats. Major Lucas contacted Major Thomas D. Roberts, Division G-3, and a detachment of thirty men from the 74th Engineer Light Ponton Company, attached to the Second Cavalry Division, were on their way in short order.

Major Lucas and the Signal Detachment were able to go directly to Salina via US route 40—the Engineers coming later, found it necessary to detour to the north as the rising waters closed the highway.

Central control of relief, so important to any such mission was finally taken over by the Red Cross Emergency chairman and coördinated work to evacuate flooded areas was begun.

Some evacuation was already being done by private craft. Basing operations in Memorial Hall, local radio operators had set up communications between Memorial Hall and Iron Street Bridge.

Communication was set up between the base of operations at Iron Street bridge and Camp Funston through the help of the 1st Observation Squadron located at Marshall Field. An SCR-193 Radio Set was used as Net Control Station, the other two sets being used in evacuating areas not deeply covered by water.

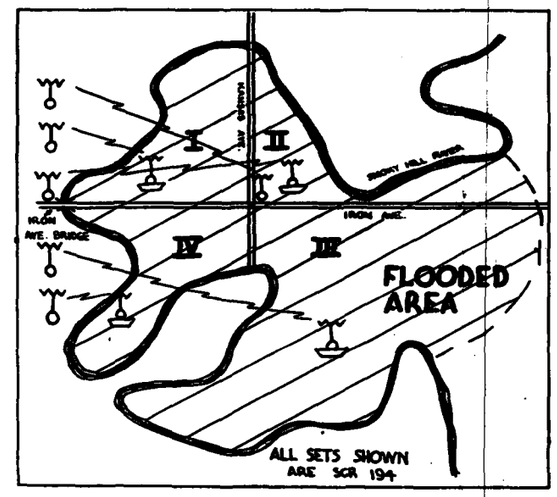
Upon arrival of elements of the 74th Light Ponton Company, a "transfer" dock (at first, a high wagon; later a ponton boat) was placed at the intersection of Iron and Kansas Avenues. Communication between this dock and base was afforded by two SCR-194 sets. The method of operations was as follows: All telephone calls for relief were directed to Memorial Hall and from there to the Iron Street Bridge. The call was

then radioed from the bridge to the "transfer" dock where the control dispatcher was located. He dispatched boats from the dock or radioed boats already in the area to make the rescue. Rescued persons were brought to the dock and unloaded to await further transportation. After sufficient number of persons had been gathered in on the dock to make a trip to the base practicable, they were taken off by a motorized ponton and brought to the Iron Street Bridge. After being disembarked, they were checked in at the desk by the ***Red Cross*** before being taken to Memorial Hall. The major part of the evacuation was carried on in this manner.

The river's rising, however, led to a change in method due to swift cross-currents set up at street intersections, endangering the small assault boats. Also, the current in and near the river proper became so swift that the assault boats could not safely navigate and the larger pontons had to be used. In order to effectively utilize these boats and to speed up the evacuation, for it seemed imminent that high speed rescuing might be necessary at any time, a slightly more elaborate method was developed.

Additional SCR-194 sets were requested from Camp Funston by radio and eight operators from the 16th Field Artillery Battalion with six SCR-194 sets soon appeared. The area was divided into 4 zones, as shown in sketch.

Each zone was evacuated by a light ponton boat (where swift water was encountered) or several assault boats. Each zone had contact to the base by one or more SCR-194 sets in boats. In addition to contact by means of the radio on the dock, a local guide indicated the proper radio set to be used at the base (SCR-194 sets do not lend themselves readily to netting). In this manner a boat or a boat group could remain in the zone until its capacity was filled before returning to the dock and the motorized ponton wending between base and dock could be more efficiently employed if it was also equipped with a set.



This latter plan is a method that lends itself to use in almost any similar situation.

The actual operation of evacuating this area was carried out under the most trying conditions. The weather was cold, wet and miserable but the men worked cheerfully and hard. Morale was at all times high. Coöperation between citizens and soldiers was very much in evidence.

One of the outstanding difficulties of any such operations is the over abundance of assistance. Local home guard units, lodges and other civic groups while trying to be helpful in many instances, do more to hinder than assist. Important, however, is the use of local guides both for radio and boat work that neither go misdirected. Central control of all army personnel is also important that the work is not split up in unnecessary missions that soldiers will attempt such as delivering groceries or removing furniture when actual life-saving work is to be done.

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Book Reviews

Attention, Librarians!

MODERN WAR—ITS ECONOMIC AND SOCIAL ASPECTS. A Bibliography, by Albert T. Lauterbach, Assistant Professor of Economics in the University of Denver, in collaboration with Robert A. Kann and Deborah A. Hubbard, Bibliographical and Research Assistants at the Institute for Advanced Study, Princeton, New Jersey.

It is not our policy to include reference in our Book Review Section to mimeographed documents. In this case, however, exception is made due to the importance of this subject.

The references are grouped under the headings of General, 17 pages; The United States, 7 pages; Germany, 6 pages; Great Britain and the Empire, 6 Pages; France, 2 pages; Italy, 3 pages; Japan and the Far East, 3 pages; and The Soviet Union, 2 pages.

Extra copies if this valuable bibliography can be obtained upon request to *The Institute for Advanced Study, Princeton, New Jersey*. If quantities are required a small charge will be made to cover costs.

THE STATE DEFENSE FORCE MANUAL. The Military Service Publishing Company, Harrisburg, Pa. 559 Pages. Well illustrated. $1.00.

This manual contains just about everything necessary for infantry units of the State Defense Force. It would be highly valuable, also, for mounted units if used in conjunction with the Cavalry Field Manuals issued by the Government Printing Office and The Cavalry School Departmental texts (all obtainable through this office). See pages 108 and 109.

THE DELAWARE CONTINENTALS 1776-1783. By Christopher L. Ward. The Historical Society of Delaware, Wilmington, Delaware, 1941. 620 Pages. $3.75.

"Suffering every extreme of cold and heat, hunger, thirst and fatigue in its seven years of service, it marched thousands of miles, bivouacked often on the bare ground in rain and snow, yet always went into battle with undaunted courage and spirit"—the Spirit of '76.

This history of the Delaware troops is a penetrating analysis of almost all of the important campaigns of the war of the American Revolution in a theater extending from New York to South Carolina.

The text is buttressed by appendices of source material which strengthens it both in authenticity and in local color.

There are several interesting incidental accounts of cavalry action.

INDIAN FIGHTING ARMY. By Fairfax Downey. Charles Scribner's Sons, New York. 1941. Profusely illustrated. 329 pages. $3.50.

Here is one book that is well worth the price before one begins to read it. It contains forty-six reproductions of paintings and drawings by Frederic Remington, Charles Schreyvogel, R. F. Zogbaum, and others. The pages ring with heroic names—Sherman, Sheridan, Miles, Custer, Crook, and such great Indian captains as Chief Joseph of the Nez Perces, Geronimo of the Apaches, and Crazy Horse of the Sioux.

Mr. Downey has here for the first time gathered together a mass of facts and presented them in chronological and connected order (not all of them victories) to make an epic narrative of bravery and hardihood, inspirational and thrilling. It is the story of a magnificent army that was neglected, forgotten, often maligned and until this volume, as a whole, unsung—the Great West of America in the closing years of the Nineteenth Century, with cavalry playing the predominant rôle!

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Every cavalryman in particular will want a copy of this literary, historical and pictorial gem.

AUTOMATIC ARMS—THEIR HISTORY, DEVELOPMENT AND USE. By Melvin M. Johnson, Jr. and Charles T. Haven. William Morrow & Co., New York, 1941. 150 illustrations. 344 Pages. $4.50.

This book is preëminent in its field. It covers all phases of automatic arms. Divided into sections, it provides easy reference for those readers seeking specific kinds of information: Part I—History and Development; Part II—How They Work; Part III—How to Keep Them Firing; Part IV—How Employed in Combat; Part V—Miscellaneous Considerations, such as accuracy, mechanical work in machine guns for better functioning, design, critique, etc. Appendices include tables of weapons, types and diagrams of the operating parts of many of the automatic arms now in use as well as some of the famous types of the past.

This book is a comprehensive and authoritative treatment of one of the most important factors in the present world conflict the automatic weapon. It should be in every library.

THE HYMNAL, ARMY AND NAVY. Edited by Evan L. Bennett, Chaplain, U. S. Army. A. S. Barnes & Co., New York. 1941. Complete index. 607 pages. $1.50.

This hymnal, with music and special prayers for service – Protestant, Catholic, and Jewish – represents extensive collaboration with chaplains, publishers, and agencies serving the spiritual needs of our men in the Services. It is designed to meet the requirements of the limitations of time, space and funds usually available to service chaplains.

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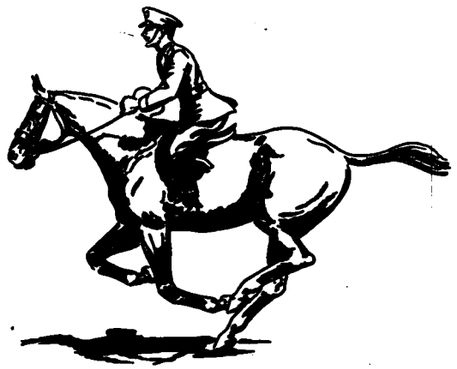

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MANUAL OF MESS MANAGEMENT. The Military Service Publishing Company, Harrisburg, Pa, 1941 (new). 340 Pages. Illustrations and appendices of useful information. $2.00.

A properly managed army mess obviously is one of the greatest aids to health and morale. For years there has been a definite need for a single volume that contains all of the necessary assembled information, not only for the unit commander, the mess officer, the mess sergeant, the cook, but for every man in the organization whose duties affect messing the outfit.

This valuable book is not an official publication, but in our opinion it should be. It is based for the most part on the following official documents:

Technical Manual 10-205, Mess Management
Technical Manual 10-210, Inspection of Subsistence Supplies
Training Manual 2100-151, The Army Baker
Training Manual 2100-152, The Army Cook
Field Manual 8-40, Field Sanitation
Field Manual 21-10, Military Sanitation and First Aid.

In addition to the above publications, the pamphlet, *Notes on Mess Management*, by the Coast Artillery School, and other data based on practical experience have been contributed.

Manual of Mess Management is complete and comprehensive. For greater mess efficiency, several copies should be made available immediately to every CCC, Military and Naval Mess.

SWORD PLAY. By Scott D. Breckinridge and Scott D. Breckinridge, Jr. A. S. Barnes & Co., New York. 1941. Illustrated. 100 pages. $1.75.

In this new book, based on the French School of the Foil, the authors present in concise form the basic theory and technique of the Classical School. Supplemental comment upon the duelling sword and saber is included, together with information as to its application of the theory and technique to competition and of the pitfalls that await the unwary.

There are four groups to whom this book will appeal and have special value: "(1) the amateur fencer whose past interest has been in the practice rather than in the theory of the art, but who has been drafted as coach in one of the colleges that has no available professional; (2) the instructor in the Department of Physical Education who, with only a minimum of personal knowledge, is called upon for class instruction; (3) the amateur fencer who has become somewhat vague in his memory of theory, rules, and conventions, but finds that he is to be called upon to act as an official in local fencing matches; and (4) the young fencer who must either give up fencing or find his way as best he may without the advantages of instruction."

Dr. Breckinridge was a member of the West Point Fencing Team, 1902-1903; Intercollegiate Foils Champion, 1903; National Foils Champion, 1906 and 1914; member of the Olympic Team 1912. He was coach at the University of Kentucky from 1937 until his death in 1941. His son and co-author was captain of the University of Kentucky fencing team.

BE A BETTER HORSEMAN. By Captain Vladimir S. Littauer. The Derrydale Press, New York. 230 illustrative photographs, index. 251 Pages. $10.00.

This is not a textbook and then again it is; or perhaps more correctly put, it is something new in textbooks on the subject of equitation.

When the author published *Riding Forward* and *More About Riding Forward* he immediately won acclaim in horse circles for his thorough and comprehensive exposition of the subject. In *Be a Better Horseman* he has included much of his former material but his method of presentation is truly unique. In this instance he has chosen to write a book in conversational form and all of the usual questions an instructor hears during his lessons are answered. In this manner the dryness and monotony common to most textbooks are admirably eliminated.

The excellently posed photographs are so closely connected with the material that in a sense the whole story is but a minute description of the pictures.

This book would be invaluable to civilians who are not familiar with terminology ordinarily found in military textbooks on horsemanship and horsemastership. On the other hand, our mounted services will find it of extreme interest and value. We recommend it!

SIGNPOSTS OF EXPERIENCE. By Major General William J. Snow, U.S.A. Retired. United States Field Artillery Association, Washington, D. C., 1941. Illustrated. 317 Pages. $2.75.

The author, Chief of Field Artillery 1918-1927, needs no introduction to army men. We all know of General Snow's tireless and progressive effort towards the improvement of his arm.

With characteristic clarity General Snow describes in this volume the complex problems that confronted him and the solutions that he reached or sought.

Although General Snow's work, for the most part, is a source book on a phase of our first World War and post-World War military effort, it all has an application to our present situation. His experiences as set forth are replete with lessons, hints and suggestions that are of especial and timely value.

FORTY MILLION HOOFBEATS. By Frank M. Heath, David Turet, New York. 1941. 465 Pages. $3.50.

In this current era of literary sensualism and sensationalism this book is truly refreshing. Writing in a fascinating style the author takes us on a factual 11,356-mile horseback ride with the great horse, *Gypsy Queen*, under saddle. She covered the greatest distance ever recorded of a continuous journey on foot, visiting every state in the Union.

Gypsy Queen "lived off the country" eating whatever feed was available, drinking all kinds of water and putting up with any kind of shelter. She was a great trooper.

The vivid account of the many kindnesses extended the travellers in remote parts of this great continent by all sorts of humble folk will restore to the reader a fresh faith in humanity in these heart-breaking times. Sergeant Heath's day-by-day account of his experiences constitutes a liberal education in Americana.

★★★★★★★★★★★★★★★★

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Horse Feathers

Dixie?

TROOPER: "Shall we hug and kiss and tell jokes?"
WHOOPER: "Oh, let's not jest now."

✓ ✓ ✓

Experience is a dead loss if you can't sell it for more than it cost you.

✓ ✓ ✓

MOTHER: "Remember, daughter, never marry a wild an' woolly an' hard-to-curry cavalryman."
THE WISE CHEEILD: "Gee, Ma, *never?*"

✓ ✓ ✓

CORPORAL (on the target range): "I told you to take a fine sight. Don't you know what a fine sight is?"
ROOKIE: "Sure, a boat load of corporals sinking." (Then the fun began!)

✓ ✓ ✓

A poor marksman can be an expert at killing a good thing.

✓ ✓ ✓

SON: "Dad, they say, 'there is no fool like an old fool.'"
COLONEL: "It is only that he is conspicuous by his rarety, son."

✓ ✓ ✓

CORPORAL: "Is there any way I can tell whether or not that girl is in love with me?"
SERGEANT: "Sure! If she knows what an ass you are making of yourself over her, then she ain't!!"

✓ ✓ ✓

Weight Reducer

BEST METHOD: Rotate the head slowly from right to left whenever offered a second helping of chow.

✓ ✓ ✓

RECRUIT: "How do you lift a mare's hind foot without getting kicked?"
SERGEANT: "Well, lad, first yer just edge up, sorta indifferent. Then gently touch her back, tender-like—and ease yer mit affectionately down her thigh. Savvy?"
RECRUIT: "Steady, Sarg. I mean hoss."

✓ ✓ ✓

"Lost: A chain of sixty golden minutes, each link set with sixty diamond seconds. No reward offered; it is gone forever."

Confidentially

At PX (5:00 PM): "Here come Mr. and Mrs. C.O., and, believe me, he's got what she takes!"

✓ ✓ ✓

The way to get a better assignment is to do the one we have *better*.

✓ ✓ ✓

PRIVATE EXPERIENCE (in store): "Won't you take something off for cash?"
SALES GIRL: "Sir!!??"

✓ ✓ ✓

Then there was the gal who became popular by changing her brand of cigarettes. She used to *walk a mile* and now she *satisfies*.

✓ ✓ ✓

CORPORAL: "How can you continue to eat in that *Quick and Dirty?*"
SERGEANT H & M: "Oh, I just take a shot of *Drano* afterwards."

✓ ✓ ✓

Virtue is learned at mother's knee, but vice at some other joint.

✓ ✓ ✓

COLONEL: "Did your husband get hurt badly when he was hit by a scout car, Liza?"
LIZA: "Yassah. He suffered from conclusion of the brain."
COLONEL: "You mean concussion of the brain, don't you, Liza?"
LIZA: "No, suh. I mean conclusion. He's daid!"

✓ ✓ ✓

Black and Blue, Perhaps

POSTMASTER: "How's that son in the cavalry gettin' on, Mrs. Wiggins?"
MRS. W.: "Grand! They just made him color sergeant."
P.M.: "Have they? What color?"

✓ ✓ ✓

A dud is a shell that fails to explode.
A dud, also, is a trooper who does *explode*.

✓ ✓ ✓

In these turbulent times it is unwise to believe anything we hear and little of what we see. So don't tell anybody!

CAVALRY PERSONNEL

(From November 15, 1941 to January 10, 1942)

Captain James P. Abbott, from Ft. Riley, Kans., to off., C. of S., Washington, D. C.

Captain Lawrence J. Alexander, det. IG, Dec. 20, to hq. AC Tech. Tr. Comd., Tulsa, Okla.

Lieutenant Thomas S. Anderson, from Ft. Knox, Ky., to A. C. R. C., Maxwell Field, Ala.

Major Julian M. Andrus, to 2d Interceptor Comd., Ft. Lawton, Washington.

Captain Carroll W. Arford, from Ft. Knox, Ky., December 15, to Off., C. S. O., Washington, D. C.

First Lieutenant Gilbert C. Arnold, from Ft. Bliss, Tex., to San Francisco Port of Embarkation, Ft. Mason, Calif.

Lieutenant Robert W. Arnold, from Brooks Field, Tex., to 91st Obs. Sq., Pine Camp, N. Y.

Lieutenant Lewis L. Austin, to Hqs. Air Support Comd., Mitchel Field, N. Y.

Captain David D. Babcock, from Ft. Riley, Kans., January 5, to off., C. S. O., Washington, D. C.

Colonel J. A. Baer, G. S. C., will retire April 30, statutory age limit; relieved Governors Island.

Lieutenant Arthur B. Baldwin, to 4th Interceptor Comd., March Field, Calif.

Lieutenant Harold L. Barr, to Air Serv. Comd., Middletown, Pa.

Lieutenant Wm. J. Barter, S. C. Rep. Cen., Ft. Monmouth, N. J.

Lieutenant Irvin L. Basler, to Air Serv. Comd., Middletown, Pa.

Captain Charles R. Bean, from Camp Livingston, La., to Cav. Rep. Tr. Cen., Ft. Riley, Kans.

First Lieutenant William F. Beaty, prior orders amended, from 2d Cav. Div., Ft. Riley, Kans.

Lieutenant Perry Benson, to Air Serv. Comd., Middletown, Pa.

Lieutenant Colonel L. S. S. Berry, relieved 7th C. A. S. C., Fort Riley; assigned Hq., 4th C. A., Atlanta.

Lieutenant Frank R. Bertero, to 59th Obs. Sq., Fort Dix, N. J.

Major Charles P. Bixel, from Ft. Oglethorpe, Ga., to Off., C. of Cav., Washington, D. C.

Lieutenant Colonel Francis T. Bonsteel, from Ft. Knox, Ky., December 27, to hq., 2d Corps Area, Governors Island, N. Y.

Lieutenant Thos. J. Brett, to 126th Obs. Sq., Fort Dix, N. J.

Colonel John K. Brown, retirement revoked; prior orders amended, Ft. Bliss, Tex., to 8th C. A. S. C., that station.

Major John V. Brown, from Ft. Jackson, S. C., to Army Air Forces, Washington, D. C.

Captain Oral J. Brown, to 4th Interceptor Comd., March Field, Calif.

Lieutenant Dickson D. Bruce, to Air Serv. Comd., Sacramento, Calif.

Major W. M. Burgess, relieved 5th Cav., Fort Bliss; assigned Hq., Army Air Forces, Washington, D. C.

Captain Louis Buttner, prior orders amended, December 20, 1941, instead of December 10, 1941.

Lieutenant Colonel James N. Caperton, Ft. Riley, Kans., to Cav. Board, Ft. Riley, Kans.

Captain Robert W. Castle, from Ft. Riley, Kans., to C. of Cav. Off., Washington, D. C.

Lieutenant Durland E. Clark, Jr., to S. C. Rep. Tr. Cen., Fort Monmouth, N. J.

Second Lieutenant Roy J. Clinton, prior orders amended, to 4th Cav., Ft. Meade, S. Dak.

Lieutenant Edward A. Cockey, to S. C. Rep. Tr. Cen., Ft. Monmouth, N. J.

Captain Robert C. Cockran, from Ft. Knox, Ky., to Off., C. of C., Kansas.

First Lieutenant Haskett L. Conner, Jr., from Ft. Benning, Ga., December 17, to 1st Cav. Div., Ft. Bliss, Tex.

Lieutenant Colonel Leo B. Conner, det., G. S. C., December 15, to 1st Armored Div., Ft. Knox, Ky.

Second Lieutenant Philip G. Connor, from Ft. Brown, Tex., to 2nd Interceptor Comd., Ft. Lawton, Washington.

Colonel Paul H. McG. Converse, prior orders revoked, from Washington, D. C., to Off., P. M. G., Arlington Cantonment, Va.

Captain Ira D. Cope, to Air Serv. Comd., Wellston, Ga.

First Lieutenant John K. Cunningham, from Ft. Myer, Va., December 10, to Off., C. of S., Washington, D. C.

First Lieutenant Leander A. Dailey, from Arlington Cantonment, Va., December 17, to 1st Infantry Div., Ft. Devens, Mass.

Second Lieutenant Howard F. Davis, Ft. Riley, Kans., to Cav. Rep. Tr. Cen., that station.

Captain Frank J. Day, from Ft. Jackson, S. C., to M. P. School, Arlington Cantonment, Va.

Captain Richard E. S. Deichler, from Olmsted Field, Pa., to Hqs., Army Air Forces, Washington, D. C.

Colonel Calvin De Witt, Jr., relieved detail as member of G. S. C., assignment W. D. G. S., and office, C. of S., Washington, D. C.; assigned New York Port of Embarkation.

Lieutenant Samuel W. Dobyns, to Cav. Det., Ft. Myer, Va.

Captain Wm. D. Dorbritz from Ft. McIntosh, Texas, to 119th Obs. Sq., Ft. Dix, N. J.

Captain John K. Dufton, to 4th Interceptor Comd., March Field, Riverside, Calif.

Lieutenant Colonel Frederick F. Duggan, from Ft. Knox, Ky., to San Francisco Port of Embarkation, Fort Mason, Calif.

Second Lieutenant Louis Dups, from Fort Devens, Mass., December 26, to Off., C. of S., Washington, D. C.

Captain James G. Earnest from Brooks Field, Tex., to 91st Obs. Sq., Pine Camp, New York.

Captain Charles L. Ebert, Camp Forrest, Tenn., to 128th Obs. Sq., that station.

Major Charles H. Edwards, to I. G. D., Hq., Second Army, November 25.

Lieutenant Dan L. Evander, to 2d Interceptor Comd., Ft. Lawton, Washington.

Lieutenant Colonel H. E. Featherstone will be retired for physical disability December 31st; relieved Fort Sam Houston.

Lieutenant Colonel Herbert E. Featherstone, to active duty, January 1, date following retirement, to Central Catholic H. S., San Antonio, Tex.

Captain Daniel C. Fahey, from Ft. Riley, Kans., to Off., C. of Cav., Washington, D. C.

Second Lieutenant F. C. Fitzpatrick's orders further amended to assign him 4th Cav., Fort Meade, S. Dak., upon completion of basic horse and mechanical course, Cav. Sch., Fort Riley.

Lieutenant Colonel L. C. Frizzell, relieved Hq., IV Army Corps, Jacksonville, January 5; assigned 3d Cav., Fort Myer.

Lieutenant Colonel James V. Gagne, from Ft. Knox, Ky., to home to await retirement.

First Lieutenant Michael R. Galland, from Ft. Knox, Ky., December 21, to inactive status.

First Lieutenant Kenneth E. Gardner, prior orders amended, "First Lieutenant Kenneth E. Gardiner."

Major Edwin P. Geesey, Washington, D. C., det., in G. S. C.

Captain James C. Gentle, Ft. Riley, Kans., to faculty, Cav. Sch., that station.

Major Alexander George, from Panama Canal Dept., to 56th Cav. Brig., Ft. McIntosh, Tex.

Captain John F. Gibbons, Jr., from Brooks Field, Tex., to Air Service Comd. Subdepot, Enid, Okla.

Brigadier General Frederick Gilbreath, to comd., San Francisco Port of Embarkation, Ft. Mason, Calif.

Lieutenant James E. Glover, to 1st Photo Group, Bolling Field, Washington, D. C.

Lieutenant Clifford H. Gray, Jr., to 4th Air Support Command, Hamilton Field, Calif.

Lieutenant Billy G. Griffith, from MacDill Field, Fla., to A. C. R. C. Maxwell Field, Ala.

Lieutenant Nelson S. Groome, to Cav. Det., Ft. Myer, Va.

Lieutenant Robert E. Haegelin, to Air Serv. Comd., Sacramento, Calif.

Lieutenant Preston D. Hale, from Ft. McIntosh, Tex., to 59th Obs. Group, Ft. Dix, N. J.

Second Lieutenant Wesley B. Harrell, from Ft. Clark, Tex., to sta. comp., A. C. A. F. S., Mission, Tex.

Major Thomas L. Harrold, from Hartford, Conn., January 31, to 2d Cav. Div., Ft. Riley, Kans.

Second Lieutenant Nathan Hayward, Jr., from Indiantown Gap, Pa., to Off., C. of E., Washington, D. C.

Lieutenant Colonel Gordon J. F. Heron, from Columbus, Ohio, to Hartford, Conn.

First Lieutenant Walter J. D. Hewitt, from Ft. Riley, Kans., to 56th Cav. Brigade, Ft. McIntosh, Tex.

Captain Adolphus K. Heyner, from Fort Hayes, Ohio, to Off., J. A. G., Washington, D. C.

Captain Wm. M. Hill, to Air Serv. Comd., Sacramento, Calif.

Captain Geo. W. Hoar, to 4th Interceptor Comd., March Field, Calif.

Lieutenant Everett M. Hockwald, to Air Serv. Comd., Sacramento, Calif.

Lieutenant Chas. T. Holmes, to 91st Obs. Sq., Pine Camp, N. Y.

Lieutenant Henry B. Holmes, III, to S. C., Rep. Tr. Cen., Fort Monmouth, N. J.

Captain Luther A. Holmes, from Ft. Riley, Kans., to Armd. Force Sch., Ft. Knox, Ky.

Lieutenant Colonel J. D. Hood, relieved O. R., 2d C. A., New York City; detailed Univ. of Illinois, Urbana.

Captain Ernest C. Hudgins, Jr., from Ft. Knox, Ky., to Off. C. of S., Washington, D. C.

Lieutenant Pierce P. Hurley, 59th Obs. Group, Ft. Dix, N. J.

Lieutenant Colonel Nelson M. Imboden, retired, January 31, at own application.

First Lieutenant Milton J. Ingeman, Ft. Knox, Ky., to post QM., that station.

Lieutenant Colonel Wm. R. Irvin, Fort Bliss, Texas, to 7th C. A. S. C., Ft. Riley, Kans.

Captain Wm. A. Johnson, from Ft. McIntosh, Texas, to 104st Sq., Camp Edward, Mass.

Lieutenant Wm. E. Johnson to 1st Interceptor Comd., Windsor Locks, Conn.

Major Malcolm D. Jones, from Ft. Knox, Ky., to Army Air Forces, Washington, D. C.

Lieutenant Colonel Marcus E. Jones, from Ft. Riley, Kans., to 4th Motorized Div., Ft. Benning, Ga.

First Lieutenant William P. Jones, Jr., Ft. Riley, Kans., to 2d Cav. Div., that station.

Lieutenant Michael P. Jury, to 1st Interceptor Comd., Windsor Locks, Conn.

Major Roy D. Keehn, Jr., from Camp Livingston, La., to faculty, Cav. Sch., Ft. Riley, Kans.

Second Lieutenant Richard D. Kelly, prior orders revoked, from Camp Polk, La., November 25, to S. C. Rep. Tr. Cen., Fort Monmouth, N. J.

Lieutenant Wm. J. Kemp, to 26th Obs. Group, Providence, R. I.

Major Stephen J. Kennedy, from Washington, D. C., November 30, to inactive status.

Lieutenant Carlton C. Keyes, to Air Serv. Comd., Middletown, Pa.

Captain William N. Kirkpatrick, Ft. Bliss, Tex., November 15, to 16th QM Sqdr., that station.

Captain Clen L. Laffer, from Camp Bowie, Tex., to sta. comp., A. C. A. F. S., Midland, Tex.

Major Clarence J. Lambert to A. C. A. F. S., Midland, Tex.

Major Walter R. Lee, to A. C. A. F. S., to Midland, Tex.

Lieutenant Frank B. Leinbach, Air Serv. Comd., Sacramento, Calif.

Captain Furman H. Limburner, to 1st Photo Group, Bolling Field, Washington, D. C.

First Lieutenant Robert B. Lincoln, from Pine Camp, N. Y., February 11, to inactive status.

Captain Russell C. Lord, from Washington, D. C., January 7, to faculty, MP Sch., Arlington Cantonment, Va.

Lieutenant Henry M. McAleenan, 119th Obs. Sq., Ft. Dix, N. J.

First Lieutenant Warren L. McKinney, from Indiantown Gap, Pa., to Cav. Rep. Tr. Cen., Ft. Riley, Kans.

Lieutenant Cornelius A. McManus, Air Serv. Comd., Sacramento, Calif.

Major Paul MacK. Martin, from Ft. Riley, Kans., to Hq., 9th Army Corps, Ft. Lewis, Wash.

Lieutenant Colonel Paul J. Matte, from Ft. Oglethorpe, Ga., to 1st Cav. Div., Ft. Bliss, Tex.

Lieutenant Edward J. Meegan, to 119th Obs. Sq., Fort Dix, N. J.

Lieutenant Colonel Harry C. Mewshaw, from Ft. Bliss, Tex., to Cav. Rep. Tr. Cen., Ft. Riley, Kans.

Major J. A. Michela, appointed to temporary rank of lieutenant colonel, while assigned as military attaché to U. S. S. R.

First Lieutenant Hope C. Miles, from Washington, D. C., to New York, N. Y.

Captain Wm. J. Miles, from Fort McIntosh, Texas, to 1st Air Support Comd., Mitchel Field, New York.

Second Lieutenant John Millikin, Jr.'s orders further amended to assign him 2d Cav. Div., Fort Riley, upon completion of temporary duty as student, basic horse and mechanical course, Fort Riley.

Second Lieutenant Charles E. Moore, Jr., from Fort Myer, Va., to 6th Cav. Regt., Ft. Oglethorpe, Ga.

Captain Edward C. Moore, from Ft. McIntosh, Texas, to 1st Air Support Comd., Mitchel Field, N. Y.

Major George B. Morse, from Springfield, Ill., to Cav. Rep. Tr. Cen., Ft. Riley, Kans.

Lieutenant Colonel H. A. Myers, detailed as member of G. S. C.; assigned G. S. with troops, and with G. S. C., Hq., 4th C. A., Atlanta.

Lieutenant Franklin W. Nicholai to 2d Interceptor Comd., Ft. Lawton, Wash.

Captain Delk M. Oden, from Ft. Riley, Kans., to 4th Armored Div., Pine Camp, New York.

Lieutenant Edward P. O'Kane, to 1st Photo Group, Windsor Locks, Conn.

Lieutenant Lockwood M. Pennell, to Tow Target, Det., Manchester, N. H.

Lieutenant Cornelius Perry, II, to 91st Obs. Sq., Pine Camp, N. Y.

Lieutenant Colonel Donald S. Perry, from Washington, D. C., January 20, to Cav. Rep. Tr. Cen., Ft. Riley, Kans.

Lieutenant Lawrence R. Pierce, to Tow Target Det., Mitchel Field, N. Y.

Lieutenant Colonel Frederick R. Pitts, from Ft. Knox, Ky., to Army Air Forces, Washington, D. C.

Captain Charles M. Pollack, to 2d Interceptor Comd., Ft. Lawton, Wash.

First Lieutenant Chas. E. Pratt, to Air Serv. Comd., Sacramento, Calif.

Lieutenant Robert Ranlet, Jr., to Tow Target Det., Manchester, N. H.

Lieutenant Colonel George W. Reade, Jr., from Ft. Knox, Ky., to G. S. C., Hq., I Armd. Corps, that station.

Captain Jules V. Richardson (1st Lt.) temp. appointment as Captain terminated, December 2, from Camp Polk, La., to home to await retirement.

Lieutenant Chas. B. Roberts, to 4th Inceptor Comd., March Field, Calif.

Lieutenant Walter O. Roney, to 4th Inceptor Comd., March Field, Riverside, Calif.

First Lieutenant Broadford Ross, from Ft. Lewis, Washington, to Off., P. M. G., Washington, D. C.

Major John L. Ryan, Jr., from Ft. Knox, Ky., det., to G. S. C.

Lieutenant Elwood F. Ryder, to S. C. Rep. Tr. Cen., Ft. Monmouth, N. J.

Lieutenant Edward H. Schroeder, to Air Serv. Comd., Sacramento, Calif.

Second Lieutenant Richard P. Scott, prior orders amended, to 2d Cav. Div., Ft. Riley, Kans.

Second Lieutenant Charles R. Shannon, from Ft. Knox, Ky., December 13, to 91st Obs. Sqdn., Pine Camp, N. Y.

Lieutenant Colonel V. F. Shaw, now on duty in office, C. of S., Washington, D. C., is detailed as member of G. S. C. and assigned W. D. G. S.

Lieutenant Ralph G. Shank, to Air Serv. Comd., Wayne Co. Airport, Romulus, Mich.

Captain S. D. Slaughter, Jr., Ft. Riley, Kans., to 2d Cav. Div., that station.

Second Lieutenant Leon R. Slocum, from Ft. Devens, Mass., to sta. comp., A. C. Rep. Tr. Cen., Maxwell Field, Ala.

Lieutenant Edward T. Smith, to Tow Target Det., Manchester, N. H.

Lieutenant Colonel G. I. Smith, relieved office, C. of Cav., Washington, D. C., assigned 2d Cav. Div., Fort Riley.

Captain Lathrop E. Smith, from Camp Polk, La., to Off., C. of Cav., Washington, D. C.

Captain David T. Stafford, from Fort McIntosh, Texas, to Air Serv. Comd., Sacramento, Calif.

First Lieutenant Alonzo F. Stark, from Ft. Riley, Kans., to 4th C. A. S. C., Fort Oglethorpe, Ga.

Lieutenant Colonel H. P. Stewart's orders releaving him 3d C. A. S. C., Fort G. G. Meade, Md., and assigning him 3d Cav., Ft. Myer, revoked.

Lieutenant Colonel O. R. Stillinger, relieved 1st Cav. Div., Fort Bliss; assigned S. F. Port of Embarkation, Fort Mason.

Major John H. Stodter, Ft. Riley, Kans., to 2d Cav. Div., that station.

Major Thomas F. Taylor, from Ft. Oglethorpe, La., to student Naval War College, Newport, R. I.

Second Lieutenant Wentworth J. Tellington, from Governors Island, N. Y., to U. S. M. A., West Point, N. Y.

Colonel Arthur P. Thayer, from Ft. Leavenworth, Kans., December 5, to G. S. C., Hq., Second Army, Memphis, Tenn.

Major H. J. Theis, detailed as member G. S. C.; assigned G. S. with troops, and with G. S. C., 1st Cav. Div., Fort Bliss.

Lieutenant John H. Trull, 91st Obs. Sq., Pine Camp, N. Y.

Colonel A. H. Truxes, relieved 6th Cav., Fort Oglethorpe; assigned Hq., 4th C. A., Atlanta.

First Lieutenant W. L. Turner, relieved 2d Cav. Div., Fort Riley; assigned 4th Armored Div., Pine Camp, N. Y.

Lieutenant Ben. T. Wade, to S. C. Rep. Tr. Cen., Ft. Monmouth, N. J.

Lieutenant Colonel Thomas D. Wadelton, retirement revoked.

Captain Jesse L. Waite, Indiantown Gap, Pa., to Army Air Forces, Washington, D. C.

Captain Edwin R. Wallace, to 4th Interceptor Comd., March Field, Calif.

First Lieutenant Alan MacN. Warfield, from Ft. Benning, Ga., December 31, to Off. C. of S., Washington, D. C.

Lieutenant Harold F. Weidner, to 1st Photo Group, March Field, Riverside, Calif.

Lieutenant John P. Wheeler, to Air Serv. Comd., Wellston, Ga.

Colonel Frank L. Whittaker, from Ft. Jackson, S. C., November 25, to Hq., 4th Army, Presidio of San Francisco, Calif.

First Lieutenant Leslie R. Wilcox, prior orders amended, January 8, 1942, to 4th Armd. Div., Pine Camp, N. Y.

Lieutenant Colonel Candler A. Wilkinson, from Ft. Riley, Kans., January 2, to Off., in charge, South Central Remount Area, San Angelo, Texas.

Lieutenant Colonel Ernest A. Williams, from Washington, D. C., to 1st Cav. Div., Ft. Bliss, Texas.

Major James S. Williams, from Indiantown Gap, Pa., January 9, to faculty, S. C. School, Ft. Monmouth, N. J.

Major Andrew W. Willis, from Ft. Lewis, Wash., to sta. comp., A. C. B. F. S., Moffett Field, Calif.

Major Arthur N. Willis, from Camp Seeley, Calif., to 7th C. A. S. C., Ft. Riley, Kans.

Lieutenant Benj. D. Willis, from Ft. Devens, Mass, to A. C. R. C., Maxwell Field, Ala.

Captain Arthur McD. Wilson, III, from Ft. Benning, Ga., to Off., Chief of Morale Branch, Washington, D. C.

Lieutenant Earl S. Wilson, to 1st Photo Group, March Field, Riverside, Calif.

Lieutenant Kenneth C. Willson, to 2d Interceptor Comd., Ft. Lawton, Wash.

Captain Wm. J. Wiseheart, from Ft. McIntosh, Texas, to Tow Target Det., Mitchel Field, N. Y.

Captain Carroll Wright, from Camp Polk, La., to Cav. Rep. Tr. Cen., Ft. Riley, Kans.

Major W. W. Yale, relieved office, C. of Cav., Washington, D. C., December 6; detailed as member G. S. C.; assigned G. S. with troops, and Hq., 1st Cav. Div., Fort Bliss; to report for temporary duty at Fort Lewis; previous orders revoked.

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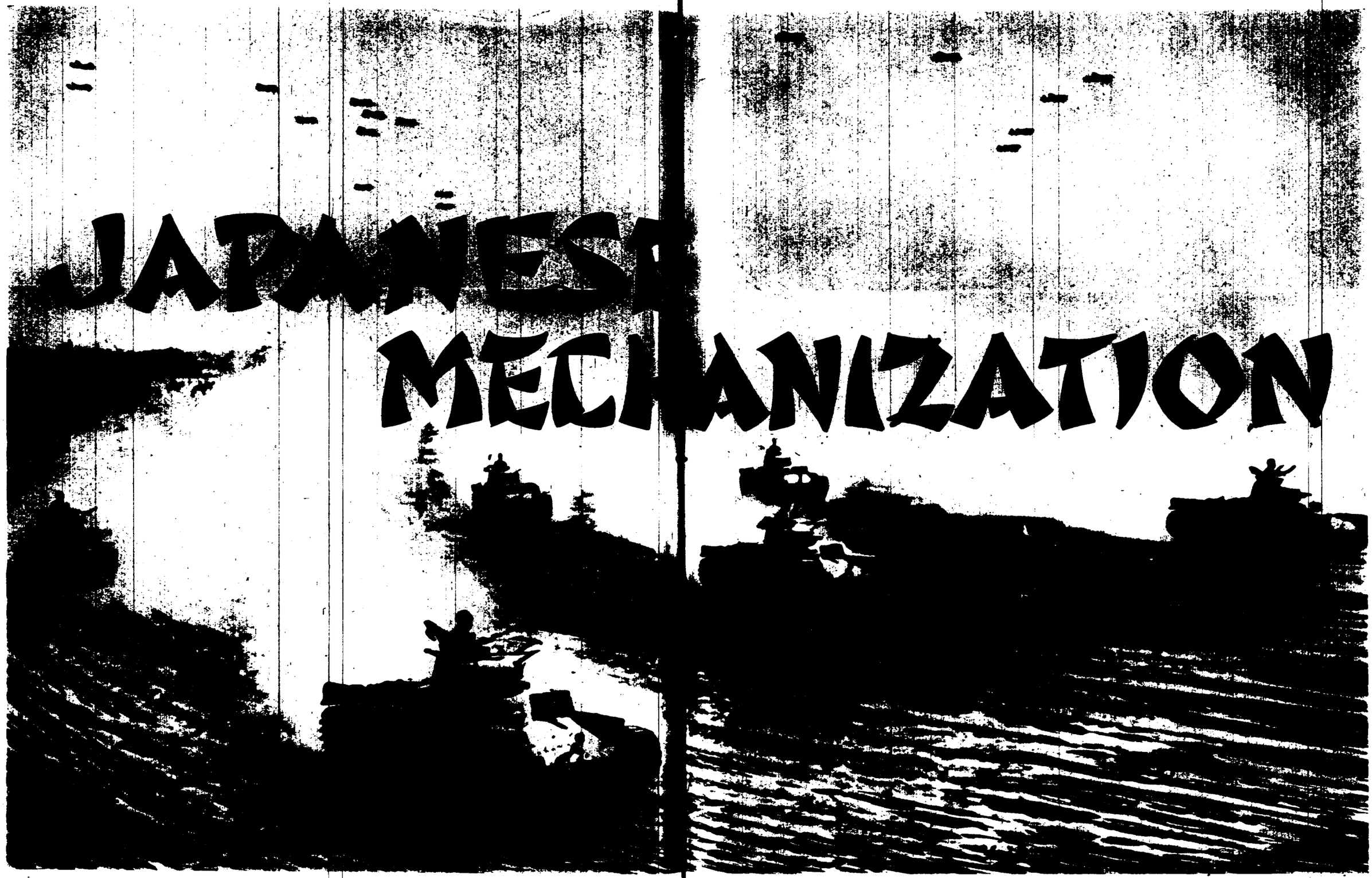
JAPANESE MECHANIZATION



Japanese Tank Employment

THERE are 15 or more known models of tanks in the Japanese Army. It will be noted that the basic types are few and a slight modification is given a new designation. For convenience, the tanks are classified according to weight as tankettes, light, medium, and heavy tanks.

Tactical doctrine.—As a result of experience in the Manchurian incident, the present war in China, and the clash with the Russians at Changkufeng, the Japanese Army has acquired a lively appreciation of the value of mechanization. Large sums of the current re-equipment budget have been set aside to push the mechanization program. Much thought is being given to the proper use of this new weapon in the light of the experience of the Japanese Army itself and of that of foreign armies. A distinguishing feature of the new Combat Regulations (Sakusen Yomurei) is the modification, extension, and detailed expatiation of the paragraphs devoted to the use of tanks and mechanized units. As in other countries, the Japanese are not sure of the proper use of these weapons and are not yet prepared to commit themselves to a detailed tactical doctrine. Hence, the new regulations, while giving additional space to considerations of mechanization treat the subject with broad generalities which leave considerable doubt as to whether the Japanese have worked out many of the practical details of such highly involved questions as infantry-tank-artillery liaison, control by higher commanders, logistics of mechanized forces, etc.

Strength.—At the outbreak of the China incident, the known mechanized strength of the Japanese Army consisted of two tank regiments. While the wartime expansion of tank units is not definitely known, it is believed that in 1939 there was the equivalent of six tank regiments in China and of one organic tank company in each division. No formally organized large mechanized units (brigades or divisions) are known to exist in the Japanese Army; however, improvised mechanized units have been used on the continent repeatedly with considerable success. Such units, while probably without elaborated tables of organization and equipment, are organized on the basis of expediency and availability of matériel with the usual reconnaissance, ground-holding, shock, and supply components which characterize the mechanized brigades and divisions of foreign armies.

Tanks With Division

Tactics—Offensive.—The tanks with a division are normally used as *accompanying tanks* attached to the infantry units making the principal attack. Such tanks are brought up secretly prior to the attack to assembly positions about 3 miles behind the line of departure. Here final reconnaissance and attack preparations are completed. Tank commanders confer with the infantry regimental and battalion commanders to whom they are to be attached as well as with the artillery which is to support the attack. Topics for conference and decision are: tank objectives and hour of attack; tank jump-off positions; routes to the jump-off position and the subsequent zone of advance; type of artillery support desired

(Continued on page 7)

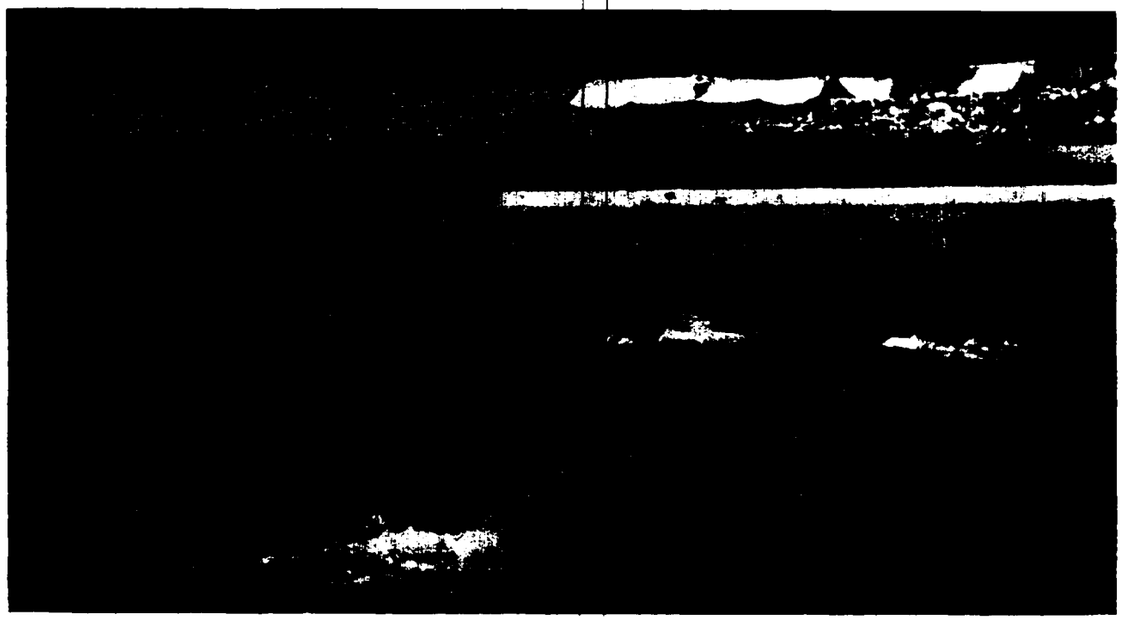
Japanese reported as having employed these *one man tanks* in the Malay Peninsula fighting.

JAPANESE TWO-MAN TANKETTE M2592 (1932)

These photographs were made in 1940 when the Japanese entered the Kikawei (French) Section of Shanghai.

DATA

Crew: 2 (1 driver and 1 gunner).
Armament: L.M.G. in turret.
Armor: 0.31 to 0.55 inch thickness.
Communications: Flag.
Dimensions: Length: 10 feet, 2 inches.
Width: 5 feet, 9 inches.
Height: 5 feet, 4 inches.
Weight: 3 tons.
Motor: Type 4-cylinder, air cooled, 45 h.p.
Steering, brake or controlled differential: Front sprocket.
Maximum Speed: 30 m.p.h.
Suspension type: 4 bogie wheels. 2 bogies, Carden Lloyd system.
Ground clearance: 1 foot, 1 inch.
Remarks: Also known as light armored vehicle, used with trailer for supply and intercommunication.



AMPHIBIOUS MODEL (EXPERIMENTAL) LIGHT TANK

Japanese tanks, according to American and European standards of types, are of much lighter construction.

Tankette M 2595 (1935) has a crew of two men, carries one 37-mm. gun in turret and two machine guns in hull fore.

Armor: 0.47 inch.

Length: 13 feet, 9 inches; Height: 6 feet, 5 inches.

Weight: 4 tons; 70 h.p.; Maximum Speed, 22 m.p.h.

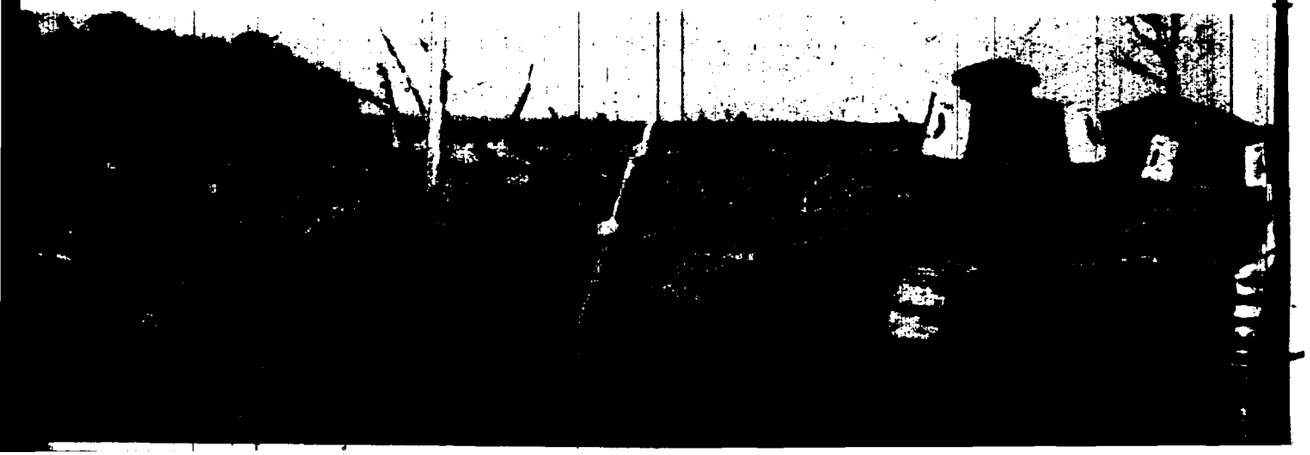
Tankette M 2598 (1938) has a crew of three men (1 driver and 2 gunners), carries one machine gun in turret and one machine gun in hull fore. Armor: 0.55 inch; Length: 10 feet, 3 inches; Width: 5 feet, 9 inches; Height: 5 feet, 4 inches; Weight: 3 tons; 55 h.p.; Maximum Speed: 33 m.p.h.

Light Tank M 2593 (1933) has a crew of 3 men; one machine gun in turret, and one machine gun in hull fore. Armor: 0.86 inch; Length: 14 feet, 8 inches; Width: 5 feet, 11 inches; Height: 6 feet; Six cylinder, 85 h.p.; 28 m.p.h. Six bogie wheels, 3 bogies. Fords streams 2 feet, 8 inches deep. Also, experimental amphibious model.

Light Tank M 2595 (1935). 3 man crew, carries one 47-mm. gun in single turret, two 7.7-mm. machine guns in hull fore. Armor: 0.47 inch; radio communication; Length: 14 feet, 9 inches; Width: 6 feet, 6 inches; Height: 6 feet, 6 inches; Weight: 7.7 tons; 110 h.p.; Maximum Speed: 22 m.p.h.; Fords streams 3.2 feet deep.

Light Tank M 2599 (1939). 3 man crew, carries one 37-mm. gun and one machine gun. Armor: 0.63 inch; Length: 16 feet, 6 inches; Width: 5 feet, 8 inches; Height: 7 feet, 4 inches; Weight: 7 tons; Four cylinder, Diesel motor; 45 h.p.; Maximum Speed: 12½ m.p.h.

The photo of the light tank below was made in Peiping, China.



(Continued from page 4)

and its coördination with the advance of the tanks; plan for meeting a counterattack by hostile tanks; signal communications between infantry tanks, and artillery. On the night preceding the attack, the tanks move to jump-off positions under cover of the noise of artillery firing and low-flying airplanes. Attack formations aim at obtaining the effect of mass by disposing the tanks in several waves across the front of the infantry unit to which attached. The tanks move forward followed closely by the infantry and supported by the artillery which neutralizes enemy antitank weapons by fire and smoke. Tank objectives are: obstacles blocking the advance of the infantry; the enemy automatic weapons left unneutralized by the artillery; eventually, the hostile artillery and command system. The infantry must stick close to the tanks; if the latter get too far ahead, they may have to turn around and rejoin the infantry.

The foregoing discussion applies particularly to the attack of a position where the need for tanks is especially acute. In the meeting engagement, the tactics of the tanks are in general the same except that preparations and liaison arrangements are not so detailed and the attack moves more rapidly. In a favorable situation, the division commander prior to the main attack may send out all or part of his tanks ahead of the advance guard to upset the hostile deployment and derange the command system of the opposing force. In such a case, the tanks are given a rendezvous point where they assemble and return to the main body in time for use with the principal attack.

Leading tanks.—It is doubtful whether the Japanese have had actual experience in the use of leading tanks, although the new Combat Regulations contemplate their use in cases where tanks are available in plentiful numbers. The Japanese first satisfy the requirements for accompanying tanks; those in excess of this requirement are organized into a leading tank detachment under division control. Taking off several minutes ahead of the main attack, they rush deep into the zone of the hostile artillery and command system. They are given a zone of action, a rallying point, and mission type of order to include the subsequent course of action. Artillery support is planned carefully to cover the tanks through the forward area of hostile antitank weapons. Long-range artillery coördinates its fire with the movement of the tanks so as not to interfere with their progress.

Miscellaneous uses of tanks.—The following miscellaneous uses of tanks have been noted in the China War:

Tanks break through the defenses at the mouth of a defile, reconnoiter the inner defenses, and return.

Tanks execute local battlefield liaison and reconnaissance missions as well as transport essential supplies in the areas beaten by the Chinese small-arms fire.

Tanks are the main force in a frontal holding attack, while the remainder of the division envelops a flank.

Tanks block the escape of fugitives through the rear gates of walled towns.

Defensive.—On the defense, the division commander usually holds his tanks initially in division reserve under cover from artillery fire and attack from the air. Eventually they are attached to the infantry making the division counterattack. They are particularly valuable in stopping a hostile mechanized force, as the defensive tanks can defeat a superior number of the enemy tanks if the latter have run away from their artillery support or have become dispersed. Occasionally, the defending commander may use his tanks, before the enemy attacks, in a raid on the hostile assembly areas. In all cases, tank actions must be supported by carefully arranged artillery fire to neutralize the hostile antitank guns.

Mechanized Units

Organization.—As previously indicated, the Japanese have in China provisional mechanized units varying in size and composition, according to the matériel at hand and the mission to be accomplished. In general, these units have a strong nucleus of tanks supported by motorized infantry, engineers, field and antiaircraft artillery, anti-gas, and signal detachments. The whole force is supplied by a truck train formed from line of communication (heitan) supply units. Observation aviation is usually attached.

Tactics.—Offensive.—A mechanized force normally receives an offensive mission whereby full advantage can be taken of its high mobility and capacity for independent action. In general, its tactics are about the same as those of a large cavalry force. By secrecy and rapid movement (usually at night) it surprises the enemy force in a terrain suitable for the tanks which form the backbone of the combat strength of the command. The commander, keeping his tanks under central control, masses them for a quick blow in a vital attack direction. The motorized infantry receives any or all of the following missions:

It covers the tanks and facilitates their action.

It holds the ground won by the tanks.

It occasionally takes over a front in the holding attack or makes an attack to create a diversion either by day or night.

The infantry always fights dismounted but stays in its carriers as long as possible. The artillery performs normal support missions with especial attention to enemy antitank guns.

As a mechanized force draws near the enemy, the commander prepares tentative plans to meet varying hypotheses, as the situation is susceptible to sudden changes in this fast-moving type of combat. He activates reconnaissance and security agencies, meanwhile gradually reducing the depth of his dispositions. As the enemy situation clears somewhat, he chooses an assembly area in conformance with his tentative scheme of maneuver. This area is as close to the enemy as is con-

This is a Japanese *Medium Tank M 2594* (1934). It has a 5 man crew, carries one machine gun in turret and one machine gun and one bomb in hull fore. Mortar inside. Ammunition: 6,000 rounds small arms, 120 rounds 37-mm. and 100 bombs. Armor thickness: Upper structure and front, 0.67 inch; Sides, top and rear, 0.43 inch; floor, 6 millimeters. Length: 20 feet, 10 inches (with tail); Width: 8 feet, 4 inches; Height: 8 feet, 6 inches; Weight: 14 tons; motor: 6 cylinder *Mitsubishi* airplane, air cooled; 160 h.p.; Maximum Speed: 28 m.p.h.; Operating distance without refill: 124 miles (210 gallons). Gear speeds and ratios: 8 forward and 2 rear; Suspension type: 9 bogie wheels (4 bogies, 1 independent bogie wheel); Ground clearance: 1 foot, 6 inches; Climbs 46° slopes; Negotiates vertical obstacle 3 feet high; crosses trenches 10 feet, 6 inches wide; fords streams 3 feet deep; used by army and navy landing party. Army model may have only one gun in turret; gun may be 47-mm.

sonant with safety. If there is danger of a sudden collision with the enemy, the commander may traverse the final distance between himself and the enemy by bounds from one terrain line to another.

A bold envelopment or a turning movement is the maneuver best suited to a mechanized force. Such a force will often march at night, assemble in darkness, and attack at dawn. In the assembly area, reconnaissance is made, order is restored, and missions are assigned for the subsequent attack. When the enemy situation is vague, the usual objective is a terrain feature the possession of which is essential to the enemy. In the final deployment troops remain in vehicles until the danger of hostile fire forces them to dismount. When this has occurred, empty vehicles are parked under cover from air and ground observation. The unit reserve is usually infantry but on occasion may include some tanks. The detailed conduct of the attack follows the tactics of a large cavalry force.

Mechanized units are particularly well adapted to pursuit and exploitation. The objectives assigned to them are those suitable to any pursuit detachment, but their range of action permits a deeper penetration into the hostile areas. It is in this form of action that the Japanese mechanized forces have found their chief employment in the China War.

Defensive.—Since the defensive nullifies the mobility of a mechanized force, it is a form of combat to be avoided, but it may be imposed by the situation. In such a case, the commander usually disposes his dismounted infantry in a discontinuous line of strong points with most or all of the tanks held in reserve. The defense is conducted along customary lines with the principal concern of the commander being the engagement of his tanks in a counterattack. In the usual defensive situation the enemy will be superior in tanks; hence, the commander must endeavor to stage the decisive tank action out of range of antitank guns. Under such conditions, his inferiority in tanks is compensated for by the supporting fires of the artillery. When the hostile tanks are defeated the crisis is passed and the counteroffensive is often justified.

Comments

Mechanization is extending rapidly throughout the Japanese Army where its value is fully understood. The army has acquired considerable battlefield experience in small-scale tank actions and in the use of improvised mechanized forces. The V-front light tanks which recently were used by the Japanese in landing operations, fires armor-piercing ammunition from .50 caliber machine guns. Direct hits, from 37-mm. guns in some cases were deflected by the sloping front of this tank. Although these latter do not have the striking power of the elaborated mechanized forces of Western Powers, they secure most of the benefits of mechanization at a low cost. This question of cost is likely to be the critical limiting factor in the extension of mechanization in Japan, a country poor in foreign exchange and without a well developed automotive industry.

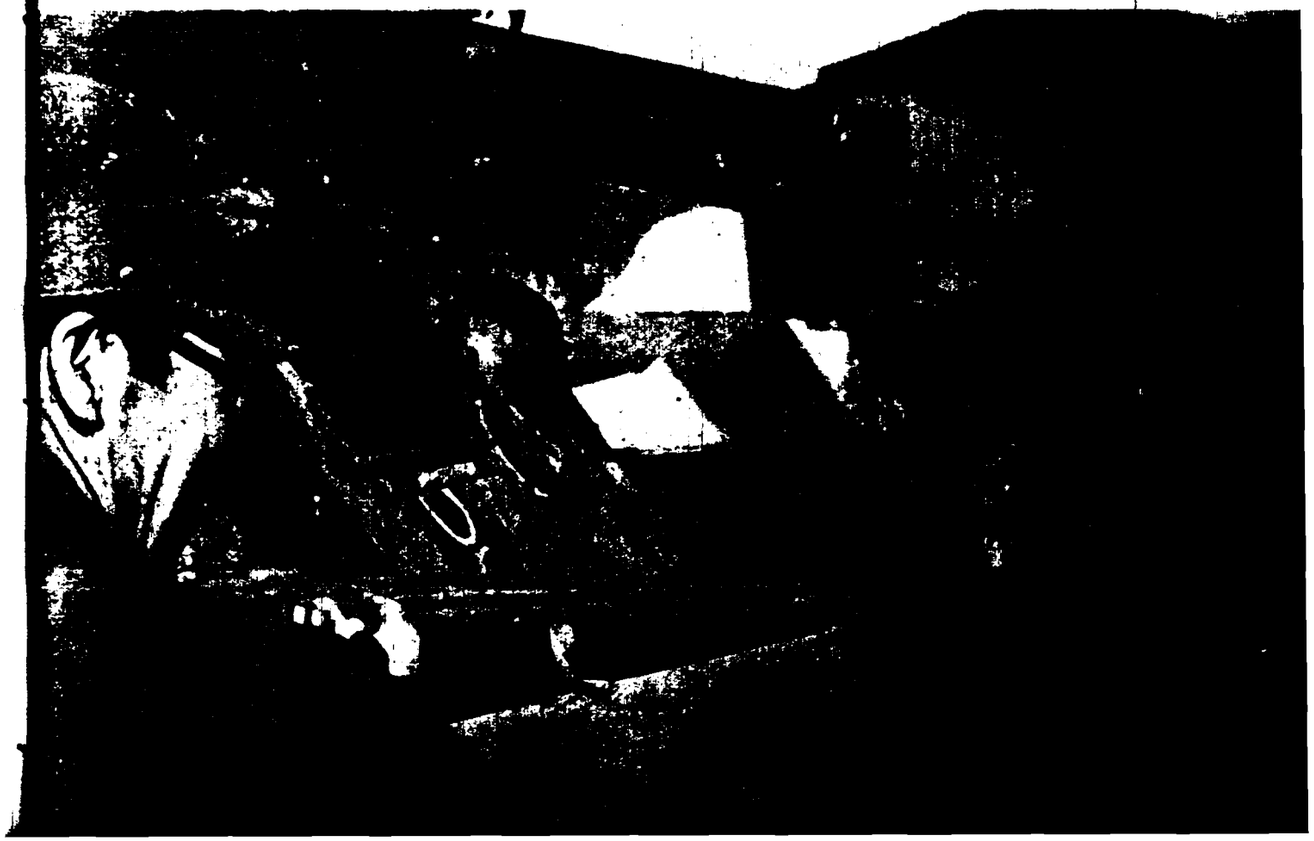
Note: *The photos herein presented were purchased from commercial photo agencies in New York; i.e., Acme Newspictures, Inc.; Black Star; European Picture Service; International Photo Agency; Press Association, Inc.; and Sovfoto.*

AICHI HEAVY TANK, TYPE 2596 (1936)

Crew: 10 (1 driver, 1 commander, 5 gunners, 2 loaders, 1 radio operator).

Armament: one 75-mm., one 35-mm. in turret, and two machine guns in hull fore; Ammunition: 5,000 rounds small arms and 500 rounds HE; Armor: 1.38 inch; Length: 31 feet; Width: 10 feet, 8 inches; Height: 9 feet, 2 inches; Weight: 36 tons; Water cooled motor, 350 h.p.; Maximum Speed: 36 m.p.h.; Suspension type: six large bogie wheels; Climbs 40° slopes; Negotiates vertical obstacles 2 feet, 9 inches high; Crosses trenches 15 feet wide; Fords streams 4 feet, 2 inches deep. A modified form of Russian Tank 32-5.

Heavy Tank M2597 (1937). Modified from Russian T 28. Six man crew; two 37-mm. guns in turret and two machine guns in hull fore; Armor: 1.38 inch; Length: 24 feet, 5 inches; Weight: 35 tons; 250 h.p.; Maximum Speed: 28 m.p.h.; Crosses trenches 7 feet wide; Fords streams 4 feet, 2 inches deep.



TANK OPERATIONS DIFFICULT IN CHINA

Chinese Walls

Weak Bridges

City Gates

Japanese Antitank Defense

The Japanese envisage the inherent disadvantages of enemy tank operations to be—

Natural and artificial obstacles.

Long march columns which are difficult to camouflage.

Adverse weather conditions which may prevail.

Unfavorable working conditions and difficult observation which lower efficiency of crews.

Their antitank instruction stresses taking every advantage of these conditions.

Passive defense measures.—Concealment, camouflage, and calm nerves are of utmost importance. Reconnaissance and warning nets are considered essential.

Active measures.—These include:

Action by antitank guns, accompanying guns, and mortars.

Bullet splash from machine guns and rifles at a short range (at least one section firing at each tank).

Mines and "tank fighters." The latter comprise men with special training and equipment for direct assault on tanks.

Detailed method of attacking a tank.—It is desirable to choose ground where tanks must travel slowly and so as not to interfere with the action of antitank guns.

Each rifle company (sometimes machine-gun and heavy weapon companies organize smaller detachments) includes a section of special "tank fighters" which are especially equipped for action against tanks. Each man is armed with an antitank mine, a bomb, and a smoke hand grenade.

Three ways of attacking tanks are—

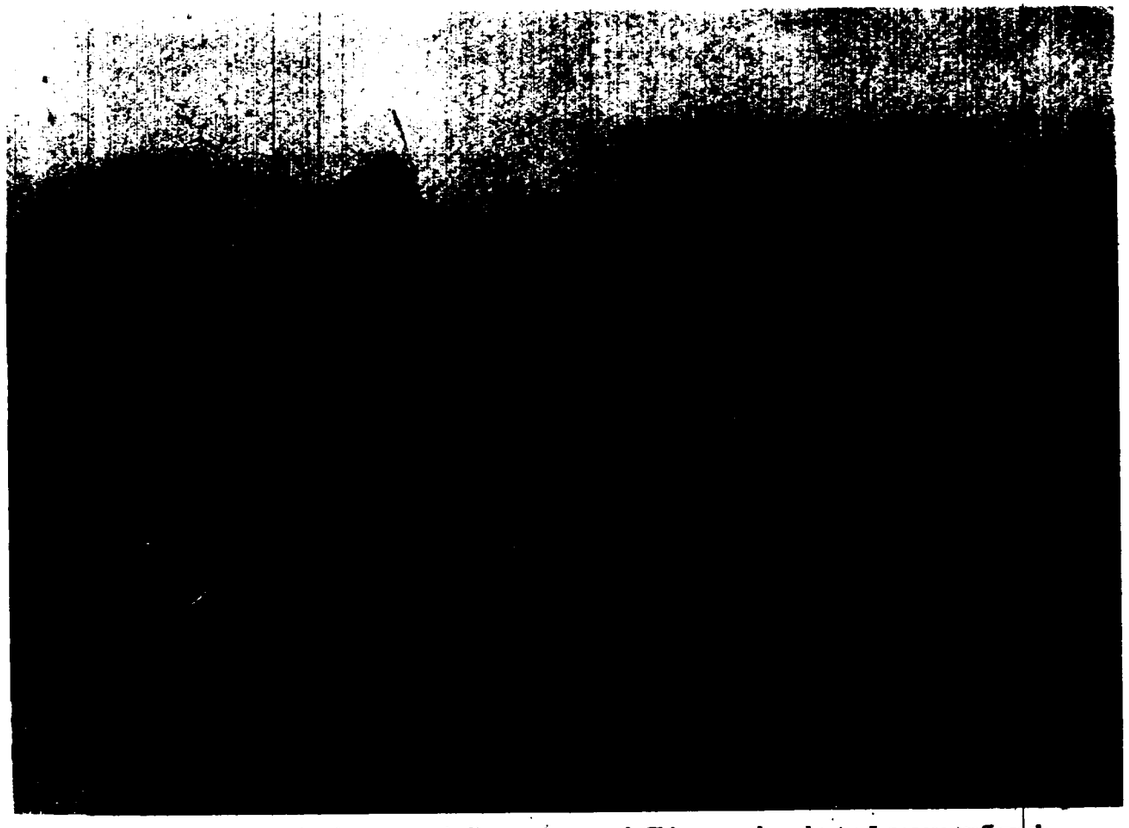
The tank fighter crawls toward the tank under cover, until he is within the dead space of the tank weapons. Next, he throws the mine, which is attached to a long string, about 15 feet in front of the tank and, by means of the string, pulls it directly under the tank.

Several pairs of tank fighters move forward under cover and place a number of mines in front of the tank in such a manner that the tank must drive over one of them.

A number of mines are fastened, 1 foot apart, to a 150-foot line. Two men conceal themselves with this chain of mines and draw the mines across the path of the tank as it approaches.

The tank fighter is also taught to attack the tank by jumping on top of the tank, usually from the rear, and damaging the guns or rotating mechanism of the turret with picks. The pistol may be used to fire on the crew through openings in the tank. Another method is to blind the tank crew by throwing a shelter-half over the turret or to smoke it out. Naturally, all these forms of assault are feasible only if the friendly infantry can neutralize the hostile infantry accompanying the tanks. Tanks have been delayed and stopped, finally, by driving 3-inch wooden poles or 1 to 1½-inch rods between the spokes of the tank wheels.

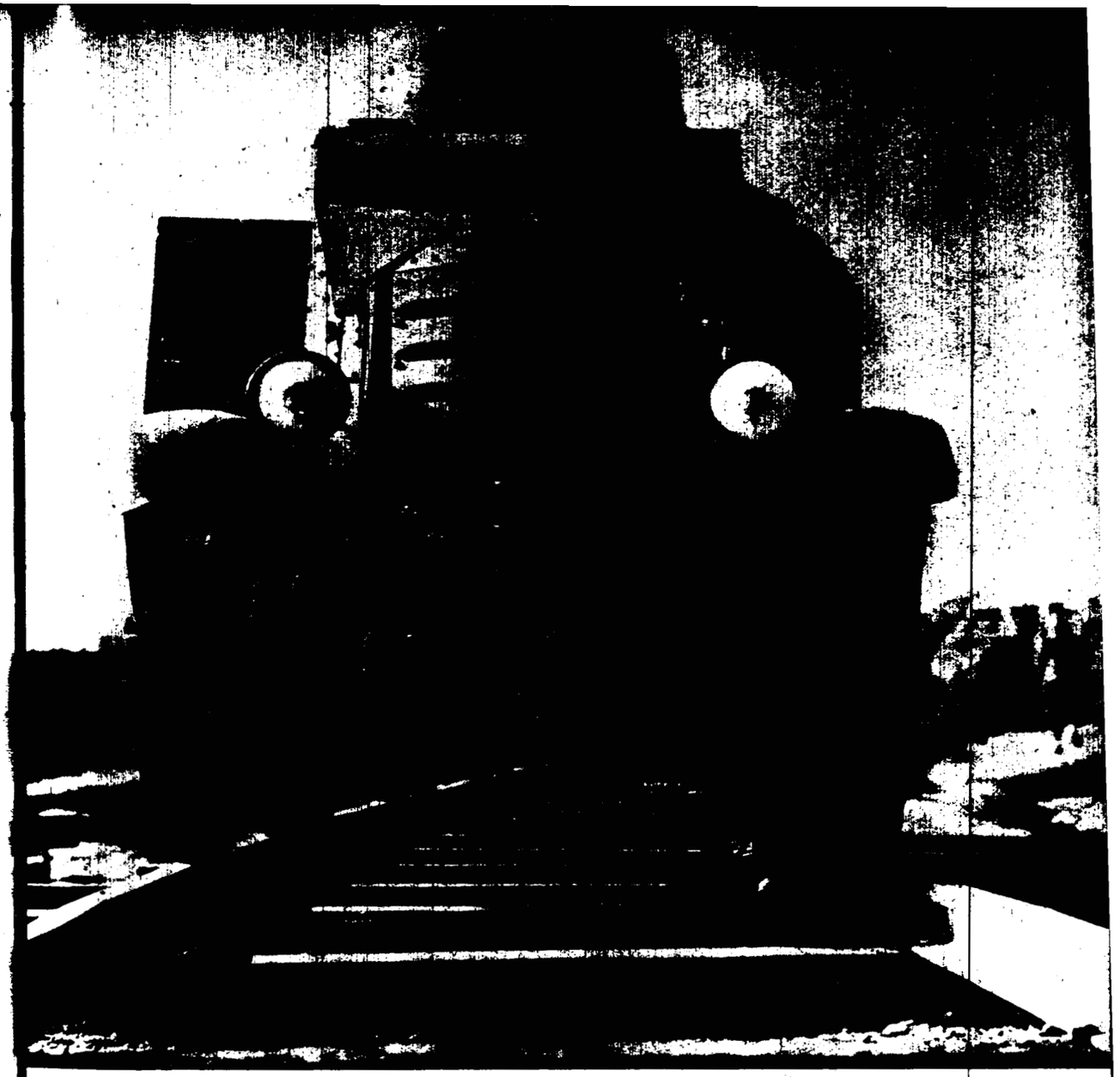
Tank congestion at Chinese wall evidence of improper tank employment.



Traffic congestion, result of narrow, winding, unimproved, Chinese roads and poor Japanese staff work.

Light armored car in Shanghai.

Heavy armored car model 1937.



This heavy armored car is adapted to operate also on Chinese railroads. It was used in the Japanese drive in Central China where guerrillas were active. It assisted in armored train operations and at times served as a prime mover for railway supply cars.

* * *

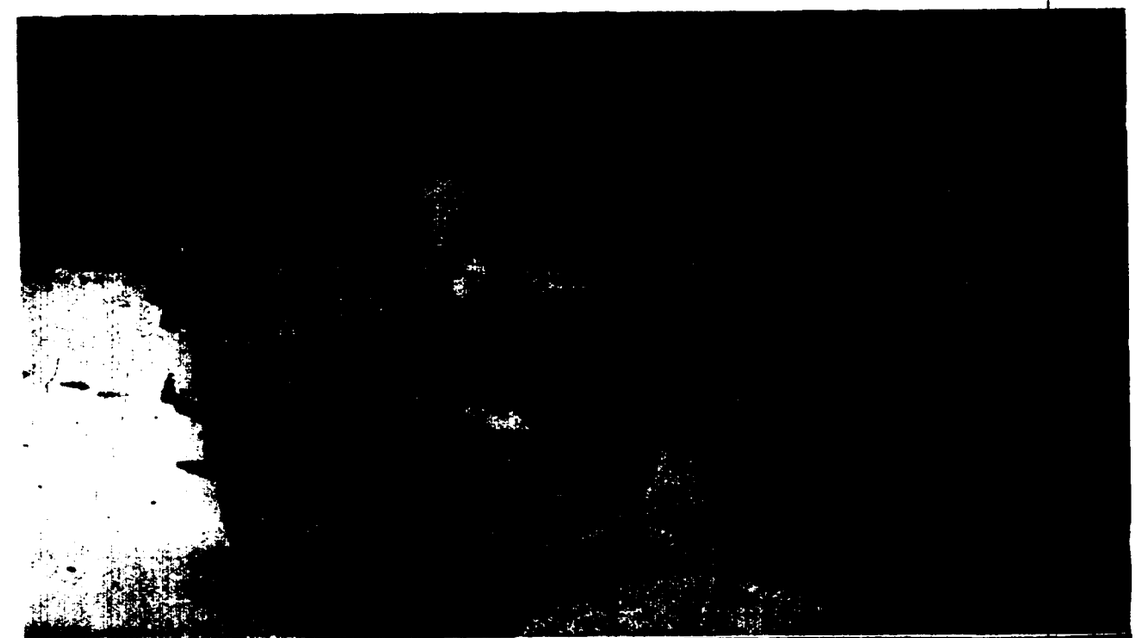
Tractors: In addition to locally made tractors, the Japanese have several hundred foreign, and more especially American-made Holt and Fordson tractors, principally for use in drawing the 105-mm. gun.

Trucks: The Japanese Army possesses a few thousand foreign trucks. Some of the locally made trucks are: Chiyoda, Sumida, Toyoda, Nissan, Isusu, Dowa (made in Mukden), and the Hitachi Diesel. The first three are patterned after the Wolseley (British) model. Some of these are 6-wheel trucks.

Improvisation: Here we see an American sedan on which a machine-gun turret has been mounted.

AMERICAN EQUIPMENT IS NOW BEING THROWN BACK AT US

In China, until now, the Japanese have feared guerrilla operations more than Chinese air attacks. Truck trains therefore are well guarded, and the columns move well closed for mutual protection.



Top: Japanese landing party in China halts for orientation.
Bottom: The Shanghai Patrol.

* * *

The Harley-Davidson (Japanese made) and the Kurogani are the types of motorcycles most used. The latter is a heavy, powerful machine but is poorly built.

Bicycles are extremely common, both in and out of the service.

Japanese Military Terms and Characters

Military Terms

The following is a list of military terms and their Japanese equivalents which may be useful to unit intelligence officers:

Military term	Japanese equivalent
Army	Rikugun.
General staff	Sanbō hombu.
Chief of general staff	Sanbō sōchō.
Navy	Kaigun.
Navy department	Kaigun shō.
Grade	Kaikyū.
General officer	Shōkan.
General	Taishō.
Lieutenant general	Chūjō.
Major general	Shōshō.
Field officer	Sakan.
Colonel	Taisa.
Lieutenant colonel	Chūsa.
Major	Shōsa.
Company officer	Ikan.
Captain	Tai-i.
First lieutenant	Chū-i.
Second Lieutenant	Shō-i.
Noncommissioned officer	Kashikan.
Warrant officer or special duty sergeant major	Tokumu sōchō.
Sergeant major	Sōchō.
Sergeant	Gunsō.
Corporal	Gochō.
Soldier	Hei, heitai.
Superior private	Jōtō hei.
First class private	Ittō hei.
Second class private	Nitō hei.
Grade	Kaikyū.
Army (unit)	Gun.
Army headquarters	Gun shireibu.
Army commander	Gun shireikan.
Division	Shidan.
Division headquarters	Shidan shireibu.
Division major general attached to	Shidan shireibuzuki shosho.
Division commander	Shidan chō (chūjō).
Division artillery	Shidan hōhei.
Division cavalry	Shidan kihei.
2 brigades of infantry	Hohei niko ryodan.
1 regiment of cavalry	Kihei ikko rentai.
1 regiment of field or mountain artillery	Yahōhei, moshiku wa sanpōhei, ikko rentai.
1 battalion of engineers	Kōhei ikko daitai.
1 battalion of transport troops	Shichōhei ikko daitai.
Brigade	Ryodan.
Reinforced brigade	Konsei ryodan.
Composite brigade	Shūsei ryodan.
Brigade cavalry	Ryodan kihei.
Infantry brigade	Hohei ryodan.
Cavalry brigade	Kihei ryodan.
Heavy field artillery brigade (There is no light artillery brigade organization.)	Yasen jū hōhei ryodan.
Regiment	Rentai.
Regiment headquarters	Rentai honbu (not shireibu).
Regiment commander	Rentaichō.
Regiment adjutant	Rentai fukukan (fukkan).
Battalion	Daitai.
Battalion headquarters	Daitai honbu.
Battalion commander	Daitaichō.
Battalion adjutant	Daitai fukukan.
Company, troop, battery	Chūtai.
Company (troop, battery) headquarters	Chūtai jimushitsu (not hombu).
Platoon	Shōtai.
Company (troop, battery) commander	Chūtaichō.
Platoon commander	Shōtaichō.
Squad	Buntai.
Squad commander	Buntaichō.
Detachment	Butai.
Arms or services	Heika.
Arms	Honka.
Infantry	Hohei (aka) (really hi) (red).
Cavalry	Kihei (midori) (green).
Artillery	Hōhei (kiiro) (yellow).
Light field	Ya hō hei.
Mountain	Sanpō hei.
Heavy field	Yasen jūhōhei.
Antiaircraft	Kōsha hōhei.
Heavy	Jūhōhei.
Engineers	Kōhei.
Transport corps	Shichō hei.
Air	Kōkū hei (sorairo) (really usu konjō) (sky blue).
Military police	Kenpei (kuro) (black).
Staff services	Kakubu.
Medical	Eiseibu (fuka midori) (dark green).
Veterinary	Jū-ibu (murasaki) (purple).
Intendance	Keiribu (gincha) (silver tea).

NAVAL TERMS

Auxiliary gunboat	Tokusetsu hōkan.
Battleship	Senkan.
Battle cruiser	Jun-yō senkan.
Cruiser	Jun-yōkan.
Coast defense vessel	Kaibōkan.
Combined destroyer group	Kuchiku rentai.
Destroyer	Kuchikukan.
Division	Shōtai.
Destroyer unit	Kuchikutai.
Mother ship	Bokan.
Aircraft tender or mother ship	Kōkū bokan.
Destroyer mother ship	Suirai bokan.
Mine sweeper mother ship	Sōkai bokan.
Airplane: flying machine	Hikōki.
Fleet	Kantai.
Land airplane	Rikujō hikōki.
Seaplane	Suijō hikōki.
Gunboat	Hōkan.
Combined fleet	Rengō kantai.
Gunboat unit	Hōkantai.
Naval gun	Kaigunhō.
River gunboat	Kayō hōkan.
Submarine	Sensuikan.
Squadron; flotilla	Sentai.
Destroyer squadron	Suirai sentai.
Submarine unit	Sensuitai.
Submarine squadron	Sensui sentai.
Salvage ship	Kyūnansen.
Torpedo boat	Suiraitei.
Minesweeper	Sōkaitei(sen).

Important Military Characters

Arms, services, and units.

Infantry Hohei	Cavalry Kihei	Artillery Hōhei	The first character alone means army (gun); with second character, corps (gundan).	Division Shidan	Brigade Ryodan
步兵	騎兵	砲兵	軍團	師團	旅團

Regiment Rentai	Battalion Daitai	Company (troop battery) Chūtai	Platoon Shōtai	Engineer Kōhei
聯隊	大隊	中隊	小隊	工兵

近衛 Konoe, the Imperial guards; used for units of the Imperial Guards Division.

航空兵 Kōkūhei, the air service (a new word).

Numbers.

One	Two	Three	Four	Five	Six
一	二	三	四	五	六

Seven	Eight	Nine	Ten	Hundred	Thousand
七	八	九	十	百	千

○ Zero, used generally where our zero is used, though the character for ten is sometimes used.

Grades of officers.—Characters showing officers' grades are given as follows:

Company Officers.

Captain Tai	First lieutenant Chū	Second lieutenant Shōi
大尉	中尉	少尉

Field Officers.

Colonel Taisa	Lieutenant colonel Chūsa	Major Shōsha
大佐	中佐	少佐

General Officers.

General Taishō	Lieutenant general Chūsho (or chūjō)	Major general Shōshō
大將	中將	少將

Characters On Identification Tags

Enlisted man.—Identification tag of an enlisted man. Reading from top to bottom the first character gives the arm or service, followed by regimental number, a small dash, and ending with the serial number of the man in his regiment. The following reads, "Infantry 56 (regulation), No. 147."

Officer.—The following is an officer's identification tag which gives in order from top to bottom, arm or service, grade, and name. This tag reads, "Infantry, first lieutenant, Yamamoto."

NOTE.—In all enumerations the Japanese habitually use the order MP, Inf., Cav., Arty., Engrs., Air Service, Transport, abbreviated sometimes to Ken, Ho, Ki, Hō Kō, Kōkū, Schichō.

Reading identification tags.—Japanese is read from top to bottom and from right to left. The characters here used are Chinese characters adapted by the Japanese. One, two, three, or more characters constitute a word. The dash on the enlisted man's tag separates the regiment number from the man's serial number in the regiment. The arm of service is frequently abbreviated

and the first character only used. This is true on the enlisted man's tag. In case of engineers, "battalion" is substituted for "regiment." A detailed explanation of the reading of tags follows:

Enlisted Men.

騎三三、四一九

One character here shown—ki for kihei, cavalry.

One or more characters for number of regiment (in this case 23).

Dash separating regimental number from serial number of man in regiment.

Serial number of man in regiment. One or more characters (in this case 419).

Officers.

工兵大尉田中

Generally two characters for arm of service (here engineer).

Two characters for rank (here captain).

One, two, three, or four characters for name of officer (here Tanaka).

Examples.—The following are examples of the translation of identification tags:

砲十八、五四	Artillery. 18th Regiment. No. 54.	工九、六〇	Engineer. 9th Battalion. No. 60.	工兵大尉中川	Engineer. Captain. Nakamigawa.	步兵中尉本西	Infantry. First Lieutenant. Motonishi.
騎兵少尉川口	Cavalry. Second lieutenant. Kawaguchi.	步兵少將原	Infantry. Major general. Hara.	騎八、六四二	Cavalry. 8th Regiment. No. 642.	步五三、五〇三	Infantry. 52nd Regiment. No. 503.
騎兵大佐內田	Cavalry. Colonel. Uchida.	工兵中佐松野尾	Engineer. Lieutenant Colonel. Matsunō.	步七六、四四二	Infantry. 76th Regiment. No. 442.	步四一三五一	Infantry. 141st Regiment. No. 1,251.
砲十二、一八七	Artillery. 12th Regiment. No. 187.	步九一、七六一	Infantry. 91st Regiment. No. 761.	砲十一、九	Artillery. 10th Regiment. No. 9.	騎兵少佐谷	Cavalry. Major. Tani.

READ THE IDENTIFICATION TAGS. IT IS NOT DIFFICULT. THE NUMERALS ARE EASY TO REMEMBER.

Japanese Cavalry

For detailed discussion of JAPANESE CAVALRY see the January-February 1942 issue of The Cavalry Journal.

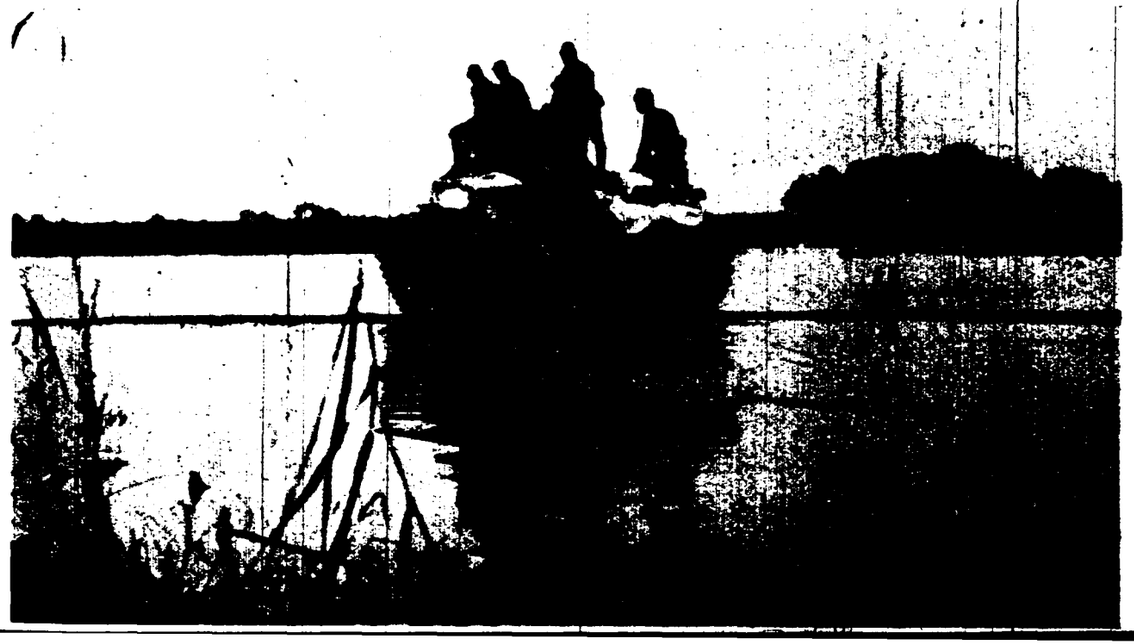
The Japanese have made effective use of their Cavalry in China in areas not suited to mechanized employment.

Japanese cavalry bivouac; prior to advancing into China's rugged mountain vastness.

Japanese cavalry penetrated areas in China prohibitive to motor vehicles.

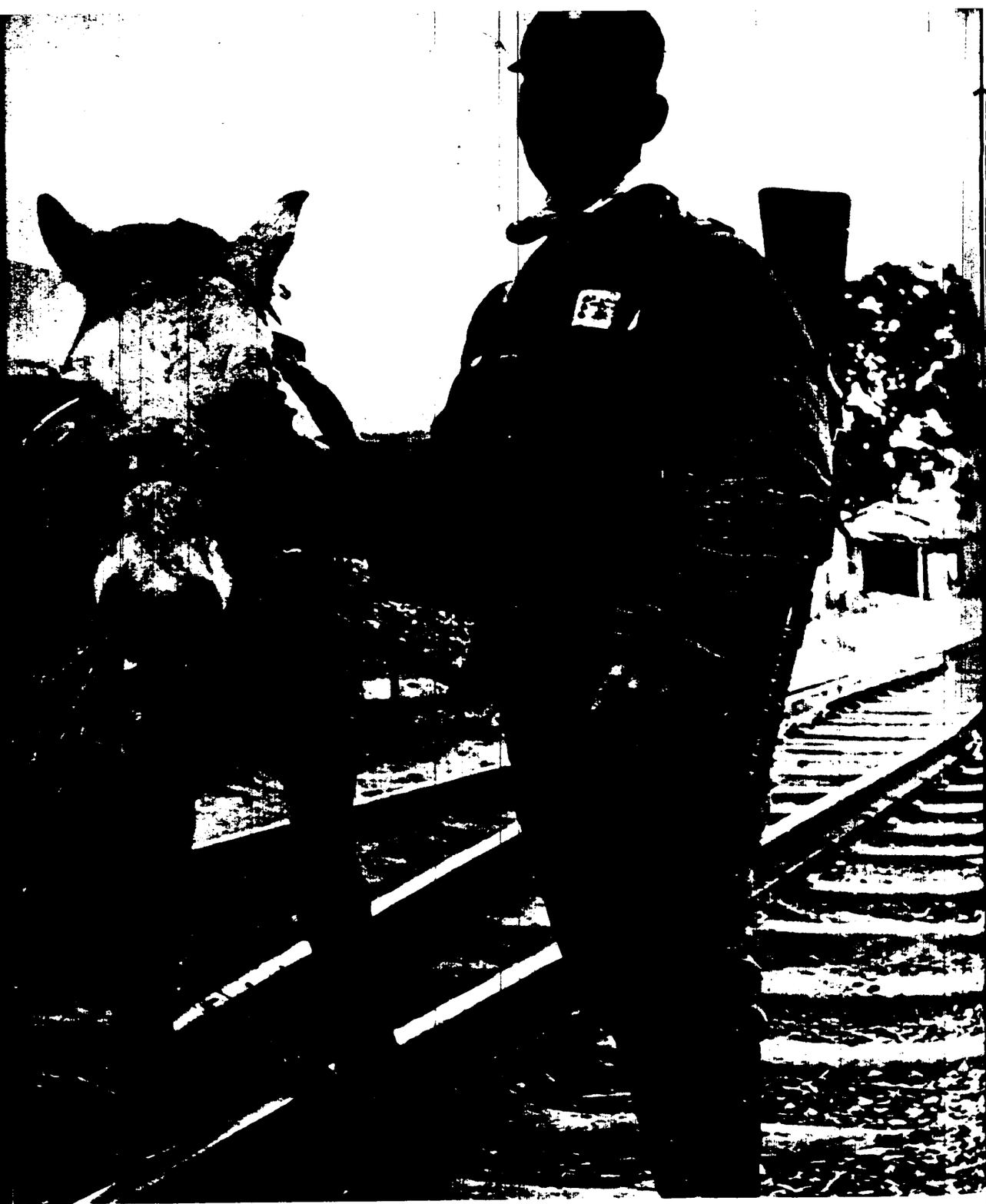
* * *

Below, it can be noted that the cavalry tank support cannot follow the cavalry across the water-covered fields. The soggy ground in the lowlands nullified much of the effectiveness of formidable combat vehicles.



China's "GOOD EARTH" does her bit in mud

Chinese roads constantly present grave problems



A Chinese Dispatch Rider and "more power to him"

The Japanese Infantry in China exploit the use of horses in every possible instance. Illustrated above is the *Infantry Battalion Gun, Model 92 (Kyunishiki hoheiho).*

INFANTRY BATTALION GUN

It is a 70-mm. rifled gun capable of delivering fire from range of 200 to 2,800 yards. Its characteristics are:

Weight		
Gun	101	pounds.
Mount	77	pounds.
Mounted gun and caisson	420	pounds.
Length of bore	30	inches, approximately.
Over-all length	27	inches.
Mounted over-all length	5	feet, approximately.
Width of wheel tread	27	inches approximately.
Effective range	300	to 1,500 yards.
Traverse	45°	
Elevation	—10°	to +50°.
Danger area of burst	40	yards, approximately.

Breechblock.—Two threaded segments, rotating and opening downward.

Carriage.—*a Recoil mechanism.*—Length of recoil, about 4 inches.

Traversing and elevating mechanism.—Traversing handwheel on the left of the barrel and elevating handwheel on the right. Both handwheels are operated by the gunner, who lays first for direction, then for elevation. Elevating mechanism is similar to that of our old pack howitzer. Traverse is about a heavy pintle mounted on the axle.

Shield.—Armor plate about one-eighth of an inch thick.

Trail.—Split 5 feet long, welded except where riveted to spade.

Panoramic sight—same as field artillery.—Mounted on the sight bracket on the left side of the piece. The sight bracket includes a range drum with four divisions marked in mils, an elevating bubble, and a cross bubble for correcting for difference in levels of wheels.

Ammunition.—Semifixed with brass case. High explosive shrapnel and smoke shells are used. The range is extended by increasing the powder charge. At maximum range the time of flight for the different powder charges is—

Charge No. 1	30 seconds (3,075 yards).
Charge No. 2	25 seconds (1,975 yards).
Charge No. 3	20 seconds (1,300 yards).
Charge No. 4	15 seconds (985 yards).

Minimum permissible ranges with instantaneous fuzes employing low-angle fire varies with the powder charge, elevation of gun, and target. With ground level ranges are—

Charge No. 1	1,100 yards.
Charge No. 2	660 yards.
Charge No. 3	225 yards.
Charge No. 4	110 yards.

Minimum ranges with delayed action fuzes ground level are—

Charge No. 1	660 yards.
Charge No. 2	330 yards.
Charge No. 3	330 yards.
Charge No. 4	330 yards.

Rate of fire, 10 rounds per minute, 5 rounds per box.

Other vehicles.—Limber.—This is a simple box mounted on an axle. Shafts are solidly attached to limber chest and to breast collar of the draft horse. Two boxes of ammunition, sights, and accessories are carried in the limber chest.

Caisson.—Similar in construction to the limber and contains three boxes of ammunition.

Transport.—**The gun and ammunition caisson in tandem are pulled by a single horse.**

SIGNAL COMMUNICATIONS
and Equipment

Fishing boats and lights are known to have aided the Japanese in some of their landing operations in the Philippines. However, the complete extent to which fifth columnists have been used is not known.

Close liaison between Japanese air forces and ground troops is being maintained by means of portable radios. These are equipped with earphones, and are carried on the chest by commanding officers of companies.

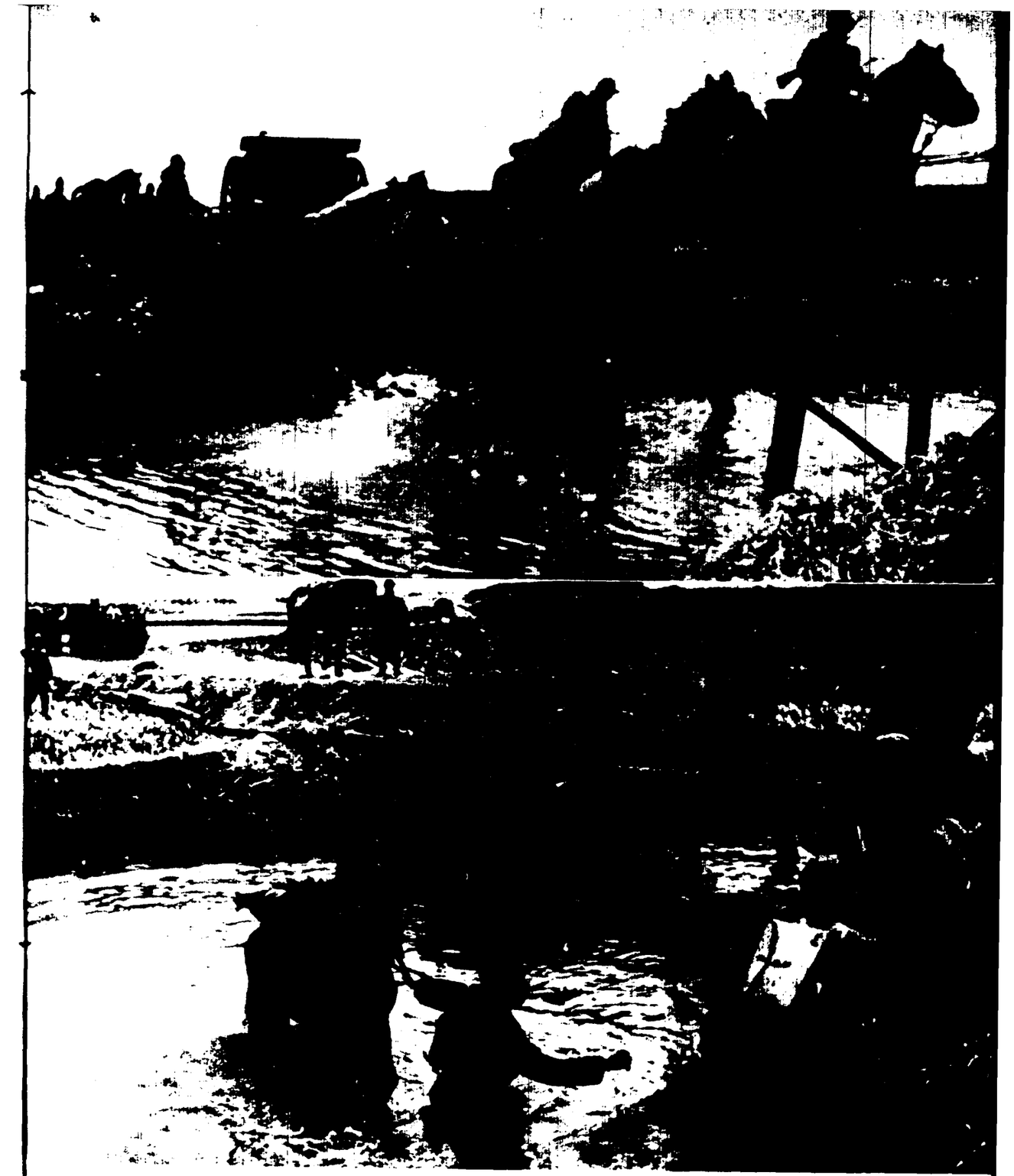
With air superiority, the Japanese are able to observe the positions of the Allied front lines and troop dispositions and movements. This information is then relayed to the Japanese commanders, who, in many instances, are told when to move forward and when to halt.

The Japanese infantry, armed with grenades and automatic weapons, have obtained great mobility by leaving behind all other equipment not absolutely necessary. Their attacks usually are made at daybreak. Company commanders move up their companies by squads, and consolidate them with advance security detachments prior to the attack.

In Malaya, heavy motor vehicles have been used sparingly, for in the low, soggy terrain they tended to become canalized on any road that was not hard-surfaced. The Japanese have equipped and trained their soldiers in Malaya to travel for days through jungles with all their supplies either in their packs or on small transport vehicles.

Three types of machine guns were reported in use by the Japanese in the Malayan campaign—a Thompson-type submachine gun; a type "96" light machine gun; and a belt-fed medium machine gun. The latter, mounted on a wheeled carriage, is like the British Vickers gun except that the Japanese weapon has a larger water jacket.

THE JAPS FULLY UTILIZE ALL CAPTURED EQUIPMENT AND ARE TRAINED IN THE USE OF ENEMY WEAPONS



A JAPANESE MISJUDGMENT

Our sympathy is extended ONLY to the horses - - - .

Landing Operations

Japanese landing operations have been organized as follows:

Preparation.—Landing sites have been carefully reconnoitered beforehand, either by aircraft or by the work of secret agents in peace. Troops earmarked for landing operations have been assiduously practiced beforehand.

Rendezvous of transports. — Transports and motor landing craft carriers rendezvous at some convenient anchorage the night before the landing. Where no anchorage is available the transports have arrived off the landing point about the middle of the night.

Operation of landing.—Landings usually take place just before dawn on a day when it is high tide just after dawn. Periods of rain or stormy weather are chosen when possible so as to facilitate surprise. Men are transferred from transports and motor landing craft carriers to landing craft just off the site of landing. The initial force usually consists of infantry, some field artillery, engineers, and *light tanks*, all of which are embarked in motor landing crafts. These make for the shore at full speed, and if in formation all craft shut off their engines and drop their stern anchors together when a short distance off the beach. For the remainder of the distance the boats are eased in until grounded by means of the hand brake on the stern anchor cable. The boats normally ground at about 50-yard intervals. If the operation warrants the boats' leaving immediately, the stern anchors are weighed by hand or power and the boats make off at full speed. Military patrol craft armed with pompoms and machine guns give close support to the landings while air and naval support is provided as required. Once a beach head his established the main forces landed proceed inland as fast as possible.

Air and naval coöperation.—The Japanese have had complete air and naval superiority in all their landing operations on the China and Philippine coast. Sea communications have thus always been secured and all landings have had overwhelming support from sea and air. On one occasion Japanese destroyers assisted the land forces by gun fire. In order to ensure surprise, naval fire may be withheld until after the landing of the first flight. Owing to the complete air superiority the Japanese appear to make little or no provision for antiaircraft protection. This fire took the following forms:

Preliminary bombardment of enemy positions at a range of about 1,300 yards.

"Howitzer" fire on special areas. This was achieved by putting extreme elevation on the ships' guns and using a small charge.

Forces used. — Almost all Japanese landings were made with a force of two divisions (40,000 men). These appear to have landed with normal equipment, which usually includes light tanks (3 tons), 10.5-cm, field howitzers, 75-mm. field guns, etc.

Conclusions. — The following factors were instrumental in giving the Japanese the successes they achieved in China:

Complete security of sea communications.

Overwhelming naval support.

Overwhelming air support.

Inefficiency of enemy watching organization.

Lack of enemy real opposition on landing.

Complete lack of enemy action at sea.

Enemy lack of artillery, which made the establishment of a beach head of little depth sufficient to cover the main landing.

Japanese use of aircraft for supply dropping and bombing which lessened the administrative difficulties of landing transport and artillery in the early stages of the operations.

Policy of Japanese, owing to lack of opposition, to bring their transports close to the shore before transferring men into landing craft.

Care taken to achieve surprise by choosing difficult landing sites and poor weather conditions.

Jap Officers

A typical officer of the Japanese armed forces is likely to be younger than his American counterpart and the product of a much narrower education. He is likely to be as much or more of a specialist than the American, but is the product of a school which stresses adherence to plan rather than individual initiative.

The greater physical stamina the Japanese may bring to a campaign by reason of his relative youth is offset, particularly in higher ranks, most students believe, by the broader training and experience of the American. This is especially true of naval officers.

Japanese officers, as a group, probably work harder than either American or British and take less recreation. They tend to learn by rote, memorizing procedure originated by others.

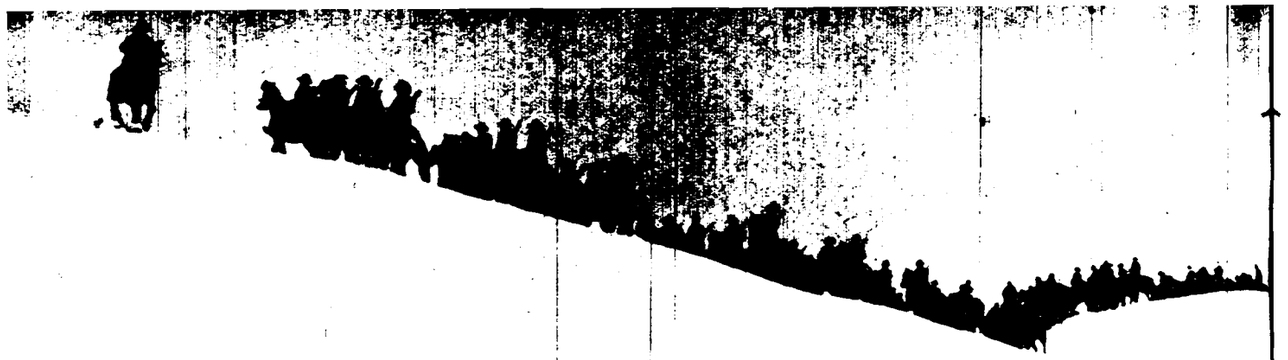
American type individualism is officially discouraged. The Japanese like to act as a group, upon group judgment. The army copies Germany. The navy always has studied British naval practice.

The system tends to produce an officer utterly proficient, scrupulous and reliable in the performance of duties. In courage the Japanese officer probably is surpassed by none. He is at his best in executing plans carefully made in advance.

But let unexpected developments particularly reverses, upset pre-arranged plans, students assert, and the Japanese officer is likely to go to pieces.

Plate, courtesy of The Infantry Journal

The odd-looking weapon of this naval landing party is the 1922 Nambu light machine gun. Air-cooled and gas-operated, it weighs 22½ pounds and fires 6.5-mm. rifle ammunition fed by ordinary five-round straight Mauser-type clips. The high-comb buttstock makes it look something like our tommygun and the thick cooling rings on the barrel heighten its odd appearance. Bipod legs fastened near the muzzle are folded down.



THEY RIDE AGAIN

New Role for Australia's Renowned Light Horse

*By David W. Bailey**

TO the Japanese advance through Malaya to Java, Australia has reacted sharply with maximum mobilization of weapons and resources of resistance and war, basing her defense upon the strategy of converting a beleagured continent into an Allied Pacific counter-offensive springboard. Two thousand miles deep and 2,500 miles wide, that Continent has vast space in which to deploy the strength it will oppose to any invasion. But since at many points on the 12,000 miles coastline an enemy may land his forces, mobility exceeding any effort of that kind in her history must characterize her military defense. It may be assumed therefore that in her present mobilization she will bring into play not only every plane, tank, armored car, and gun carrier her factories can produce, but also every horse. Mounted infantry is still the potentially biggest mobile force in Australia. In event of invasion, a new type of guerrilla warfare with mounted troops is almost certain to develop as a natural answer to the new condition in which Australia finds herself, just as the Australian Light Horse gave to Egyptian Sinaian and Palestine campaigns in the war of 1914-18 a mobile striking power which best answered the requirements of that struggle with the Germans and Turks.

The classic example of mobility and striking power on land—coördinated or uncoördinated with air forces—until the present war, remained as the record of the Australian Light Horse, a formation peculiarly Antipodean. Only the armored divisions in the Polish, French, Greek, Cretan, Libyan, and now Russian, theaters of war, have surpassed its overpowering sweep upon all manner of obstacles from trenches to walled redoubts. Twenty-four hour assaults, and single dashing charges through miles-long screens of shrapnel and machine gun fire in Palestine ending with hand to hand bayoneting on the ground served more than once to put an enemy to rout, an enemy who has as reckless horsemen, as good artillery, and the arranged or adventitious aid of seemingly indifferent nomads.

Since in Australia's wideflung pastoral and agricultural life the horse remains such a factor, and the stockrider as essential as ever, it is obvious that the disturbance or threat to this economic life by any enemy thrust will call for the maximum use of the horse as a defensive and counteroffensive means. Therefore the Light Horse Brigades, never active in their homeland at more than 6,600, though sent in expeditions abroad at three times that strength for mainline and reinforcement, will probably this year and next outnumber the grand total of all previous A.L.H. Imperial expeditions and home establishments.

Like other fighting nations, Australia has mechanized her fighting forces to a degree far exceeding that of the mobility she had achieved through cavalry in earlier wars. Development of mechanization has left little room for the employment of mounted troops in the nine theaters of land action in which she has engaged in this war—Britain, Libya, Greece, Crete, Syna, Irak,

*Director, Austrailian News and Information Bureau, New York.

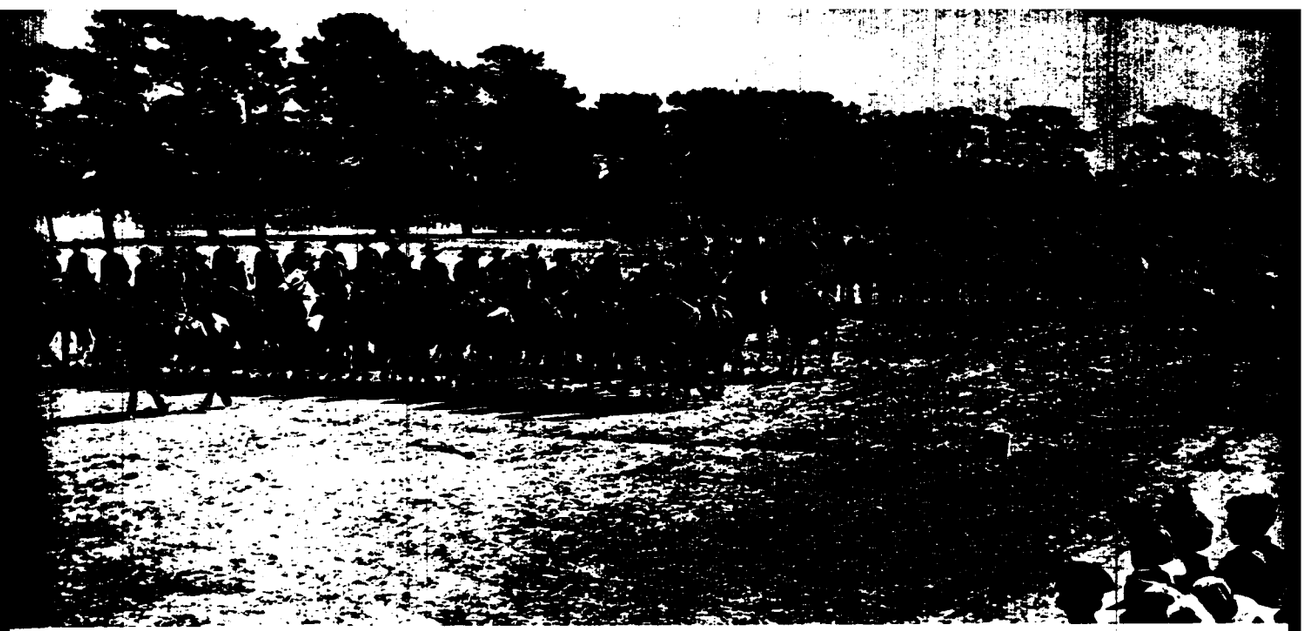
Malaya, Singapore, New Guinea, Java. Throughout Australia there has spread the desire for a "people's Army," and the Government has set up a Volunteer Defense Corps in answer to this. Already males of 18 to 35 have been called to the colors in the reorganized home defense Militia. The new Home Defense plan in its Militia and its Volunteer Defense organization find ready for use everywhere efficient bodies of horsemen. They can be relied on to function as a natural defense in the unusual opportunity for defense in depth which the continent presents.

At the outbreak of this war, the Light Horse was at a strength of about 6,000, just as at the outbreak of the war of 1914-18. In 1914 there were six Brigades, each consisting of three regiments, one battery of Field Artillery, one signal troop, one L. H. Brigade train, and one L. H. Field Ambulance. The Brigades were in peacetime distributed: One with three regiments in Queensland—the State with the longest Pacific and Northern coastline; two Brigades with a total of six regiments in New South Wales, the State with the second longest Pacific coastline (800 miles), and the foundation state for horse breeding; two brigades (four regiments) in Victoria on the southern extremity of the continent; one Brigade (two regiments) in South Australia; and one Brigade (one regiment) in Western Australia. Northern Territory (Darwin) a Federally-controlled area of 500,000 square miles with many cattle but few people, and the first place to get the shock of Japanese air attack, had no Light Horse establishment before this war. Such establishments, in such a vast continent, could of course only be regarded as nuclei, if, as we must now assume, war comes to the country in full force. Organization consisted of Regiment—600—under a Colonel; 3 Squadrons to a Regiment, each under a Major; 4 Troops (50 each) to a Squadron; 4 Sections to a troop.

In Palestine, the greatest single formation of A.L.H. at any one time was 12,000 in a Desert Column or Division of 19,000. In that Division were also New Zealand Mounted Rifles, British Yeomanry and French Cavalry. In the total mainline mounteds and reinforcements were upwards of 40,000 horses. The biggest strength then involved, will in Australia's new emergency present little difficulty to that country. She could raise that force of horsemen overnight—indeed has almost certainly done so—most of them requiring little other than military tactical training. The horses are saddled. The necessary men, most of them accustomed to the rifle are standing by. They may be relied on to hold now, better than they did any oasis in Palestine or Egypt, the lands that made them a particular kind of horse and horseman.

It was this matching of man and beast, this already determined relationship, that made the *Light Horse* so effective in war. Their life long background explains just what surprised an old-line General as he viewed the A.L.H. soon after their arrival in Egypt in the first days of war. These forces, brought to Egypt as a training base, seemed already trained. Years in the open country, stockriding, sheep droving, hunting in bushland and backblocks that gave the horse his surefootness, his leanshanked reliability, stamina and dash, had developed also in the horseman's great hardihood, keenness, initiative and dependability. These qualities together yielded the perfected individualized mobile unit for any emergency in peace or striking purpose in war. Not surprising either, that when the A.L.H. arrived in Egypt, its personnel regarded with astonishment exceeding the old-line General's British and other Dominion cavalry units that left important details unmounted. Australians could not understand this. They had come to war with a complex of complete mobility in their own units, regarding any unmounted attached or auxiliary unit as the impediment it was. It was Australian persistance that induced British officers

All over Australia the original "Anzacs" of Gallipoli, their sons and relatives are in training so that they may be able to defend their country. In this picture the Governor-General Lord Gowrie (third from left), is inspecting a parade of 2,000 Light Horsemen, whose slouch, omuplumed hats create a suggestion of devil-may-caredness.



Anzacs on Parade.

to abandon the practice of letting all but officer and warrant officer personnel in ambulance units walk, and to put them on horse instead.

The horse used in the A.L.H. formation is mostly a light lean type. He would be rejected for Cavalry. A century ago, Arab, English and Welsh breeds of horse were introduced to Australia. Their progeny reached its most specialized type in New South Wales. A hardy, leanshanked, medium height animal, known as the "Waler" still heavy enough for cavalry use, was evolved and figured in a military export trade to India as high as 20,000 a year. When the present war came, this trade was down to a few thousands a year because the type available ceased to be a cavalry horse. Three years after the Australian Light Horse had achieved its world renown in Palestine as the greatest single mounted force of modern times, General Sir Harry Chauvel who commanded the Desert Mounted Division, himself a most experienced horseman and mounted Police Trooper from Queensland, reported to the Australian Government that less than three per cent of Australian horses were up to cavalry or artillery standard. So much had the climate and pastoral demands modified the breed. These modifications, however, were the saving grace of the Waler as a horse for mounted infantry. This trend in horseflesh contributed to the renown of the A.L.H.

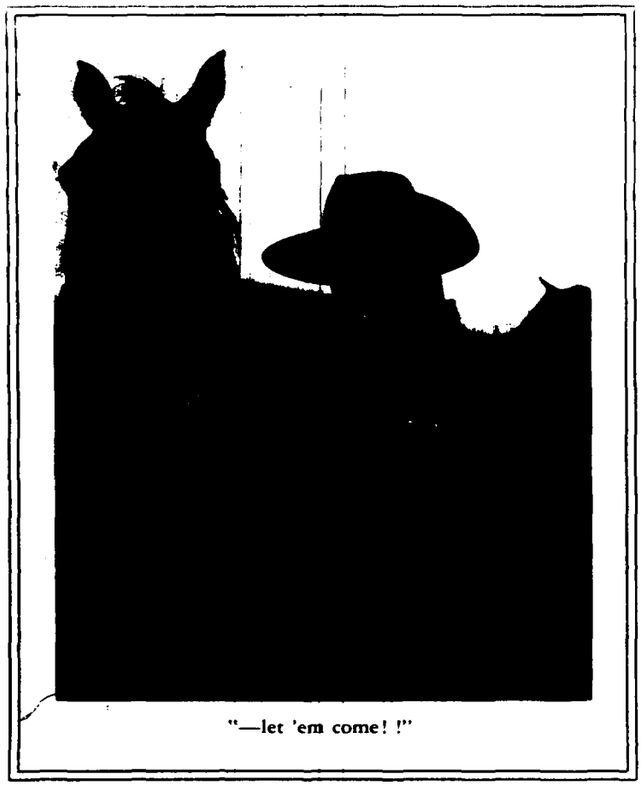
Australian Light Horse history began with the Boer War of 1899-1901 when it participated as the New South Wales Lancers. Twenty-two of the 24 modern peacetime regiments of the A.L.H. boast of descent from the Boer campaign though few of the veterans of 40 years ago remained to fight in Palestine.

The Light Horseman was then and still is a volunteer. Like the rest of the 700,000 men Australia has recruited for foreign service in two world wars, and the nearly 500,000 she had actually sent to those wars, he is part of the living eagerness of that people. He comes already a horseman. As a military specialized functionary he is almost unconscriptable. The foundation of his military life is already in his makeup. Men who volunteered for the A.L.H. usually came with their own horses. In the peacetime Militia service in which they did 12 to 18 days a year in military camp, they were allowed about $1.00 a day for upkeep of their own horses. Each man must be the complete companion and master of his horse, feeding, grooming him, tending him from picket line to outpost duty. This same personal responsibility marks the A.L.H. in war. It is part of the idea of mobility. In wartime, Government pays a volunteer about $80.00 for his mount.

Horsemen who may be called upon to serve in Home Defense today and for whom there is no horse regimental opportunity must serve of course as regular infantry or in some other branch of the army in which there may be need for him. The Light horseman is a complete infantryman, but mounted. As mounted infantry, the A.L.H. personnel were dismounted in Egypt and sent into the assault upon Gallipoli. They fought through that campaign, and 2,500 of the first 5,000 thus employed in Gallipoli survived, returned to Egypt, rejoined their horses and were reinforced by thousands of others. First important actions in which the A.L.H. engaged express the eagerness for offensive strategy that marks so much of the Australians' present-day mobilization against Japan. General Chauvel in 1916 took charge of the reorganization of this force and step by step, raid by raid, broke up the challenge in Sinai.

Until then the British defense rested upon a passive protective system devised by Lord Kitchener many years before. The dashing Light Horse soon overcame

the menace to the Canal, and this campaign gave it its first real taste of the dangers ahead. In the spring of 1916 18,000 Turks under Von Kressenstein were defeated by the Light Horse aided by the New Zealand Mounted Rifles, which in at the end of a day's resistance destroyed half the Turkish force in a counterattack. In December the Anzac Mounteds took a Turkish position by storm in one day at Magdhaba. The same force repeated this exploit on January 9, 1917, at Rafa. In each case a stout resistance was overcome only at the last moment and by a general charge. In March it outflanked the Turks at Gaza and entered the town capturing a divisional commander, only to be ordered to retire because south of Gaza the main force of attacking infantry was held up. Then the Turks built a so-called impregnable 20-mile front from Gaza to Beersheba with a defending force of 200,000. General Allenby, Commander-in-Chief of the British forces prepared the attack. In an all-day storm of the Beersheba Defenses General Chauvel's Light Horse Brigades, which had spent three days to detour through the desert, launched a charge over two miles of terrain through machine-gun and shrapnel fire against unreconnoitered trenches. They galloped straight at a double line of trenches, took them in their stride, dismounted and fought the defending infantry with bayonet. Turkish infantry, gunners and transport men were put to flight. The XX and XXI Army Corps pressed home the attack on the position. Anzac mounteds assisted by the air corps completed the rout. In six days the Turks abandoned the center of their defense line and evacuated also Gaza. Every important place up to Jerusalem fell rapidly to the new mobile attack. In five weeks the Anzac Mounted Division reached the Jordan. German forces attacked along the Jordan in July with temporary success. But in three months Allenby's infantry broke through the Turkish lines on the coast with a massed attack, and in a famous desert ride Chauvel's Anzac Mounted Division, then 12,000 strong, brought up with the enemy's rear. The combination of the striking force of the Mounted Division and the shrewd disposition of the forces by General Allenby completed the shattering defeat of the Turks in October, 1918.



"—let 'em come! !"

Horse Sense and Horse Power

By Lieutenant Colonel F. W. Koester, 2.M.C.*

IN good old American parlance, this war is a free for all. Anybody can get in and almost everybody has. Already warfare has been carried to and over every continent and to, over and under every ocean but the Antarctic. In such a war, anything may be used and before it is over probably everything will be. So far as America is concerned, our success requires the fullest utilization of every resource and that includes the horse. How the latter will be used, by whom, and where is no concern of this article. It seeks merely to point out some lessons based on recent experience and some capabilities of the future.

It requires no great acumen to recognize and accept certain fundamental developments of the present war. This conflict more than any other is a battle of machine—land, sea, and air machines—and will continue to be. In such a battle, America is most fortunate to have the world's greatest resources, both in materials and means of manufacture, for providing the war machine requirements of our allies and ourselves. To coöperate with these machines, to insure and exploit their fullest success, to supplement them when they need it, to operate where they cannot, and to substitute for them where and when they are not available, has become, currently at least, the obligation of other elements of our armed forces.

There are other developments too. Thus far, only those nations whose armies have been properly balanced have enjoyed any large scale success. Conversely, those armies whose capabilities have been narrowed, through lack of balance in their material means, have been very limited in their success. No nation or combination of nations has had all of everything it needed. In meeting land transportation requirements, all armies successful to date have established and maintained a balance between motors and animals; they have found ample need for both. Furthermore, all armies victorious to date have utilized somewhere, sometime, large numbers of mounted men either as cavalry or to perform cavalry functions. Some factual information may be in order here. In Poland, Germany used more than 200,000 horses and when she overcame France, she had almost 900,000 horses in her armed forces. Practically all German artillery is horse drawn; each of her 245 or so divisions has horse-drawn transport and each foot regiment a platoon of cavalry. Figures are not available concerning her use of horses in Russia but it is known her mounted and horse-drawn units have been widely used. Again, it is known that Germany advertised for and probably purchased all available horses in France for use in Russia. The Russians, though great exponents of air power and mechanization, have always used large numbers of horses and horse units. It is not proper to give actual figures but it can be said that Russia uses more horses than Germany. Throughout the German drive into Russia, the hard-riding Cossacks were frequently in the limelight—and they still are. They were conspicuous in the fighting on the southern front which apparently marked the turning point of the entire campaign and, as this is being written, early in March, they are being featured almost daily in news accounts from that front. Japan has used horses on a large scale in China and only a few years ago, in anticipation of current and future horse needs, inaugurated a very large scale remount program. In the invasion of Luzon, official as well as news accounts told of Japanese use of horse cavalry in the very rugged country around Baugio. Other examples might be cited.

The following paragraphs are quoted from an article prepared by this writer about ten days after the United States entered the war:

"What part the horse may play in future campaigns is, of course, a matter of conjecture; however, there are some things which appear reasonably certain. All armies are likely to continue to use horses they now have and

Russian Cossacks drive on in the direction of Smolensk.

*In charge of the Western Remount Area, San Mateo, California

Russian Cossacks in dismounted action on the Smolensk front.

will probably require replacements. In some new theaters of war being or likely to be opened, horses will probably be needed. Past experience indicates that, if and when practicable, present and probable future allies can and may use horses in large numbers. Again, any shortage of metals, fuel oils, lubricants, or other essentials of motorization or mechanization will obviously enhance the value of and need for horses both by our allies and us. Local security groups such as State or Home Guards, Sheriff's Posses, and the like are being formed in many parts of the country. Because of danger of fifth-column activities, the threat of parachutists, and for other reasons such groups appear very important. Furthermore, it is very desirable that many of them be highly mobile and capable of operating over any kind of terrain, day or night in any kind of weather which in many instances, at least, means that they must be mounted.

It appears, too, that changes wrought by the war will add greatly to the need for horses in our domestic life; for example, curtailment of the manufacture of tractors, trucks, passenger vehicles and numerous power-driven implements, restrictions on the use of certain vehicles or in the consumption of certain fuels, or other commodities, or inability to import certain essentials—these and many similar conditions present or imminent cannot but increase the current importance of the horse. Again, America is not only the Arsenal of Democracy but it very probably is also the bread basket. There can be no doubt that greater and greater demands will be made on our agriculture, cattle industry, and other industries related to food production. Obviously then, our transportation system to some extent and our agricultural and cattle industries to a great extent seem destined during the war to lean more and more on the horse."

The United States has been in the war three months since the quoted paragraphs were written. Nothing has arisen which materially changes the accuracy or soundness of the views expressed in these paragraphs. In the face of prospective animal requirements, it may be of interest to examine our animal resources and our means of mustering them for our military or domestic use or both. To begin with, it is no military secret that the United States today has the largest pool of well-bred military and general purpose horses to be found in any country in the world. The same is true of our mule resources. These animal resources are actual rather than potential and they are in such condition as to permit their immediate use. In short, we don't have to produce our animals, we already have them. A still further advantage is the fact that these tremendous resources are not only developed but they are currently distributed both in numbers and type, where they are most needed for our domestic use and can be most quickly assembled for military use. Our tremendous horse industry receives no subsidy from and involves no direct cost to our government. Nationally, it is a by-product. It requires little, if any, special personnel and few exclusive facilities.

To accomplish prompt and efficient assembly of our animal resources to meet any conceivable requirements, The Remount Service, a division of the Quartermaster Corps, is prepared and equipped to act. Through its seven territorial divisions known as Remount Areas, it can initiate a procurement program promptly and effectively in any part of the United States or over its entire area. By virtue of America having the finest and most extensive rail system in the world together with an equally effective network of highways, our animal resources can be assembled where and when needed within our own borders. Through its three permanent depots, the Remount Service can intelligently and efficiently issue animals as required. To maintain an even rate of production and to guard against future shortages, the Remount Service maintains and operates concurrently with its procurement operations a very efficient and widespread breeding system which involves the use of some 750 stallions.

What has this meant to our Army? First there can be little doubt that our horse cavalry is today better mounted than any similar arm in any army in the world. The same is probably true of our horse and horse-drawn artillery and of our pack units. Our American mule has no equal. Because procurement standards have been raised and processing methods greatly improved, remounts now reach using agencies very nearly, if not actually, ready for use.

MAJOR GENERAL JOHN K. HERR, Chief of United States Cavalry, retired from active duty on February 28, 1942. It was upon his own application, after the completion of more than forty-three years of continuous faithful, loyal and meritorious service. During his tour as Chief of Cavalry, which began in March, 1938, General Herr made the most of every opportunity to improve and modernize the Cavalry Arm, and there were recorded many noteworthy achievements:

General Herr was the first to sponsor the ¼-ton truck, generally referred to as the Bantam or Jeep. In this he was ably supported by General Lynch, then Chief of Infantry.

General Herr was among the first to strongly advocate large areas for training, specifically in the vicinity of Fort Bliss, Texas.

Being a natural fighter and having the full strength and courage of his convictions, General Herr relentlessly maintained, throughout his service, that horse cavalry was essential to a well balanced army. Had it not been for his strong policy in this regard during those years when the British mechanized much of their cavalry and when commercial motor propaganda was at its height, our horse cavalry doubtless would have suffered dire consequences. As a result of his unrelenting and uncompromising attitude relative to the retention of horse cavalry, the 1st Cavalry Divisional organization was perfected, and the 2d Cavalry Division came into being with its complete organization and equipment, authorized.

General Herr's frankly out-spoken fight for horse cavalry aroused in some quarters the feeling that he was opposed to mechanization. Nothing could have been farther from the truth. General Herr fully appreciated the possibilities and capabilities of mechanization and freely exploited its use by cavalry—*but not at the expense of horse cavalry units already existent.* His attitude was particularly exemplified by his strong advocacy of the Corps Reconnaissance horse-mechanized regimental organization; but at no time was he willing to completely *replace* and reorganize our horse cavalry as totally mechanized units such as was done with the 1st and 13th Cavalry Regiments.

The mechanized reconnaissance squadrons, as set up by the Chief of Cavalry, proved unquestionably to be sound and of extreme value in accomplishing cavalry missions.

The introduction by the Chief of Cavalry of the 81-mm. mortar into horse units was another important progressive step in modernization.

The horse-portée trailer was developed under the direct supervision of General Herr and greatly added to the strategic value of cavalry.

General Herr

Authorization for the treatment of horse shoes to prolong shoe-life on hard surfaced roads and the necessary war priority authorization was another among many achievements.

Biographical data relative to General Herr, are as follows:

He was born at White House Station, New Jersey, on October 1, 1878. He was graduated from the United States Military Academy in 1902, and commissioned a second lieutenant of Cavalry.

General Herr's early service included a tour in the Philippines, service as an Instructor at the United States Military Academy and duty in the Hawaiian Islands.

During the World War he served as Chief of Staff of the 30th Division in France and participated in the Somme Defensive, Ypres-Lys Offensive and the Somme Offensive.

General Herr was awarded the Distinguished Service Medal, together with the Belgian Order of Leopold, for extraordinary service as Chief of Staff of the 30th Division, American Expeditionary Forces, in the capture of Voormezelle and Lock Eight in the Ypres Section in Belgium in September, 1918, and in the breaking of the Hindenburg line at Bellicourt, France, and in operations against the Seile River and the Sambre Canal, September 29-October 20, 1918.

From November, 1920, until August, 1922, General Herr served with the American forces in Germany, at Coblenz, during which time he was Assistant Chief of Staff for Supplies and later Assistant Chief of Staff for Operations. Upon his return to the United States he served in the Military Intelligence Division, War Department General Staff, until July 1, 1924.

General Herr is a graduate of the Army War College, The Command and General Staff School, The Mounted Service School and The Cavalry School.

He was a member of the faculty, Army War College, from 1928 to 1932.

He commanded the 7th Cavalry at Fort Bliss, Texas, from September, 1935, to March, 1938, when he was appointed Chief of Cavalry.

General Herr is an ardent horseman and can be seen riding frequently in the parks and trails of Washington and Virginia on his thoroughbred charger, *Star Witness*. He was one of the Army's most noted polo players, being a member of the Army Team which defeated the British Army Team at Meadowbrook in 1923.

General Herr's retirement has been a great loss to our cavalry arm—and none can appreciate this fact better than those of us who served under his command in the Office of the Chief of Cavalry.

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Mobile Force

Highly mobile ground troops—such as cavalry, reconnaissance elements, the armored force, antimechanized elements and motorized infantry—are cohesively being drawn together simply because of the strategical missions which they perform in common. They speak and understand the same language irrespective of their respective modes of travel and tactical methods.

The Germans appreciating this pertinent fact already have grouped such units under the heading of *Schnell Truppen* Mobile Troops. That they have functioned efficiently under such grouping is beyond question.

Mobile wartare demands decentralization in the execution of mobile missions. Decentralization in combat requires the use of well-balanced combat teams. The character of terrain and the tactical situation usually indicate the necessity for *motors plus animals* in order that objectives can be reached regardless of the incidents of terrain, climate and weather.

Balanced combat teams capable of handling diversified combat situations are the result of long-range planning and training. They cannot effectively be created after the battlefield is reached.

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Firearms Registration?

There is no law requiring the registration of privately owned firearms for civilian defense!

Yet, many well-intentioned members of local defense councils have tried illegally to frighten people into gun registration, under the guise of "civilian defense."

The only practical use for such "defense" registration lists will be to make available to Fifth Column Groups information as to where *they* can acquire additional arms and what homes they should descend on first when outbreaks of local violence are called for by the enemy plan.

In Belgium and northern France the German military commander gave the population until January 20th to surrender their firearms. After that date it was assumed that anyone found in possession of arms would be executed.

The Nazi invaders similarly set a deadline recently in Czecho-Slovakia, in Poland, in Norway, in Roumania, in Yugoslavia and in Greece.

The Japs, under Lt. Gen. Tomoyuki Yamashita, in the Philippines, more recently followed suit.

Why? Because the privately-owned firearms of the few citizens who "neglected" to register their guns have been a constant worry and danger to the Hun and his Quislings, and the Jap.

Surely, no defense official is so *naïve* as to believe that in an emergency, with lives at stake, a gun can be issued to *any* civilian defense worker who happens along—even Fifth Columnists who might "have happened" to enroll.

Better think through this matter of Firearms Registration.

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Yet, They Can't Shoot?

Clark Lee, Associated Press staff writer, with General MacArthur's army on Bataan Peninsula, in describing a recent visit with General Pierce, well known to cavalrymen, wrote a characteristic description as follows:

". . . I ride a few miles farther with a busload of Filipino soldiers heading for the front and then walk into the tent field-headquarters of Brig. Gen. Clinton Pierce in a partially-cleared grove. Pierce, from Brooklyn and one of the fightingest men in the United States Army, recognizes me through the coat of dust which sweat has turned to mud and recalls our last meeting, on December 29th, when the command he then headed, *the Twenty-sixth Cavalry, was covering the right flank of the United States forces moving toward Bataan Peninsula.* . . . Pierce was promoted, many of his officers were decorated and *the whole regiment was cited for the rear-guard fight against the Japanese all the way from Damortis to Bataan.* . . .

"Gen. Pierce has one foot in his familiar riding boot, the other minus a toe, in a bedroom slipper. A sniper got his toe two days ago. . . .

"'These weren't kids they sent against us at Damortis, Pozorrubio, Binalonan and Tayug,' he says. 'They were seasoned troops about 21 to 24 years old. Now they have suicide missions attempting to land on our flanks so they pick their best men and toughest fighters. But I still say they are rotten rifle shots. That sniper took three cracks at me across the road here but couldn't hit anything but my toe. . . .'"

—Also see Life *Magazine, March 2d, article by Captain Wheeler describing action of 26th Cavalry.*

✓ ✓ ✓

Training

The paramount consideration of our army today is thorough training. For all units, combat is imminent if not already actual. We are at war! There is no time now to lose!

Training and field duty are closely related to organization, discipline and morale. A sound organization, a disciplined body of troops, a mass with high *esprit*, make training quick and effective. Moreover, training makes organization cohesive, discipline better and morale higher.

The great development of mechanical means and the increase in complexity of tactics have widely enlarged the importance of basic and fundamental training. There is so much practical business to know and so little time in which to learn it, that unit commanders are confronted with huge tasks in carrying out the programs and schedules which are intended to cover the elements of the training regulations. To give the prescribed training in an interesting and lively way an officer must exercise the maximum amount of thought and ingenuity. Enthusiasm begets enthusiasm. Even though his unit may be detailed to guarding a critical area or establishment he must by rotation of units find a way to keep his command trained, interested, and alert —ready for immediate combat.

There seem to be three classes of officers as far as training is concerned. They are the *strong*, the *weak*, and the *bashful*. The strong officer lets *nothing* stand in his way of gaining the objective desired by regulations and by his commanding officer. After-hour work is immaterial to him so long as he sees that he is approaching the desired goal fast enough and thoroughly enough. He is not afraid to speak out and correct errors whenever he sees them. The weak, are complacent and listless in their control. They see errors but do not correct them. The bashful, lack confidence and are fearful of correcting errors. They avoid seeing them. It is good for timid and weak officers to be placed in the same unit or near strong officers. If then there is no immediate improvement weak and timid officers should be assigned to administrative duties to release strong officers for combat training.

Time for training, obviously, is at a premium!

✓ ✓ ✓

A Moral

These two illustrations of methods of discipline are presented without comment:

"1) It was one general officer's habit to correct in person every recruit he saw with his coat unbuttoned. He once ran the length of a block to overtake a soldier and reprove him publicly because one button of his blouse had the head of the eagle pointing downward. The admonition was administered before a crowd of grinning civilians.

"2) Just before the second day's fight in the Wilderness, General Lee rode along the front of the Texas Brigade, drawn up for his inspection. Opposite the center of the brigade he turned his horse and silently faced his men. Knowing that many of them were going to their death, tears filled his eyes. He gazed at them in silence a few moments, raised his hat and silently rode away. Then a tall, raw-boned Texas private stepped from the front rank and facing the battalion said with emotion, 'If any . . . . of a . . . . here don't fight today, after what the General has just said to us, I will shoot him in his tracks!'"

✓ ✓ ✓

What Next?

It is anybody's guess! One fact, however, is definitely clear—that those of us who "wear the cloth" are less concerned now about *post-war* considerations and entertainment than we are about getting equipment, weapons and training for immediate combat to win *this* war.

The soldier has little to do with the ramifications which produce war. It is his job preëminently to prosecute war. Everyone does or should understand this. We have no time now for casting aspersions. We are at war and *in it up to our necks*. It obviously is to our advantage to pull together and stick together. *Unity produces strength.*

Every consideration, therefore, that does not directly and specifically further our war effort is now worse than a waste of time.

We must not be side-tracked from our purpose!

✓ ✓ ✓

Colors on Army Headgear

Most of the colors of the rainbow are utilized to distinguish the various arms, services and bureaus of the United States Army. The colors as prescribed for enlisted men for the service hat require the first named color to be used for the cord and the second named color to be used for the acorns and keeper. A gold cord is

Emblem of Honor

The Emblem of Honor Association has asked us to help them contact Service papers in locating *mothers with four or more sons* in the Armed Forces.

The Association is a non-profit organization which arranges public presentation of *the Emblem of Honor* to these mothers with a view not only to honoring the families and increasing their pride in the boys service, but also to build public morale and encourage voluntary enlistments.

All information with reference to these families should be sent to the Association at [illegible] East 42d Street, New York, N. Y.

used by general officers, gold and black intermixed are worn by other officers, silver and black is the prescribed combination for warrant officers.

Color combinations also are used in the cord edge braid which is placed on the caps of enlisted men.

The official colors used are:

Adjutant General's Department—Dark blue, piped with scarlet.

Air Corps—Ultramarine blue, piped with golden orange.

Armored Force—Green, piped with white.

Cavalry—Yellow.

Chaplains—Black.

Chemical Warfare Service—Cobalt blue, piped with golden yellow.

Coast Artillery Corps—Scarlet.

Corps of Engineers—Scarlet, piped with white.

Field Artillery—Scarlet.

Finance Department—Silver gray, piped with golden yellow.

Infantry—Light blue.

Judge Advocate General's Department—Dark blue, piped with white.

Inspector General's Department—Dark blue, piped with light blue.

Medical Department—Maroon, piped with white.

Military Intelligence Reserve—Golden yellow, piped with purple.

Ordnance Department—Crimson, piped with yellow.

Permanent Professors of the United States Military Academy—Scarlet, piped with silver gray.

Quartermaster Corps—Buff.

Signal Corps—Orange, piped with white.

Specialist Reserve—Brown, piped with yellow.

✓ ✓ ✓

A Challenge

During the past calendar year The CAVALRY JOURNAL repeatedly challenged cavalrymen, particularly our splendid cavalry bands, to produce a popular cavalry song; but as yet our challenge goes unheeded.

Our cavalry bands rank high among other army bands and unquestionably they could produce an appropriate cavalry song if they'd only "put their minds to it."

What's ailing, Band Leaders? Cavalrymen expect you to accept the challenge; so let's get at it. "Garry Owen" means a lot to the 7th Cavalry, but we want a song that will be dear to the heart of *all cavalrymen*.

✓ ✓ ✓

Service Journals

Prior to the recent War Department reorganization, the Cavalry, Coast Artillery, Field Artillery and Infantry Journals operated under the supervision of their respective Chiefs of Branches.

Under the new set-up the editors of these service journals have been assigned to the Requirements Section, Headquarters Army Ground Forces. The journals, however, will continue publication as formerly and will be "cleared" by the War Department Manuscript Board.

Addresses of Editorial Offices in Washington are as follows:

The Cavalry Journal, 1719 K Street, N. W.

The Coast Artillery Journal, 1115 17th Street, N.W.

The Field Artillery Journal, 1215 Connecticut Ave.

The Infantry Journal, 1115 17th Street, N.W.

APO?

Keep us posted as to your change of address!

Regardless of where this war may take you, if you will send us your APO when you embark for foreign soil, The CAVALRY JOURNAL will reach you wherever the United States mail is carried.

Editor's Mail

Editor, The CAVALRY JOURNAL:

We have noted with pleasure that the first number of The CAVALRY JOURNAL, 1942, bears below its title *Volume LI No. 1.*

The CAVALRY JOURNAL has for years been a much appreciated volume on our shelves, we have it almost complete from the first number. The current numbers are looked forward to with great interest.

May we extend to you our congratulations and best wishes upon the completion of 50 volumes, an event which we feel should not be allowed to pass without comment.

Yours faithfully,

JABEZ H. ELLIOTT, LT. COL.,
Honorary Librarian.

Canadian Military Institute,
Toronto, Canada.

✓ ✓ ✓

Editor, The CAVALRY JOURNAL:

Your CAVALRY JOURNAL of January-February date carried the finest, simplest, most graphic and convincing presentation of the true case of the horse that I have ever seen. The articles would be a good initial basis for some needed national education and enlightenment.

The fact that the pointful and timely message contained in the masterful and comprehensive address of General Herr doesn't have national distribution is little short of tragedy. The photography and selection of pictures were superb . . . effectively illustrating that "modern" and "victorious armies" still find the horse an essential ally in their operations.

General Hawins' Notes were very pertinent at this time. In fact the entire content of this issue was very stimulating, and as has been characteristic with your publication, all of the articles contained information of lasting value and interest.

The pictures depicting the retarding effects that boggy roads have on mechanized units was particularly interesting to me. Only last week I completed a cross-country drive from Oregon to Georgia, much of the area traversed was either covered with snow or boggy from thaw and rain. Mechanized units would be very inefficient anywhere in this wide area except on the paved road nets, even the side streets in the country towns of the Nebraska section I passed through would be impassable to any motor propelled vehicle. My opinion on this is substantiated by the fact that residents use only horse-drawn vehicles and sledges for short distance travel and farm operations.

Manufacturers of automobiles, trucks and tractors, with the coöperation of radio, newspapers and screen have given the American people a very false picture of the capabilities of motor propelled vehicles in cross-country war-condition operations, and the limitations of the horse. Junior officers seem particularly susceptible to this propaganda, getting a romanticized and unrealistic point of view. The picture is further distorted by the wily use of comparisons between the motor and the horse, using illustrations that are entirely outside of the horses normal field. It is never mentioned that in actual combat operations, mechanized units need a "tailor made theater"; that weather, climate, ground conditions, road net surfaces, and supply and maintenance, are serious continuing problems. All battles will not be fought on firm ground and paved highways.

Aside from actual combat there is a great field for animal-drawn transport . . . animals could satisfactorily be used in lieu of motors for short distance and interior work, thereby releasing motor vehicles for long distance hauling, combat to which they are adapted, not to mention the conservation of fuel, maintenance and rubber.

Signed: CECIL L. EDWARDS,
Captain, (Inf) QMC

Supply Battalion
2d Armored Division,
Ft. Benning, Georgia,
5 February, 1942.

✓ ✓ ✓

Editor, The CAVALRY JOURNAL:

Just received my January-February issue of The CAVALRY JOURNAL and have gone though it hurriedly. I want to extend to you and the The JOURNAL my heartiest congratulations on this issue, which I believe will do more good for the horse cavalry and the horse in war than any single piece of printed matter I have ever seen published. The only regret I have is that every person in the United States can't be forced to read it, and I might add that a lot of people in uniform could profit from its study if they only would.

Signed: F. W. KOESTER,
Lt. Colonel, QMC.,

San Mateo, California.

Please give the inclosed subscription card to a non-subscriber and use Change of (APO) Address Cards.
DEADLINE DATE NEXT ISSUE, MAY 5th

Address all communications for the United States Cavalry Association and The Cavalry Journal to 1719 K Street, N.W., Washington, D. C.

Camouflage vs. Mission Failure

By Lieutenant David H. Houck, 84th Engineer Battalion
and Lieutenant Jay W. Doverspike, The Engineer Board

DEATH to the individual, failure of the mission, and jeopardy to the troop, the regiment, the division or even to the army corps can result from lack of, or faulty, camouflage. The analogy to Ben Franklin's "For want of a horse shoe nail . . ." is particularly applicable in cavalry reconnaissance units. For want of a little camouflage a scout was lost. For want of a scout a troop was captured. For want of a troop a flank was open. For want of a flank a corps was surprised and annihilated. All for the want of a little knowledge and training in camouflage.

Sounds far fetched does it? Well it happened in Poland. It happened in France, it happened in Greece, in Libya, in Russia and by the time this gets into print it will be happening again on any one of the world's half a dozen battle fronts.

Obviously, the loss of one man will rarely have serious results, but if enough "one man's" are lost it is a different story. The point is, that unless the individual soldier is so thoroughly grounded in camouflage discipline that it becomes second nature to him, he may never survive to accomplish his mission.

The same holds true of the unit, whether it be platoon, troop, squadron, or regiment. But again it returns to the individual, for the carelessness of a single man can give away the position of any of these. The value of undiscovered reconnaissance cannot be over emphasized to a cavalryman. Time after time, in the Carolina maneuvers we were told blandly, "Oh the men don't bother with camouflage now, but just wait until they hear a few shells. Then they'll camouflage."

It reminded me of the man who was asked if he could play the violin: "Well, I've never tried, but I suppose I could if I had to," he replied. Camouflage isn't as hard to learn as playing a violin—but neither can it be put on like a coat. It's an art which puts an added premium on perfection—for anything short of perfection is death—and perfection cannot be attained without practice, even in so simple an art as camouflage. As mentioned before, it must be practiced over and over until it becomes second nature for every man to pay careful attention to every one of the dozens of details which might give him away. You wouldn't send a man to face the enemy who couldn't protect himself from gas. How much more often he will be required to protect himself from enemy observation.

If recent maneuvers proved anything about camouflage, they proved that camouflage cannot be taught effectively in the field alone. Camouflage *must* be taught and taught thoroughly in garrison. It must be practiced in garrison. It must become second nature in garrison so that it is applied almost unconsciously under the stress of combat.

Too frequently it is assumed that men know or have acquired a knowledge of camouflage measures through general tactical experience. Most have never undergone a thorough and extensive course in the subject. Every man should have this training, if he has had it before, he should be given it again, for it is only through repetition and practice that such material can be absorbed and retained.

Camouflage is a difficult subject to teach. It is difficult to make men enthusiastic about a subject where the desired result is negative. If he is successful in hiding himself or his equipment, nothing will happen and he probably won't even know whether his position has been under observation. Even under combat conditions, the results of faulty camouflage are frequently so indirect that the soldier may never realize that bad camouflage accomplished half an hour before was what brought on an artillery concentration, an enemy flanking movement, or an aerial attack. And the discouraging thing is that usually the men who have learned the lesson the hard way are too dead to apply it.

Definite attention must be given to the responsibility for instruction, enforcement and execution of camouflage and camouflage discipline. In accordance with FM 30-25, Counterintelligence, Sec. I, Par. 2, *Responsibility*. The commander is responsible for all counterintelligence measures within his command. The responsibility must necessarily include, secrecy

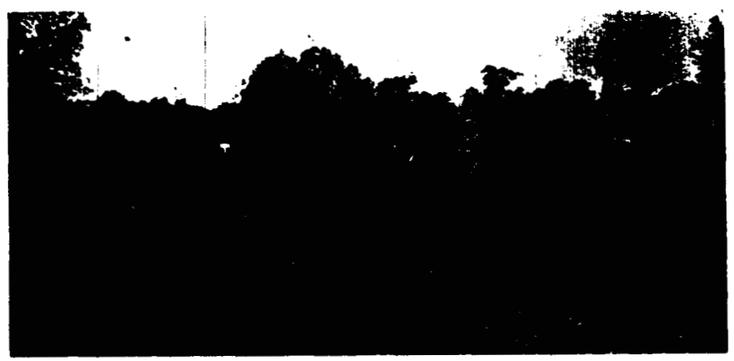


Figure on left clearly distinguishable; figure on right, if in prone position, would be difficult to locate.

Sniper suit on figure at right fades into landscape.

discipline and concealment. This does not, however, preclude consultation with, and advice of experienced camouflage officers where possible. If further clarification is needed, Training Circular No. 60, War Department, October 2, 1941, states, "III *Field Camouflage*. Experience in recent maneuvers has indicated that there is misunderstanding of the responsibilities for, and measures for achieving, proper protective concealment and camouflage of equipment, matériel, and personnel. With view to clarification the following is published for the information and guidance of all concerned:

According to the present camouflage doctrine:

a. The Commander of any unit is responsible for the camouflage measures and camouflage training within his command.

b. Every officer and enlisted man must be trained in the need for and means of taking advantage of natural cover, and the use of camouflage materials."

It is believed that adherence to the following suggestions would assist in emphasizing the responsibility for training and execution of camouflage or protective concealment.

a. That War Department Training Circular No. 60 be placed on the required reading list for commanders of all units up to and including the highest echelon of command.

b. That each troop commander appoint a junior officer or non-commissioned officer who, in addition to his other duties, will be responsible to the commander for the observance of camouflage methods and discipline at all times, and will endeavor to instill in the minds of the personnel of the troop that their lives and the accomplishment of their missions depend upon the strict observance of the rules of camouflage by every man. Show them that it's only common sense on their part for the group to watch for offenders and require them to obey the rules of camouflage.

c. That every driver be impressed with his responsibility for the concealment and security of his own particular vehicle.

d. That each man be observant and helpfully critical of the negligence of other members of the command. A number of small mistakes make a large one and a possible catastrophe.

Camouflage or protective concealment as applied to cavalry is simplified to a great extent by the fact that the reconnaissance elements are first on the ground and are scattered over a wide front. With the exception of the horse trailers, cavalry camouflage is entirely a matter of knowledge and discipline. Which brings up the misused and misinterpreted term "camouflage discipline." Many people seem to think of it in terms of TBA equipment to be drawn from the Quartermaster or Ordnance. Others visualize it as an inherent quality of every soldier which can be turned on like a water faucet. Camouflage discipline is merely the will to camouflage. It is utterly useless without the knowledge of what to do. The two are inseparable—knowledge and discipline. One will do no good without the other. For this reason, they will be treated together.

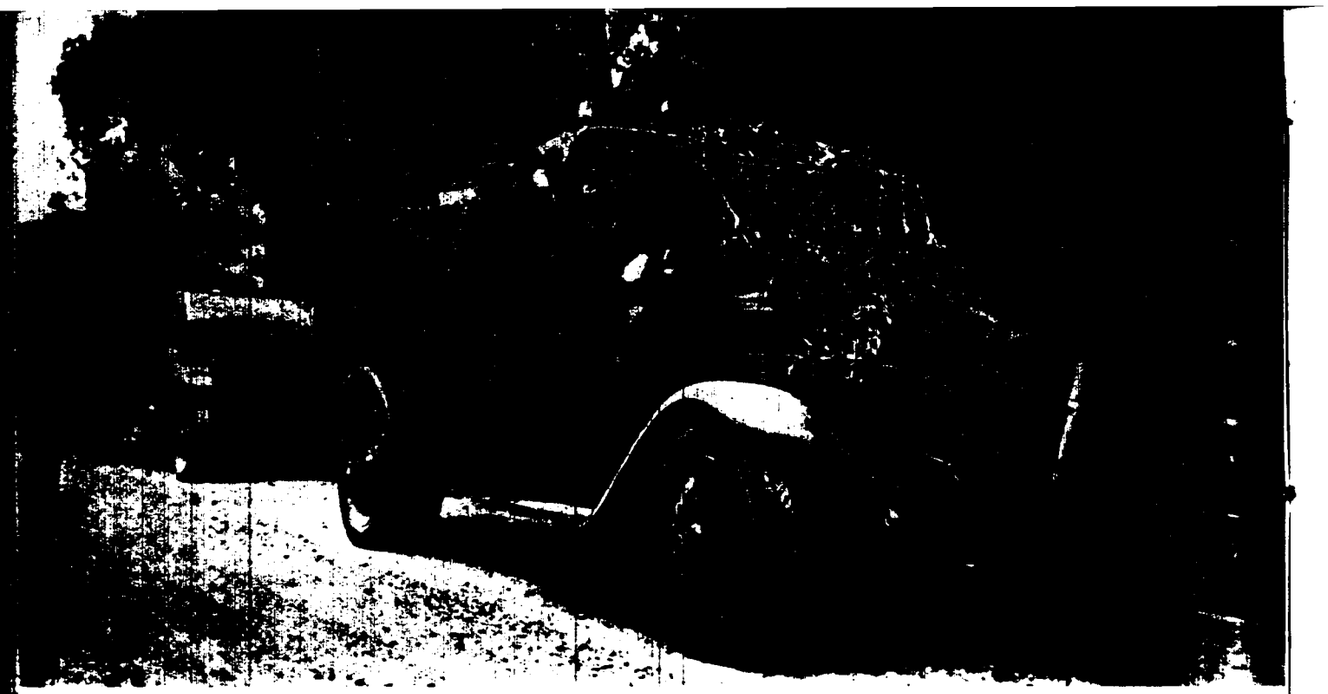
The technique and theory of camouflage are rather fully covered in the Engineer Field Manual 5-20, and in numerous articles in such publications as "The Military Engineer," "The CAVALRY JOURNAL," etc. For the purposes of this discussion it will suffice to repeat the four fundamentals of camouflage: (1) Form, (2) Shadow, (3) Texture, (4) Color.

(1) *Form*. A truck or a trailer is distinguishable by its shape. Man makes objects in straight lines. Nature never makes straight or regular outlines. Unless the regular shape of large man-made objects is broken up by camouflage, the straight edges will stand out in marked contrast to nature's irregular background.

(2) *Shadow*. Man-made objects cast characteristic shadows. From the air, and in aerial photographs, the shadows are frequently seen before the objects themselves. To camouflage, the shadow must either be hidden or broken up.

(3) *Texture*. Flat smooth surfaces must be avoided as they reflect more light than rough and irregular surfaces, even though the color matches perfectly. It there-

Good comparison of merits of camouflage suits for use by scouts and small units.



Japanese make good use of camouflage. Photo shows a truck and soldiers disguised by a covering of nets and straw.

fore follows that in camouflage textures must be matched as nearly as possible.

(4) *Color.* While color should be matched approximately, it is the least important of these four factors. Every color is found in nature, and at a distance, all tend to lose their identity.

So much for theory. Now to apply these principles to Cavalry in the field. One of the biggest problems is the scout car: the same methods can be used for trucks and command cars.

There are three methods of achieving results in protective concealment, any one of which has its place in camouflage study or training, namely:

(1) *Hiding* which indicates the complete concealment of an object.

(2) *Blending* or making an object indistinguishable from its surroundings by breaking up its form and shadow, and toning color.

(3) *Deceiving* or causing an object to appear to be something else, and by the utilization of dummies, both of which are confusing to direct or indirect observation.

Here are some hints which will prove helpful:

1. First of all, drivers of all vehicles must be impressed with their responsibilities and properly trained in order that they may know what action to take under any or all conditions. It does not stop with the concealing of the vehicles on various *practice* occasions, as most of them assume. Drivers must be trained to conceal their vehicle *every time they stop,* even if for only a few minutes. This means *every* time—and immediately. It only requires one time to get killed. Command car drivers are particularly negligent in this respect. They seem to think that driving an officer makes them invisible. As a matter of fact, command cars with their light tops are harder to hide than almost any other military vehicle. An OD compound has been developed for canvas, and by the time this article has been published will probably be available through division, corps, and army quartermaster depots.

2. Do not drive across an open field to get into the woods. If you have to cross open land, go around the edge of the field. A simple track across an open field stands out like a neon sign from the air. It will invite closer observation and probably attract a small bomb or so.

3. In moving into a bivouac or assembly area, stay on existing tracks. Don't broaden a road, unless necessary to avoid making a new road. It is obvious from the air, is a sure sign of activity, and is an indication of traffic volume.

4. Get under a tree on the shady side and move around with the shade. It may be a lot of trouble, but it's easier than dodging machine gun bullets.

5. Be careful not to park too close to the edge of a woods. You'll be visible from ground and oblique aerial observation.

6. Park at least 50 yards away from the nearest vehicle. This is very important in the event of detection of an individual vehicle.

7. Carry pieces of burlap to cover windshields and headlights. Turn rear view mirrors down. When observed from the air, various bivouacs have looked like Christmas trees because this precaution was neglected.

8. Cut brush and put it around and over your vehicle to throw shadows on it and to break up its outline. Avoid making it look like a brush heap, and don't cut the brush nearer than 100 yards from the nearest vehicle. Always place plant material right side up, as the under side generally has a different shade of coloration than the upper side.

9. Replace brush or branches when they begin to wither. Dead brush in summer is worse than none at all.

10. Remember that camouflage is not one of those details where you can sit back on the assumption that, "If everyone else does it I won't have to." In camouflage, *everybody's* job has to be done completely and well, or else.

11. Disturb as little as possible the appearance of existing natural conditions. The enemy may have previously taken photographs of the area.

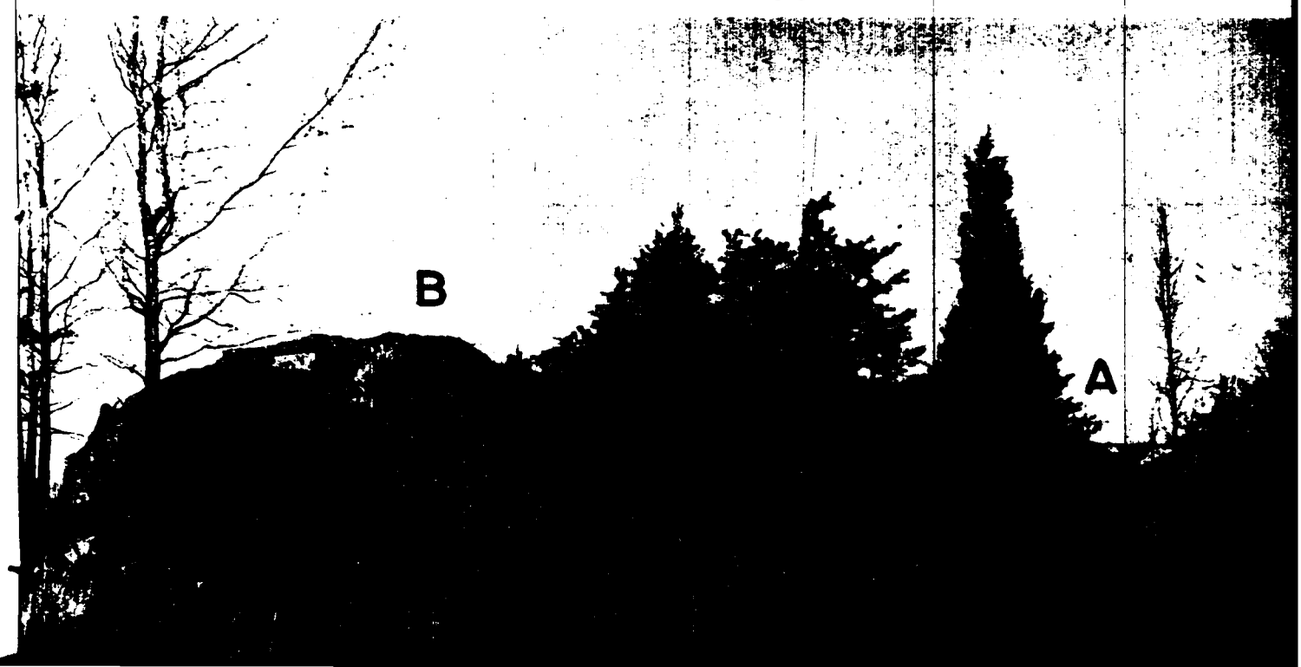
12. Remember that, although you are first on the ground and may leave it before you are detected, other units will come in behind you and want to use that same spot for concealment. Don't disturb the ground any more than is absolutely necessary, either in entering or leaving.

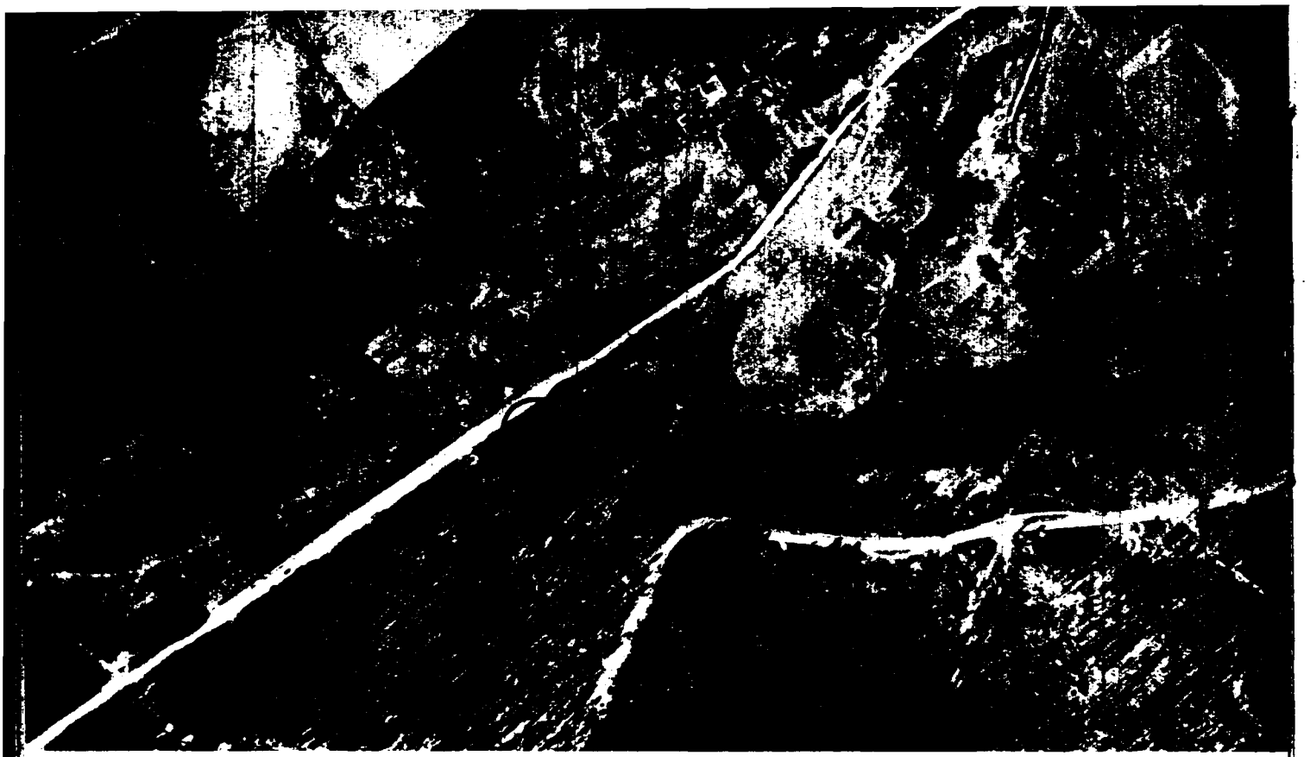
Tests of the use of nets and drapes for vehicular concealment have been carried out and found to be beneficial if skilfully executed. In flat, open country, use of the flat top net is probably most effective because of the possibilities for diffusive blending and obliteration of form. The large quantity of material and extensive labor required are, however, a major handicap to its use. The drape while not so effective unless utilized in conjunction with screening plant material, has the advantages of speed of erection, smaller quantities of material required, and requires less transportation space. The drape if simply thrown over the vehicle does not screen one of the major targets of observation, namely, the form of the object. Poles or other contrivances are therefore necessary to break up the form of the vehicle under the drape. In flat, open country where drapes and nets are used, it is also essential that particular care be taken in blending the color tone and texture of both flat tops and drapes, in with that of the surrounding landscape.

Cavalry units in bivouac or in assembly areas have much the same problem as other arms, in that a large amount of space is required. Otherwise it's the same as Artillery, Motorized Infantry, or any other mobile branch. The methods described above hold for all vehicles. Men, of course, disperse as much as possible and take advantage of natural cover. If shelter tents are pitched, they are located under cover and are usually taken down in day time. If not, they are concealed with natural materials. Special care must be taken with kitchens and kitchen utensils. Smoke in the daytime and firelight at night will draw attention more quickly and from a greater distance than any other single factor. In a flight over supposedly concealed bivouacs during the Carolina maneuvers, positions as far as five or six miles away were picked out from smoke alone. Paths into the area, to the latrine, and to the kitchen should be marked to follow a covered route. At night no lights should be allowed. Smoking should be prohibited.

Camouflage of individuals is pretty thoroughly covered by basic training in scouting and patrolling, and at the risk of making an "assumption of knowledge" warned against earlier, it is assumed that every cavalryman will be thoroughly familiar with all phases of this art. Lately, however, camouflage suits or sniper suits have been developed and tested by the Engineer Board, and have proved very effective in concealing individuals

(A) Trailer covered with **painted drape. (B) Trailer covered with garnished drape.**
—see aerial view on next page.





Aerial view of two camouflaged horse trailers shown in ground view.

in patrols, outposts, etc. They look more like the pajamas of a sloppy artist than anything else, but blend remarkably well with natural colors. In any attempt at individual camouflage there is one precaution that must be taken while under observation either from the air or ground. Movement must cease entirely. As long as a man is motionless, he stands a good chance of escaping detection. The moment he moves, however, all the camouflage devised by man would be insufficient to hide him. Another rule is to keep the face down. Particularly true when under aerial observation. Keep in the shadows. If you do, your own shadow will be absorbed, and as long as no light reaches you, none can be reflected to the eyes of the enemy, or to his camera.

Experimental work on Cavalry problems has been conducted in several localities. Refer to articles in The CAVALRY JOURNAL, Volume No. 5, Sept. and Oct., 1938, and the Military Engineer, Volume XXXI, No. 176, Mar. and April, 1939, and No. 179, Sept. and Oct., 1939.

Now under way at the Engineer Board, Fort Belvoir, Virginia, are experiments on cavalry's most serious problem, the concealment of its horse portee trailers. Regardless of what comes out of the experiments, these huge vans will always require a tremendous area of the best natural cover. Neither the Engineer Board, nor our enemies have yet invented an invisible paint, so don't expect any such miracles as when a certain outfit on maneuvers in Louisiana last summer sent a pyramidal tent to our base camp with the following note: "Please camouflage this tent, we'll be back for it tonight."

The personnel of any command post, regimental, squadron, troop or any other, has a two-fold camouflage responsibility. Not only is it responsible for its protection to save its own skin, but as the nerve center of the unit, the security of every man in the unit is dependent upon its continued and efficient operation. For this reason, the actual command post should be located well away from any concentration of vehicles, and visiting vehicles must not be allowed to park in the vicinity. Activity around the area of command should be reduced to that absolutely necessary for operation.

During the Carolina maneuvers, a detail from the 84th Engineer Battalion (Camouflage) spent five weeks with one of the horse-mechanized corps cavalry regiments. Their report is discouraging. "Oh, we move too fast to bother with camouflage," was the general attitude. Our answer is this: "You don't move all of the time, and when you stop, camouflage! Your observations will be more accurate and more complete if you can make them undiscovered. Your chances of getting vital information back to your command are infinitely greater if you can remain undetected." The day of the spectacular frontal attack passed with the "Charge of the Light Brigade." It made a good poem and a lot of dead heroes, but it was bad tactics. Camouflage may take some of the dash out of cavalry operations, but putting it bluntly, a dead cavalryman is of no use to anyone except his insurance beneficiary. Remember General Braddock! He was bold and disdaintul of the very effective camou-

flage methods of the Indians. He's another who learned his lesson just a little too late.

It is not meant to infer that this attitude pervades the cavalry, but it should be corrected where it exists. Time and again, the writers saw scout cars draw up in the open at crossroads and in towns. You can't fool the enemy if you show your hand before the betting starts.

Observation flights brought out one point which has been mentioned before. That is, a single clue is all that's needed to give away a position. Time after time our attention was attracted to an area by tracks, smoke or flashing windshields. Closer inspection disclosed bivouacs. If our attention hadn't been attracted, we probably wouldn't have picked out those patches of woods, because from 5,000 feet you can see a lot of land, and at 200 miles per hour, you don't get a chance to give detailed inspection to all the possible troop sites in that area. If you can escape attention, you have a good chance of getting by unobserved.

As long as the present conflict continues, science will work diligently to add to the capabilities of the aircraft and the camera; so, too, will the adeptness of the air observer and the photographic interpreter increase with experience. In order to counteract these advancements in science and experience, it is the responsibility of all to redouble our efforts to master the technique of camouflage or protective concealment. This can only be accomplished by continual experimentation, exchange of ideas between branches of the armed forces, and constant application of principles recognized as fundamental.

Most forms of natural life have become instilled with an inherent instinct for concealment which governs their movement when under observation. Nature has favored them with certain colorations and forms which further aid them in the deception. This instinct, lost to us through civilization must be reëstablished by study, instruction, training, and repetition.

Completed Staff Work*

COMPLETED STAFF WORK is the study of a problem, and presentation of a solution, by a staff officer, in such form that all that remains to be done on the part of the head of the staff division, or the commander, is to indicate his approval or disapproval of the *completed action*. The words "*completed action*" are emphasized because the more difficult the problem is, the more the tendency is to present the problem to the chief in piece-meal fashion. It is your duty as a staff officer to work out the details. You should not consult your chief in the determination of those details, no matter how perplexing they may be. You may and should consult other staff officers. The product, whether it involves the pronouncement of a new policy or effects an established one, should, when presented to the chief for approval or disapproval, be worked out in finished form.

The impulse which often comes to the inexperienced staff officer to ask the chief what to do, recurs more often when the problem is difficult. It is accompanied by a feeling of mental frustration. It is so easy to ask the chief what to do, and it appears so easy for him to answer. Resist that impulse. You will succumb to it only if you do not know your job. It is your job to *advise* your chief what he ought to do, not to *ask* him what you ought to do. He needs answers, not questions. Your job is to study, write, restudy and rewrite until you have evolved a *single* proposed action—the best one of all you have considered. Your chief merely approves or disapproves.

Do not worry your chief with long explanations and memoranda. Writing a memorandum *to* your chief *does not* constitute completed staff work, but writing a memorandum for your chief to send to someone else does. Your views should be placed before him in *finished form* so that he can make them his views simply by signing his name. In most instances, completed staff work results in a single document prepared for the signature of the chief, without accompanying comment. If the proper result is reached, the chief will usually recognize it at once. If he wants comment or explanation, he will ask for it.

The theory of completed staff work does not preclude a "rough draft" but the rough draft must not be a half-baked idea. It must be complete in every respect except that it lacks the requisite number of copies and need not be neat. But a rough draft must not be used as an excuse for shifting to the chief the burden of formulating the action.

The *completed staff work* theory may result in more work for the staff officer, but it results in more freedom for the chief. This is as it should be. Further, it accomplishes two things: (1) The chief is protected from half-baked ideas, voluminous memoranda, and immature oral presentments. (2) The staff officer who has a real idea to sell is enabled more readily to find a market.

When you have finished your *completed staff work* the final test is this:

> If you were the chief would you be willing to sign the paper you have prepared, and stake your professional reputation on its being right?

If the answer is in the negative, take it back and work it over, because it is not yet *completed staff work*.

*Emanated from the Office of the Provost Marshal General, War Department. Prepared by Colonel Archer L. Lerch, J.A.G.D.

Some Lessons from the War

THE tragic events at Pearl Harbor on December 7, 1941, contain some lessons that are well worth thinking about by any cavalry commander as well as by the commanders of other forces and services.

The first thing that strikes one's mind is the question of security for a command whether in a position of defense, marching on roads or across country, or in actual battle, offensively or defensively. Measures for security are measures for the immediate protection of a command whatever its mission may be. If the mission of a cavalry command is that of reconnaissance to gain information for the higher commander who assigned the mission, there are certain measures that must be taken to prepare this reconnaissance. These measures are distinct and different from the measures for security which are taken to protect the command itself. If the mission of a command is to hold a position defensively, it uses patrols and outposts to protect itself from surprise, and it may be necessary also to send out reconnaissance patrols to obtain information of the enemy which has little or nothing to do with the immediate protection of the command.

Thus, we differentiate between information patrols and security patrols, although information and security are inseparable, and reconnaissance is one of the methods used for both purposes.

At Pearl Harbor, under the circumstances preceding the attack, there was necessity for those security measures which provide warning against surprise. There was also reason for other measures which constitute one of the subjects for this article.

The point that I wish to emphasize as a lesson is that if we assume in any possible case that the usual security measures are taken in the way of patrols, listening devices or covering forces, there is still something else necessary to do. It is simply this: After providing for the warning of a command, the commander must never regard his command as being perfectly secure. The enemy may be clever. He may outwit the leaders of our security elements. Our combat patrols may be imperfectly trained, our covering forces may make mistakes. And therefore, after taking every practical measure for warning against surprise, we must be further prepared in case these measures fail us.

For example, in a defensive position, we must keep our airplanes separated so that they cannot be caught by enemy bombers in close formation on the ground and too many of them unnecessarily destroyed. Even if they have to be guarded by numerous squads of soldiers against sabotage or ground attack, it must be done. Furthermore, our ground troops must be dispersed in small groups and not formed or camped in masses. These small groups, separated for this purpose, may be utilized to guard our dispersed airplanes, our artillery or our small groups of picketed horses. At night, our small groups of soldiers may be made as comfortable in bivouac as they are in large closely formed camps.

A cavalry command moving across country, either on a mission of reconnaissance or to attack a column of the enemy, or other purpose, disposes a covering detachment in front, moving by bounds. Its flanks are protected from surprise by combat patrols. In this manner it can move swiftly and fearlessly. But the commander should not count too certainly on these dispositions. The command must move in some formation ready for instant combat. Also, he may be attacked suddenly by hostile aircraft, and he must be able to deploy instantly into a dispersed formation. There will not be time usually to deploy from a closed formation. But there will be time if his command is already partially deployed by using a maneuver formation consisting of successive lines of platoons or squads.

He may be attacked by hostile armored forces moving rapidly against him upon the very heels of his retreating security elements. But, because of his formation, he may be able to avoid the devastating effects of a surprise. Further deployment in a direction away from the enemy or towards some rough or timbered ground will give him opportunity to lead the enemy away from his desired direction of advance, or into a trap composed of other friendly troops prepared with artillery and antitank guns to meet an armored onslaught. Or, his quick retreat may enable our commander to establish himself on suitable ground, difficult for armored vehicles and affording our cavalry command an opportunity to use its own antitank guns.

A command drilled in such tactics does not become demoralized by such sudden and rapid retreat, because the men know what it is for. It is something they have practiced.

By these means a cavalry command may make itself invulnerable to attempted surprise attack by an enemy of any kind, air forces, armored forces, infantry, or artillery. And, after dealing with such situations, our command may resume its march by moving around the enemy or even forward to attack him under favorable circumstances.

Thus, a cavalry command can move toward its destination very boldly. By using the proper security measures, and supplementing them by using proper formations, it is prepared to take care of itself under any circumstances. Even in battle or in delaying actions the same principles can be applied.

It is necessary for every cavalry officer to become air minded and armored force minded. These are the two new branches of the service that have grown so powerful and devastating in their attacks against troops that do not understand them and are unprepared to meet them. A cavalry officer must therefore study them and know their formations, armament, effective ranges, speed, as well as their necessities and limitations and vulnerability to various kinds of fire. He then can make his preparations with foresight and prudence. If he knows what he wants to do, he can train his troops to do it without the consternation, demoralization and panic that so often overtake a body of troops that do not know what to expect or what to do under unforeseen emergencies and surprise. Having determined what the chances are in carrying out his mission, he can make his decisions and proceed with a clear mind and a stout heart.

War is becoming more complex. A cavalry commander must know not only how to deal with hostile air force, armored force, artillery, motorized infantry, marching infantry, and parachute troops, but he must also know how to utilize or coöperate with such forces of our own. Despite the brilliance and power of the war exploits of air forces and armored forces, our cavalryman must understand that cavalry is still able to care for itself and to perform certain important duties and missions better than any other arm. But the cavalryman must note carefully the new inventions and appliances and never underestimate them, while making the necessary adjustments in his own arm and taking the necessary precautions to meet new conditions.

From the battles in defense of Singapore come two other lessons. They are not new. They have been reiterated again and again in these Notes. They are known to our War Department. And yet, I wonder if they are kept constantly in mind and given the importance they deserve.

First, it is noted that the British troops have had to oppose the Japanese tanks by machine gun fire. The British artillery has had too much on its hands in opposing the Japanese infantry to be able to concentrate its attention upon enemy tanks. There were few or no antitank guns. Of course it would have been desirable for the British to have had some armored forces. They didn't have them. It is not always possible to have them available, especially for defensive action. But, and here is the crux of the matter, all ground troops should be considered ill-equipped unless they have a due proportion of antitank units armed with effective antitank guns. No large units of infantry or cavalry should ever go into modern war without these units. To be without them is as bad as to be without machine guns. The larger the command the larger should be the antitank units. Even the assignment of armored forces to a command will not compensate for the absence of antitank units. Whether an infantry force is sent to defend an island base or to engage in a great offensive campaign, it is not properly equipped unless it has its due proportion of antitank units. And the same may be said of any large cavalry force. Armored force and antitank force have their distinct rôles and neither one can properly substitute for the other. Nothing in our war production and the organization of our armies should be given greater importance or priority.

Second, the use of aircraft in supporting our ground troops closely is as fully important as its use in bombing ships and cities. Twenty years ago, before I ever heard of dive bombers, I wrote on this subject. And I was not the only cavalry officer who thought about it.

It would be easy for anyone who might read these statements to say, "Well, everyone knows that the British in Malaya would have been much better prepared to defend Singapore if they had had a considerable air force and armored force. It is stupid to write these statements now."

But I disagree. I am not referring to air force in general or to armored forces. The two old arms of the service, infantry, and artillery, are doing most of the fighting on every battlefield in this war. (And they would be better off if they had with them large forces of the other older arm, the cavalry.) And my contention is that these older arms ought not to be sent to fight our enemies without the protection given by strong units of antitank guns and the assistance given by dive bombers and fighter planes to oppose the enemy dive bombers. The first of these necessities, antitank units, is the more important until we are thoroughly equipped with everything to fight offensive war, including a large air force. This is true because our dive bombers without the protection of fighter planes would probably be destroyed by superior enemy aircraft. But, antitank guns in large numbers would help us fight a defensive war until we are fully equipped.

The lack of sufficient numbers of antitank guns has been a serious handicap to all the Allied Forces fighting in this war. Adequate numbers of antitank units with all large forces of infantry or cavalry would save our armored forces by relieving them of so many defensive tasks and holding them for offensive operations.

A cavalry force containing antitank units, whose guns are useful also for beach defense against enemy landing boats and other purposes, is much enhanced in value.

Let there be no half measures. Our infantry and cavalry should not be expected to make terrible sacrifices for lack of these accessories while our air forces and armored forces are being built up or going off on independent missions.

Certain persons, both military and civilian, are writing articles for magazines and newspapers purporting

to expound the lessons of the war which are perfectly obvious to everyone. Clever civilian magazine writers attempt to explain to the dull brains of the rest of us the great new developments. A writer for the *Saturday Evening Post* devotes the whole of a lengthy article to the disparagement of the Infantry arm of the service. Referring sarcastically to the old army saying, "The Infantry is the Queen of Battles," he says, "The Queen is Dead." He attempts to prove this by explaining the way in which the Germans used their armored forces and air forces in Europe. But he admits that there is still some use for Infantry. Well then, if there is still some use for infantry, and we all know that Germany, Russia, and everybody else, is still using hundreds of thousands of infantry, why disparage it? Do not those writers realize that such writings tend to lower the morale and spirit of our infantry? What difference does it make that the tanks and the planes have taken the brilliant rôles, if the infantry is still indispensable? Would Germany still maintain nearly three hundred divisions of infantry if she thought it should be disparaged as an arm? Note the fame which has come to the Australian infantry in North Africa, Malaya and elsewhere. Note the world wide admiration that is bestowed upon MacArthur's infantry in the Philippines. Note that the secret of the Japanese successes so far has been overwhelming numbers of infantry landing on beaches and maneuvering through jungles. Give as much credit as you please to tanks and planes which made these infantry operations possible. But do not belittle and disparage the infantry which has done most of the fighting and suffered most of the losses. War is a combination of all of these forces. Each of them merits respect and attention.

Imagine the dismay of fathers and mothers of our young soldiers who have been assigned to the infantry if they read that infantry is of little value. How do you expect that our infantry will have the *esprit de corps*, the zeal, the pride, the interest and the willingness to self sacrifice necessary for victory if every self appointed military expert with a flare for writing belittles, ridicules and disparages the arm of the service to which thousands of our young men must be assigned?

If every arm of the service is indispensable, the relative importance in any campaign of the various branches has no bearing whatever in our military preparations and organization except as to the number of men and arms assigned to those different branches. Let me remind the pseudo-experts again that without detracting one iota from the importance and sensational brilliance of armored forces and planes, the infantry of the armies of friend and foe still constitutes the major portion of their forces. These writers are rendering a distinct disservice to the unity, morale and zeal of our army. It is stupid beyond words for these persons to assume that our professional army officers have not foreseen for years these new developments that have come about in this war. The most important mistakes or failures in foresight and imagination can be charged not to the officers of the older branches but to the officers of the newer branches such as our air force which refused to recognize the necessity for coöperation between aircraft and ground troops until it was demonstrated by the Germans in France in the campaign of 1940.

Before our mobilization began in the late months of 1940, our army was so small and depleted, by the will of our people, that there was no opportunity to carry out tactical experiments on a truly large scale. Each of the branches of the service had to be maintained as a bare nucleus for the enlargment of the army, should that be necessary. Our present lack of readiness for the critical situation in which we find ourselves is not due in the slightest degree of respect to any fault in the army. It is due entirely and wholly to the attitude of our people, our pacifists and our politicians.

The most important lessons of the war are for those people, not for our army.

With our small and depleted army we had to establish and maintain the principles of training for modern war in all branches of the service, old and new. We could neglect none of them. The new branches, armored force and air force, had to be established and trained without completely sacrificing the older branches. How well we did our work is now being demonstrated. Our air forces and armored forces seem second to none in efficiency.

As far as infantry, artillery and cavalry are concerned, the fighting in the Philippines has demonstrated that our training methods have been first class and up to date. We all knew that the Japanese troops would be found to be well trained and formidable. But, on the island of Luzon, their only superiority over our troops has been their overwhelming numbers. Without this disparity, events have indicated that our troops would have more than held their own. In fact it has been shown that with equal numbers the Japanese would have been badly defeated. This only makes the present situation the more poignant. But it also gives hope for the future.

We do not presume to predict the future of infantry or that of any of the arms of the service, old or new. For all we know, air force may become or already has become the predominating force for war. But we have to take things as they are today. It would be only to betray the trust of our country if we say that we need only the air force and devote all our attention to that arm only. What we do know is that there are millions of infantry and other ground forces in action today. And, therefore, we must have those ground forces and instill into them a belief in themselves and a pride and spirit in this service.

We must have everything, and can neglect nothing. Therefore we must protect every essential element in the army from belittlement or disparagement if we expect it to fight victoriously for our country.

The Cavalry Replacement Training Center

By Brigadier General Donald A. Robinson*

TRAINING, as prescribed at the Cavalry Replacement Training Center, is based on Mobilization Training Program 2-2, War Department, July 22, 1941, as revised by War Department instructions of December 17, 1941, reducing the length of the training period at replacement training centers to eight weeks, with provision for two extra weeks. One of these, immediately preceding the eight week training period, is employed in receiving and processing incoming trainees. The other, immediately following the last week of training, is employed in final processing and in preparing trainees for shipment to the organizations to which they have been assigned. With obvious exceptions, made necessary by reduction of the training period, the number of hours allotted to general subjects, as prescribed in the Mobilization Training Program, is followed.

The mission of the Cavalry Replacement Training Center is to provide basically trained individual soldiers as replacements in all horse and mechanized cavalry units throughout the Army, these replacements to be capable of operating efficiently in garrison or in the field in the organizations to which assigned. Training includes basic training, training in horsemanship, training in motors, and training in weapons.

Basic training includes instruction in the Articles of War, military courtesy and discipline, military sanitation and first aid, care and display of equipment and tent drill, interior guard duty, defense against chemical attack, defense against aircraft and mechanization, hasty shelter and camouflage, dismounted drill, physical training, map reading, dismounted scouting and patrolling, combat training of the squad and platoon, organization of the Army, and inspections.

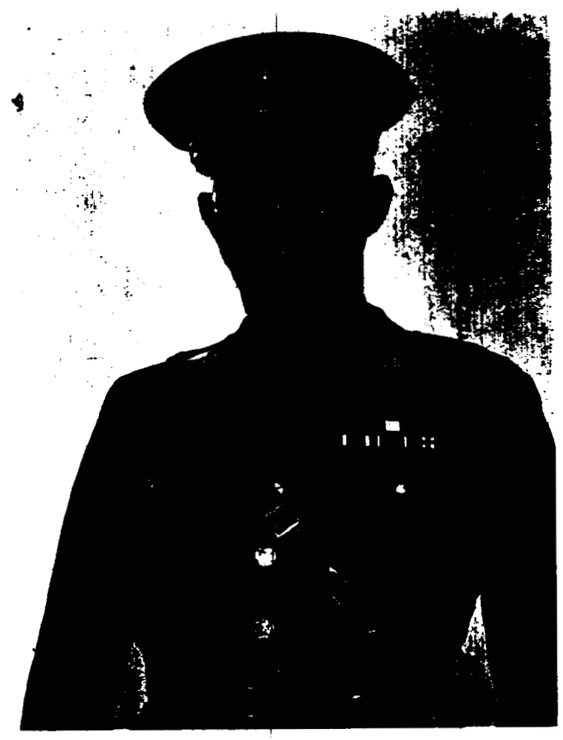
Training in horsemanship includes equitation, mounted drill of the squad and platoon, mounted scouting and patrolling, combat training of the squad and platoon, mounted pistol marksmanship, marches and bivouac, and care of horses and equipment.

The objective of horsemanship instruction is to qualify horse unit trainees to manage their horses, individually and in ranks, at all gaits, on the drill ground and over varied terrain; to execute all movements of the squad and platoon, including approach formations, combat formations, and the mounted attack; to fire the pistol, mounted, with alacrity and accuracy; to march; and to care for their mounts and equipment under all conditions. Emphasis is placed on quiet and smooth execution of all mounted movements and all work with horses.

Training in motors includes elementary driving, advance driving, vehicular drill, road marches by day and by night, combat, loads and loading, administrative details and dispatching, demonstration of field expedients, and maintenance.

The objective of motors instruction is to qualify motor trainees in the operation and first echelon maintenance of one or more 4-6 wheel military vehicles, motorcycles or tanks. Instruction includes operation of vehicles in military formations and operation of individual vehicles on roads and across country under all conditions of road, terrain and weather.

Training in weapons includes preliminary rifle marksmanship, known distance rifle qualification (Course B), preliminary dismounted pistol marksmanship, dis-



General Robinson

*Commanding C.R.T.C., Fort Riley, Kansas.

A regimental formation of two squadrons of three troops
each showing six of the fifteen horse troops of the C.R.T.C.

mounted pistol qualification, machine gun mechanical training, machine gun preliminary marksmanship, machine gun firing on 1,000 inch range and field targets, antiaircraft firing (miniature range), antimechanized firing (miniature range), combat firing, demonstrations of the 37-mm. gun, caliber .50 machine gun, 81-mm. mortar, and sub-machine gun. Instruction includes the technique of fire of all weapons. In general, the scope of training with weapons follows the procedure prescribed in field manuals.

The objective of weapons instruction is the preparation of the trainee to fire his weapons so as to exploit completely their powers on the battlefield. Rifle instruction includes a thorough course of preliminary training with both the M-1 and Springfield 1903 rifle. Record firing is conducted with the M-1; combat firing with the Springfield 1903. Pistol firing is carried on concurrently with machine gun instruction.

In addition to trainee instruction, the following special courses are conducted within the Cavalry Replacement Training Center: A school for officers who have been assigned to the Cavalry Officer Replacement Pool pending their assignment elsewhere; a school for such enlisted men of the permanent training cadre and for such trainees, on completion of their trainee instruction, as have been tentatively selected for admission to the Cavalry Officers' Candidate School; a school for clerks and a school for cooks. The selection of students for the clerks' and cooks' schools is made from trainees who have completed their trainee instruction and possess special qualifications for further training in these specialties.

The course for Pool officers embraces basic subjects, horsemanship, weapons, and calisthenics. The course for officer candidate prospects embraces general instruction, tactics, and weapons. The course for clerks provides a month's instruction in Army paper work and other clerical duties. The course for cooks provides a month's supervised practical training in various troop messes, designed to prepare men who are already cooks to fill vacancies as troop cooks in cavalry organizations, thereby supplementing the output of trained cooks furnished by the Cooks and Bakers School at Fort Riley. The need for trained clerks is general, and this Training Center has already furnished such personnel to other arms and branches as well as to our own arm of the service.

The present organization of the Cavalry Replacement Training Center provides a headquarters and headquarters troop, six training squadrons of four troops each, two training squadrons of two troops each, and a special training troop. The eight squadrons are grouped into four regiments. The enlisted personnel of one of the two troop squadrons is composed entirely of colored men. There are two bands, one white, and one colored.

In order to standardize training and insure adherence to prescribed methods and techniques, three functional departments were organized: the Horsemanship Department, the Motors Department, and the Weapons Department, each having its own chief, separate staff and corps of instructors. Under this system, which has fully demonstrated its efficiency, training is conducted by a combination of unit and functional control. Basic training is the responsibility of the training squadrons. Training in horsemanship is conducted by the training squadrons under the supervision of the Horsemanship Department. Training in motors is conducted by instructional personnel of the Motors Department assisted by the training units. Training in weapons is likewise conducted by instructional personnel of the Weapons Department assisted by the training units. The Special Training Troop, referred to in the preceding paragraph, performs the very useful task of relieving the regular

training units of the responsibility of attempting to train the comparatively small number of trainees who, upon being given the classification tests, are found unqualified to undertake the regular course of basic training. These men are assigned to the Special Training Troop under such classifications as: Non-language, illiterate, Grade V, mentally unstable, physically deficient. If their deficiencies cannot be overcome, by academic and other special training, they are processed for discharge under the provisions of Section VIII, AR 615-360.

The Classification Section, operating under its own chief, assisted by trained commissioned and enlisted personnel, performs the indispensable service of classifying all incoming trainees and determining, by questions and tests, the most suitable training assignment for each individual. As far as possible the trainee is given his preference. If he prefers service in horse cavalry, and especially when past employment and experience indicate his suitability, he is assigned to a horse troop. If he prefers service in a mechanized unit, he is assigned to a motor troop, if this assignment is consistent with his qualifications and the needs of the service. The classification process begins with the arrival of the trainee and continues throughout his course of training. The qualification cards received with each shipment of trainees from a reception center are sorted and corrected in the light of the later and more extensive information obtained by the Classification Section regarding each individual. Other information is added as it becomes available. Organization commanders are required to maintain progress charts showing the proficiency of each trainee, and at the end of the second, fourth and sixth weeks of training to furnish the Classification Section individual reports of progress on the forms provided. The Classification Section also gives mechanical and clerical aptitude tests to determine the qualifications of occupational specialists and other personnel for key positions, and the suitability of trainees to receive specialized training on the completion of the regular training period. The system is so thorough that trainees required for special assignments may be readily selected. Furthermore, the commander of any unit, on receiving a detachment of replacements from this training center, may determine the most suitable duty assignment for each individual by consulting the qualification cards which accompany that detachment. If the unit is a motor or mechanized unit the cards contain information as to what type of vehicle each individual is best qualified to handle, and with what weapon he is the most proficient; and equally complete data are furnished on the qualification cards of replacements for horse units.

Training throughout the Cavalry Replacement Training Center is governed by a master schedule. This is based on a 45-hour training week of five 8-hour training days and one 5-hour training day. Each 8-hour training day is divided into a ½-hour calisthenics period and two 3¾-hour instructional periods allotted equally over the 8-week period to: (1) basic instruction under training squadrons, (2) horsemanship instruction and motor instruction (periods are concurrent), and (3) weapons instruction. All trainees have calisthenics for thirty minutes each morning previous to the start of the first instruction period. Each 3¾-hour instruction period includes three 10-minute rest periods which are utilized as far as possible in giving oral instruction concerning the particular drill or exercise in which the training unit is then engaged. The last ten minutes of an instruction period is intended for movement of squadrons from one training department to another. Saturday mornings are devoted to inspections, lectures, ceremonies and open hours not assigned to specific subjects. Units in rotation stand retreat, or hold a retreat parade, daily, except on Saturdays, Sundays and holidays, throughout the 8-week training period. Units not attending retreat or parade have supervised mass athletics. On Friday evenings all squadrons are assembled for a combination retreat parade and dismounted review.

Weekly schedules, based on the master schedule, are prepared by the department chiefs for training activities under their supervision, and by squadron commanders for their respective troops. These are submitted to S-3, Headquarters Cavalry Replacement Training Center, ten days prior to the week involved. No deviation from weekly schedules is made without authority of this headquarters. All schedules are coördinated by S-3. Bands attend dismounted drill periods, except in inclement weather, in which case a drum corps is substituted. The two bands alternate in attending retreat parade and other dismounted and mounted ceremonies.

From the very beginning of his training, each trainee is carefully instructed in the required standards as regards posture, cleanliness, neatness, dress and soldierly deportment, and is then held to these standards by vigilant inspection, continual instruction and repeated correction, until compliance has become a habit. The same thoroughness is applied to every element of his training. Correct execution is insisted upon from the beginning. Mistakes and faulty execution are not passed over for correction at some future time, but are concentrated upon at once, the exercise being repeated until satisfactory performance is attained. Instructional personnel, in their dress, appearance and deportment, are expected to adhere to high standards and thereby serve as an example to trainees. Calm and orderly instruction is required. Noisy corrections and the "bawling out" of individuals undergoing training are prohibited. The high level of intelligence of our trainees, their interest in learning their jobs, their response to instruction, and the splendid spirit manifested by them, both at work and at play, are very impressive. Many trainees in each incoming increment possess educational and other qualifications for officer material, and many others will eventually become excellent noncommis-

sioned officers. From these groups the required number of temporary corporals are appointed to serve as squad leaders in trainee squads; and in these groups, of course, are found the men best qualified to fill the C.R.T.C. quota in the Cavalry Officers' Candidate School.

The physical plant of this training center consists of several hundred buildings and installations of standard types, providing housing and facilities for personnel, animals and equipment, and for the training, administrative and recreational activities of the command. The installation was admirably planned and constructed along functional lines. This permits each department to operate without interfering with the others, and enables units to move without interference from one activity to another. Each department controls its own administrative buildings, training facilities, and storage space for departmental equipment. For example, the Horsemanship Department is in charge of all animals, stables, saddlerooms, shoeing shops, riding rings, riding tracks and mounted drill grounds; and all stable crews operate under its direction. Stable management is standardized throughout the thirty-three stables. The target ranges, operated under direction of the Weapons Department, provide facilities for instructing two thousand men at one time in firing the rifle, pistol and machine gun.

The troop messes are efficiently conducted under the general supervision of the C.R.T.C. mess officer who requisitions the necessary supplies and makes distribution to the troops from a storehouse serving as a central distributing point. The officers' messes are also conducted under the supervision of this officer, the accounts being kept in his office from which the officers are billed for their board at the end of each month. The menus for all messes are excellent and the food is plentiful and well prepared.

Recreational facilities consist of an officers' club, conducted as a branch of the parent club at Fort Riley; a noncommissioned officers' club; two service clubs, one for white and one for colored soldiers; a recreation hall for each squadron; and the War Department Theater, in addition to which two service clubs, one for white and one for colored soldiers, are operated under civilian auspices in nearby Junction City. Each of the Training Center service clubs has a cafeteria, writing room, reading room and library, and is equipped with radio and "juke box." Dances for colored soldiers are generally held in the colored service club in Junction City. Dances for white soldiers are held once a week in the large main room of their Training Center service club, all departments of which are efficiently conducted by a capable staff of hostesses. Music for dances is furnished by two Training Center orchestras, one white and one colored. Girls from the surrounding communities are invited to these dances and they attend them in large numbers, accompanied by their chaperones. Floor shows, talent shows and radio broadcasts are periodically staged by trainee personnel, many of whom are professional entertainers.

Football, baseball and basketball teams are organized in season; and it is generally possible for the Training Center to produce at least one outstanding team in each of these sports, as well as a strong string of boxers. Troop, inter-troop, and squadron contests bring the best players to the front and these enter the "all-star" teams to represent the Training Center against outside opponents.

A closer view of the activities of the Motors, Weapons and Horsemanship Departments of the Cavalry Replacement Training Center may be obtained from separate articles written by the chiefs of these departments for this issue of The CAVALRY JOURNAL. (pp. 57-65 incl.)

At this time there are present in this training center 353 officers and 7,873 enlisted men; aggregate strength 8,226. Of the officer personnel, 207 are regularly assigned to duty with the training center, and 146 are assigned to the Cavalry Officer Replacement Pool. Of the enlisted personnel, 1,175 are members of the permanent instructional and administrative cadre, and 6,698 are trainees undergoing instruction.

The training center has been in operation about one year. The first trainees began arriving on March 15, 1941. When training of the last group of the present increment is completed on April 4, 1942, and that group has been shipped to designated organizations, this training center will have furnished the cavalry service in general and the Army at large with 21,377 trained replacements.

That the mission of this installation has been satisfactorily performed from its beginning, and that the high standards established at that time have been successfully maintained, are evident from the continued high quality of the product.

Discipline

After the organization of troops, military discipline is the first matter that presents itself. It is the soul of armies. If it is not established with wisdom and maintained with unshakable resolution, you will have no soldiers. Regiments and armies will be only contemptible, armed mobs, more dangerous to their own country than to the enemy.

—MARSHAL SAXE.

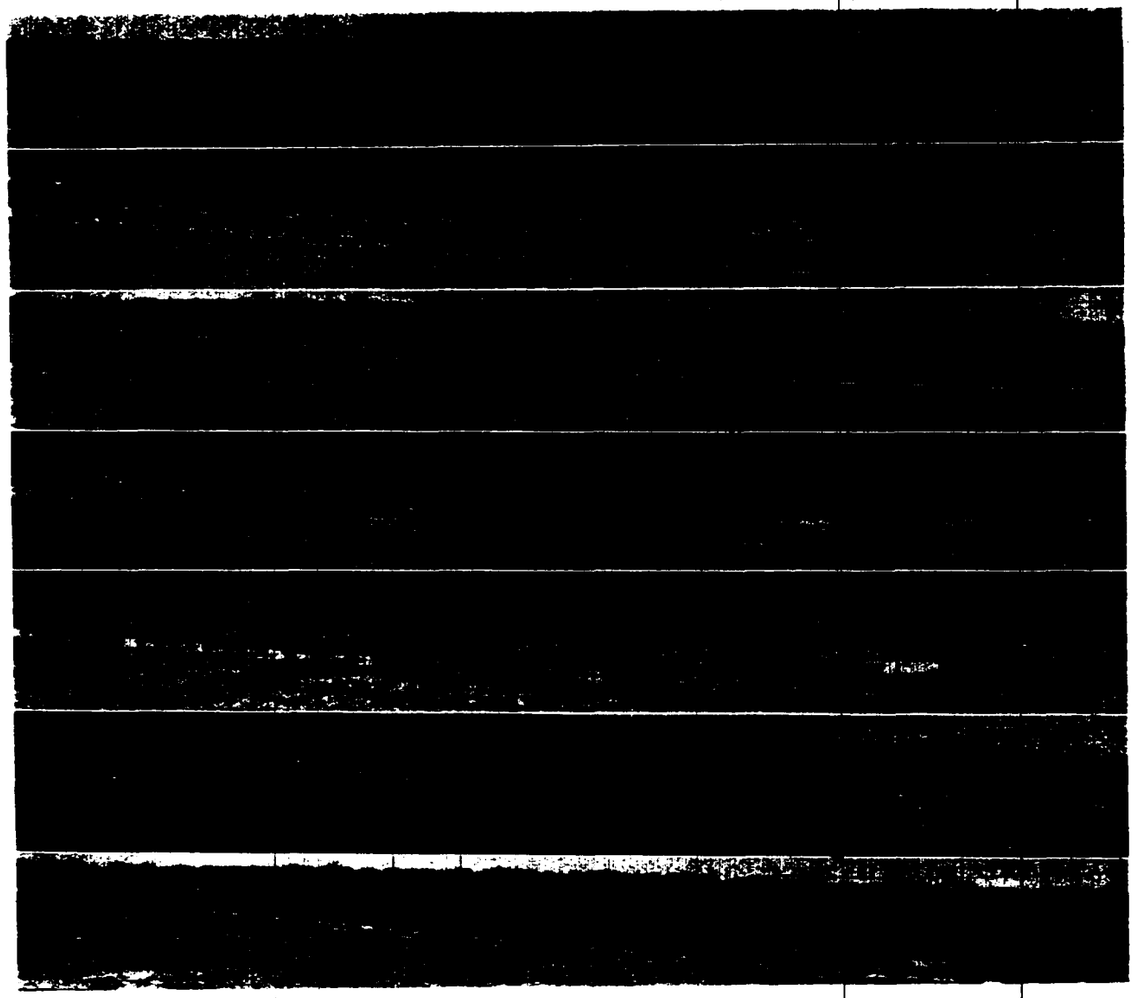
Motors Department, C.R.T.C.

*By Major Roland A. Browne, Cavalry**

THE primary mission of the Motors Department is to train drivers, specializing in the operation and maintenance of a particular motor vehicle. The secondary mission is the dispatching and operation of administrative vehicles for the supply and transportation of the C.R.T.C. and the maintenance and repair of all vehicles.

The Motors Department was first activated in February of 1941, under the command of Lt. Col. H. G. Holt. The officers assigned to the department at this time were Captain S. D. Slaughter, S-4, Lieutenant J. R. Degenhardt, Maintenance Officer, and Lieutenant R. E. Smart, Jr., Adjutant. The first month was spent in setting up the organization of the department, requisitioning supplies and equipment, and formulating policies and training plans. In March, the buildings of the C.R.T.C. were partially completed, and the staff moved from Camp Whitside to Republican Flats. This

*Department Chief.



Instructors and motor trainees: 1—With scout cars. 2—With command reconnaissance cars ½-ton, 4x4. 3—With bantams and scout cars. 4—With motorcycles. 5—With weapons carriers, ½-ton, 4x4. 6—With cargo trucks, 2½-ton, 6x6. 7—With semi-trailers. (Cavalry Portée.)

completed the groundwork for the training of men to drive Cavalry mechanized equipment.

Shortly thereafter, twenty-four M-1 Scout Cars were received from the 4th Cavalry. Soon after, there arrived six GMC 2½-ton stake body trucks and six Chevrolet passenger cars. These were followed by thirty-one 2½-ton GMC cargo trucks.

Officers were next assigned to the department. The task of organizing the lessons and instructional material was started. The first schedule called for instruction in scout cars and trucks. This schedule received its test run in the training of the cadre of the Motors Department and the noncommissioned officers of the motors squadrons. In this manner, the Motors Department of the C.R.T.C. "started 'em rolling."

In February of 1942, twelve short months later, many changes have occurred. The department consists of twenty officers and one hundred nine enlisted men. Now, the selectees are receiving training on nine different types of vehicles.

The training is carried out in six divisions, each containing one type of vehicle, or vehicles of several types with characteristics so nearly alike that they can be grouped together for training purposes.

The present organization of the department is as follows:

Division	*Officers*	*N.C.O's.*	*Vehicles*
Hq.	Maj. R. A. Browne, C.O. Maj. B. F. Stahl, Exec. Capt. M. D. Losey, Adj. Capt. J. R. Degenhardt, S-3 Capt. F. C. Welliver, S-4 Lt. J. J. Marron, Det. C.O.	3	
Trucks	Lt. H. E. Wright Lt. W. A. Bownds	17	64
Bantams	Lt. T. E. Jarman Lt. R. C. Barry	16	57
Semi-Trailers	Capt. A. W. Johnson Lt. R. D. Mansfield	15	29
Scout Cars	Lt. C. W. Ogelsby Lt. R. E. Smart	10	43 (28M3 (15M1
Motorcycles	Lt. G. H. Riser	5	24
Tanks	Lt. T. F. Ruane Lt. A. S. Peck Lt. D. C. Christiansen	3	4
Transportation	Lt. M. E. Church	66*	61

The motor squadrons at the C.R.T.C. are organized on the basis of four troops to the squadron. In each of two daily periods one motor squadron receives motors training for a period of three and three-quarter hours.

The Classification Section assigns selectees to the motor troops, according to their experience with motor vehicles in civilian life. Each motors trainee must pass the standard motor vehicle operator aptitude test. Troop "A" receives those men who have driven passenger cars and taxi-cabs; these men receive bantam instruction. Troop "B" consists of those men who have driven pick-ups and light trucks; they are trained by the scout car division. Troop "C" is assigned men who have driven heavy trucks; they are trained to drive the 2½-ton cargo trucks. Troop "D" is a mixed troop, consisting of semi-trailer drivers, motorcycle riders, and caterpillar tractor drivers; they are trained on semi-trailers, motorcycles, and tanks.

When the men arrive at the motor park for their first period of instruction they are assigned to a particular vehicle. The original plans were to assign four men to the vehicle. Due to the shortage of vehicles the number of men to a vehicle runs as high as eight in some of the divisions.

At the end of the second week, outstanding selectees are picked to act as car commanders and assistant instructors on each vehicle.

A corporal instructor is assigned to a platoon of three to five vehicles. He oversees the work of his assistant instructors. During the early training he is responsible for most of the actual instruction.

Three to four platoons are combined together to form a section, which is commanded by a lieutenant, assisted by a line sergeant. Three to four sections are then combined together to form a division.

In addition to the corporal's duty as an instructor, he is also responsible for the rating of the men of his platoon. The corporal instructor rides with each man in his platoon at least once a week, and rates the man at this time. To give the training car commander additional responsibility, he is required to rate each man of his crew each day. The corporal then has a check, both on the car commander and the crew. In addition to these two checks, the section commander and the section sergeant make their personal ratings of drivers, selected at random. This rating in turn serves as a check on both the corporal instructors and the car commanders.

The training schedule is divided into two major parts; namely, primary and secondary driving. At the present time, each man drives from three quarters of an hour to an hour each day.

Primary driving starts with instruction in the function and nomenclature of the major portions of the particular vehicle. The men are told and shown how each major unit operates to result in a smooth running vehicle.

The next subject taken up includes inspections and maintenance. From this time until the course is completed, daily inspections and maintenance review are carried out. Attention is called to mechanical failures during training. Their cause is determined. Prevention is stressed. At least once a week each vehicle is completely checked by the car crew. This check includes chassis lubrication, battery inspection, cleaning of air filters, tire checking, washing, tightening. Oil is changed as required.

The men are then taught to feel out the gears in the transmission with the transfer case in neutral. This allows them to locate all of the gears, and to practice double clutching, without looking at the controls of a moving vehicle.

They next progress to a large circle, where driving habits and the shifting of gears can be checked and errors corrected. This type of driving is very helpful in familiarizing the men with the particular vehicle. At the same time the instructors check the progress of their men.

During the mounted instruction, one half of the men are dismounted from the vehicles. They receive instruction on safety precautions, road rules and traffic regulations, trip tickets, accident reports, convoy regulations, arm signals, cross country and night driving. The dismounted instruction keeps ahead of the mounted instruction. The men know what is expected of them as their training progresses. These groups are shifted each period. All men receive both types of instruction.

The advance driving begins with a closed column on improved road. The men are observed and errors corrected. As the drivers improve and learn to know their vehicle, they move at more extended distances and onto secondary roads, unimproved roads, and finally to cross country driving over difficult terrain.

The men are given map problems, in which they are allowed to pick their own route between two given points, usually over a road net that they have not traveled before. This trains them to pick routes that are most adapted to their type of vehicle and its tactical employment.

Finally the men are given experience in night marches. They are started with lights on improved roads, then with blackout lights, both on roads and cross country.

Selected men who claim to be, or are classified as mechanics, are also tried out in the maintenance shops. They work under the supervision of the shop mechanics, and the best of them are rated by the department as mechanics.

The Motors Department is planning for a large increase in personnel and vehicles in the near future. The present plans call for a large increase in motors training, which will necessitate more than doubling the present organization.

*64 enlisted drivers.

Weapons Department, C.R.T.C.

*By Major Fred T. Manross, Cavalry**

THE present organization of the Weapons Department includes a department chief, Executive officer, plans and training officer, adjutant and detachment commander, supply officer, range officer, two section chiefs, and nine commissioned instructors, two of whom are also on duty with the Departmental Detachment. The latter is organized into nine instructional groups in order to cover the instruction of nine troops at a time. The Detachment also includes headquarters, matériel, supply and range sections. Each instructional group consists of one lieutenant instructor commanding, a staff sergeant, and four to five enlisted instructors. For the purposes of control and supervision of training and range practice the instructional groups are further organized or integrated into two sections of five and four groups respectively. Each section is commanded by a captain section chief. The training and range practice for both sections is controlled and supervised by the Department Chief through the Executive Officer. This organization has worked well and has produced uniform results. The two section system has proven itself of further advantage in conducting concurrent pistol and machine gun instruction, in that one section conducts pistol instruction while the second conducts machine gun instruction. At the completion of the scheduled instruction prescribed for each weapon, including range practice, equipment and weapons are exchanged and instruction reversed between sections.

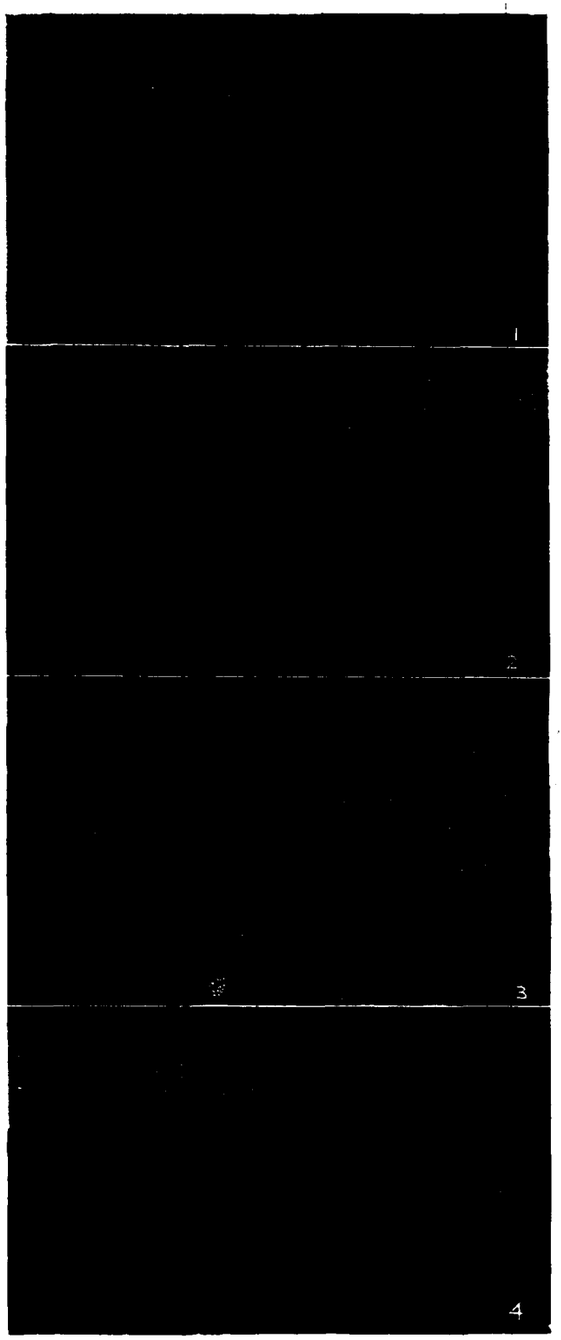
The Supply Officer, Lieutenant Abner C. Hutcherson, and his two assistants, Master Sergeant Roscoe R. Grider and Staff Sergeant Marshall A. Tubbs, have rendered admirable services in matters of supply and the care and upkeep of matériel which has been maintained in efficient operating condition regardless of weather and long hours.

An ingenious device developed by Lieutenant Hutcherson is the present method of brass inspection. Heretofore the inspection of empty brass for live rounds, live primers or extraneous materials before shipment to the Ordnance has been a big problem because the Department uses a truck-load of ammunition every day. Many different methods of racking brass for inspection were tried before the present method was developed. It enables brass inspection to keep ahead of firing. The present racks are as shown in the accompanying photograph and are designed as follows:

Two 12" boards, 8 feet in length, are fitted together the same as an eave on a house to form a rack with two sides. There is a 3" board on the bottom of each side, and at both ends of each side there is an

*Department Chief.

8" trap door. Below the trap doors are troughs through which empty cases pass after inspection. The racks are set upon four legs, the height being such that one need not bend over nor reach while working. Each rack will hold five boxes of empty cases and twelve men working on two racks can put out ten boxes in one hour without difficulty.

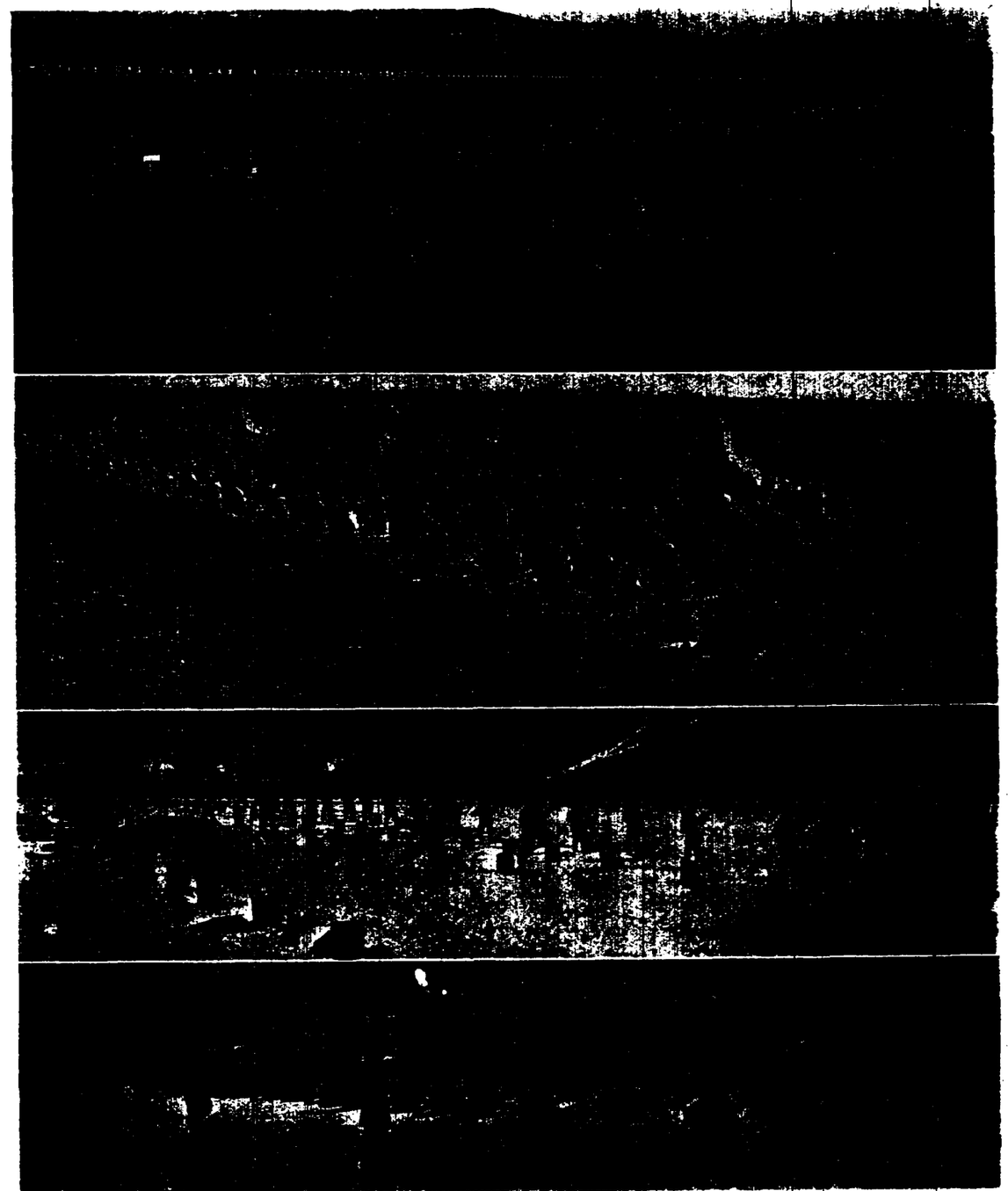


1—Loading, portable machine-gun racks. 2—Brass salvage. 3—Detachment mess. 4—Detachment barracks.

The Range Section in conjunction with the Post Range Officer operates and services all ranges used by the Training Center, and has, at times, serviced them for the Cavalry School and other organizations. To give some idea of the magnitude of the task, the firing line, when on the rifle range, is over one-half mile long. The various pistol groups, due to intervening aircraft and MG 1,000" ranges, are spread over a line nearly a mile long. The rifle range is an enlargement of the old National Rifle Range from 100 targets to 225 targets. Plans are being made at the present time for an additional 25 targets, making a total of 250 targets. All known distance rifle firing is conducted on this range from the 200 and 300 yard firing points as well as long range machine gun practice from the 500 yard firing point. The range, together with the area west to Milford Gate, is used for rifle combat firing. The Governor Harvey Moving Target Range which is, in part, superimposed on the eastern flank of the National Rifle Range, is used for moving target firing with the machine gun. Most of this firing is done at 500 yards. The pistol ranges consist of five groups of thirty targets each, extending from Republican Point east along Sherman Heights to the Hippodrome. Near Republican Point, and between two of the pistol groups, is a newly constructed double antiaircraft range. To the east and superimposed on two of the pistol groups is the Landscape Range used in conjunction with instruction in the technique of rifle fire. Between the two easternmost pistol groups are the 1,000" machine gun and 1,000" antitank ranges. Field firing with the machine guns is conducted on the high ground to the north of Breakneck Canyon. There, a new field range has been laid out with an excellent field of fire. Plans are under way for class B and moving target ranges in this area. It is also proposed to consolidate the pistol, machine gun and antitank ranges along Sherman Heights into separate areas and thus simplify matters of control and servicing. The range section, under Captain Howard H. Ruppart (Range Officer), assisted by Staff Sergeant John Palonis, has done an admirable job in keeping all ranges in fine shape and serviced under all weather conditions.

In conclusion, weapons training has proven intensely interesting, and the reaction of the trainees most encouraging. They show a great deal of interest in the M-1 rifle.

In addition to scheduled training, the Department has conducted several equipment and firing tests for the Cavalry Board. If any part of weapons training can be selected as the most important in the entire training period, it is the first week on the rifle range. The habits of correct shooting and fire discipline inculcated there remain with the trainee throughout the rest of his weapons training. And the hardest part of that week (Kansas weather and winds notwithstanding) is making the coach watch his man and not the target. Good coaching produces good shots and good shots high qualifications.



National Rifle Range scenes: 1 and 2—Instruction practice. 3—Rapid fire; watching for the targets to appear. 4—Machine-gun instruction.

Horsemanship Department, C. R.T. C.

*By Lieutenant Colonel E. M. Burnett, Cavalry**

THE Cavalry Replacement Training Center is approaching its first birthday! We recently have received our fourth increment of trainees. The Cavalry may wish to know what experience, thus far, has taught us with respect to training our future cavalrymen in horsemanship.

THE PROBLEM:

Our energies are directed largely, as would be expected, to establishing a uniform and high quality of performance in such horsemanship subjects as are covered, and to constantly increasing the amount of time in the saddle. In this connection we are forced to consider that:

1. Only approximately 20 per cent of the men who come to us have ridden or worked with horses. This, of course, varies considerably between troops and platoons, and even among squadrons, depending upon the section of the country from which the predominant number of trainees come. It is no doubt realized that most of those who may know how to ride must be re-taught in order to acquire the military seat.

2. While the average intelligence is high, there is a wide range of variation in intelligence schooling and aptitude.

3. For reasons of sound economy, we have planned for three men to each horse.

4. In order to reduce the overhead to a minimum and to utilize to the greatest extent the specialization of the departments, the number of instructors organic in the troops is small. Each troop of two hundred and twenty men has as its regular instructor complement of four officers including the troop commander; four sergeants and four corporals. This means that the platoons (three squads) are directly instructed and supervised by a sergeant or a corporal.

5. With five troops (forty platoons) riding at one time, we must assign to the many platoons sufficient training area near the stables to utilize the time allotted to the best advantage.

6. We must make plans to carry on effectively the training as scheduled, despite the extremes of cold and hot weather, heavy snow and severe rains, accompanied by high winds, which are characteristic of Kansas.

RECENT CHANGES:

The training of the current increment (the fourth) is accompanied by two major changes. The course of instruction has been reduced to eight weeks, and the training periods have been changed from three of 2½-hours each per day to two of 3¾-hours. This lengthing of the training period saves a good portion of the time formerly consumed in moving to and from the stables, in grooming, in getting started and getting ready to leave, with the result that more time is spent in the saddle.

To complete the picture of the general plan of training, instruction of the men assigned to horse troops, of which there are fifteen, is divided among one third horsemanship, one third weapons, and one third basic (dismounted) subjects. As a rule, two of these three divisions of instruction are covered each day. Therefore, in horsemanship, training is received by horse troops three or four days per week, and the Horsemanship Department is involved daily in the training of two of the three "groups" of five troops.

FUNCTIONAL TRAINING:

Horsemanship training during the first increment was carried on along functional lines. At the beginning of the second increment, in the search for improvement, instructors of the Horsemanship Department were transferred to the training troops, and instruction in horsemanship was conducted by the troop officers and cadres. The instruction was planned, coördinated and supervised by the Horsemanship Department.

Special schools, classes and demonstrations, some during, but many out of training hours, have been used in an attempt to produce a uniform and high standard of performance and instruction on the part of troop officers and cadre personnel. There is, however, under this system a considerable time lag in securing correction of errors and changes in methods of instruction where the need for improvement is indicated. Consequently, during the third and fourth increment, ten lieutenants of the Horsemanship Department were attached to the horse troops to assist in their training. Two of these officers are assigned to each troop when scheduled for training in horsemanship.

SHORT CUTS:

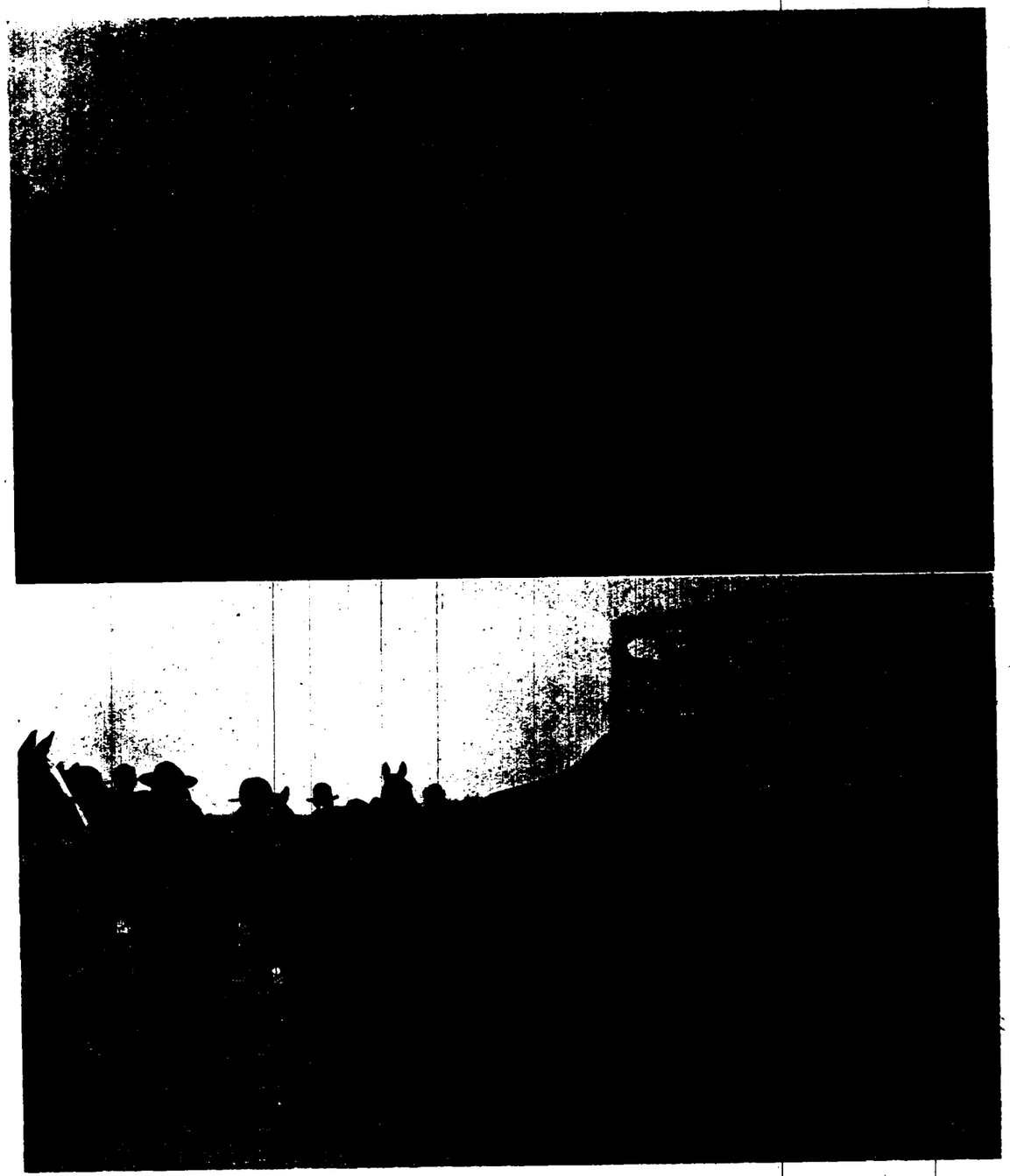
Many short cuts have been developed to utilize most effectively the limited time available and to further increase the amount of time in the saddle. For example:

1. Moving to and from the drill areas (each platoon is assigned to a specified area and route) calisthenics, and close and extended order drill are practiced.

2. Instruction in horsemastership and the theory of horsemanship is given during rest periods by means of brief discussions and demonstrations in platoon groups.

3. Mounted pistol targets have been erected along one side of the rectangular track in each platoon drill area. During equitation periods, as each trooper passes the targets, on either hand, he discontinues the exercise, takes the reins in the left hand and thrusts at the targets.

*Department Chief.



Top: Continuous exercise found most effective in basic equitation is work by threes . . . merely riding in column is avoided as much as possible. Bottom: Portée demonstration.

INSTRUCTIONAL SHORT-CUTS INCREASE TIME SPENT IN SADDLE

Consequently, when the time comes actually to fire the pistol, the technique of firing will have been sufficiently established through this habitual practice. It will then only be necessary to take up the safety precautions prior to going on the range.

4. Familiarity with hand signals is facilitated by having the men execute them on command as a part of mounted calisthenics.

5. Riding and mounted drill are taken up in the first lesson! This seemingly ambitious feat is accomplished by having a man on the ground lead a mounted man's horse. Instead of the usual riding (or rather leading) in a circle, mounted drill movements are used in the exercise. In addition to teaching mounted drill from the start, this procedure causes the recruit to relax through having something other than his horse to think about.

6. The equitation movements used are such that, once set in motion, they are continuous, permitting the instructor to concentrate on making corrections and relieving him of the necessity of constantly giving commands. In addition, the necessity of guiding his mount and maintaining some sort of formation appears to encourage the young soldier to relax. The continuous exercises found to be most effective are movements by threes, alternate track and circle, and serpentines. Merely riding in column of troopers on the track is avoided as much as possible.

7. It has been found that green riders make faster progress, and that the instructors' work is facilitated, if the trot is reduced from the prescribed 9 to 8 miles per hour. A fast trot makes it almost impossible for the recruit, in his early stages of training, to handle his mount in anything like the desired manner. If the trot is slowed to the 8 mile rate, correct performance increases very rapidly. Lack of knowledge of the correct rate for all gaits has been observed among noncommissioned officer and officer instructors. To remedy this, and to fix the 8 mile trot, five 1-mile gaiting courses, and a test course, have been laid out on the drill area.

8. Pack demonstrations have been eliminated. Instead, one pack and pack horse accompany each of the eight platoons of the troop during all mounted work. Every man has an opportunity to saddle, unsaddle, and handle the pack animal, and all constantly observe the use of this animal and his equipment.

STABLE MANAGEMENT:

There are in use at the Cavalry Replacement Training Center thirty-three stables, with adjoining corrals, to house sixteen hundred horses. In addition, there are eight shoeing shops. The management of the stables is the responsibility of the Horsemanship Department.

The physical set up of the stables is uniform throughout with respect to the location of saddle rooms, grain and hay rooms, etc., and the arrangement of equipment is also uniform for all stables. In each saddle room there is the same number of pegs in the same order on the same wall; the gun-boot racks, cleaning kit boxes, the Phillips pack saddles are in the same place; forage charts, shoeing records, fire fighting equipment, signs, trash cans, tools are uniform and uniformly placed; stalls are uniformly located and numbered; draft horses are in similar stalls.

The thirty-three stables are divided, for administration, into six stable divisions, five "operating" divisions and a Headquarters, Staff and remount division. Each is in charge of an officer as stable division commander. Within an operating division there are three stable units of two stables each. These stables are in column and are commonly referred to as the front and back stable. The stable units contain one hundred and four horses and are under the direct supervision of a stable sergeant who has, as assistants, one stable orderly, a teamster and a daily detail of six stable police from the horse troops.

An interesting feature of the stable division organization is that all the sick, out of condition, and difficult horses, as well as the officers' mounts, are placed in one stable, the front stable of the center unit. Consequently, all the horses in two units (104 riding horses each) and one stable (center rear, 50 horses) of each division are, at all times, available for duty.

The stable division organization is also coördinated with the assignment of training troops. Each of the five troops composing a "group" is assigned to a stable division. Within the troops a uniform assignment of platoons to stables is made.

Originally a horseshoer and saddler were assigned as members of each stable unit crew, but experience has indicated the desirability of centralizing both of these activities.

Reduction of the number of horses on sick report has been a major objective of our stable management. An average of only sixty-four horses have been on sick report daily. Close coöperation with the Veterinary Officer, analyses of the causes of sickness, daily sunning of blankets, constant supervision of feeding, and prompt preventive measures have accounted for this good record.

A simple device which is believed to contribute to the reduction of the sick list is the installation of a back bar in the stalls. The effect of this is to produce a narrow box which permits not only freedom of movement but serves as a rest for the saddle during instruction in, and routine cleaning of, equipment. A valuable by-product of the use of back bars is a considerable saving in halter shanks.

SPECIALIST TESTING:

In addition to training in horsemanship and the upkeep of the horses and stables, the testing of specialists is an important and valuable activity of the Horsemanship Department. Men with general classification test scores and aptitudes, which indicate that they can absorb instruction and acquire new techniques, and who express or indicate an interest in activities of the Horsemanship Department, as determined by the Classification Section of the C.R.T.C. Headquarters, are sent to us for a week's testing after they have completed at least two weeks of training. After the test period they are returned to their troops to continue their basic training. The jobs included in the testing process are saddler, horseshoer, stable orderly, teamster, remount trainer, cook, and clerk. The objective is to determine whether a man demonstrates sufficient ability to absorb instruction and take interest in the activity in which he is being tested to warrant his being sent to a specialist school on completion of his course of basic cavalry instruction.

SPECIAL SCHOOLS:

In addition to cadre schools which are held after recall from drill, various other instruction is given in horsemanship and horsemastership.

Officers assigned to the Cavalry Officer Replacement Pool are given a short refresher course in such subjects as horsemanship, close and extended order drill, pistol marksmanship and stable management.

One officer and one noncommissioned officer from each horse troop attend daily, a course designed to increase their efficiency as instructors in the subjects taught in horsemanship instruction.

From time to time short courses in horsemanship are held for the benefit of enlisted men prior to enrollment as officer candidates.

In addition, schools for the further instruction of specialists, such as horseshoers, saddlers, teamsters, packers, and remount trainers are found desirable.

MOUNTED SPORTS:

Mounted sports for men in training and for noncommissioned officers and officers, are encouraged. Cross country riding, mounted wrestling, broom stick polo, gymkhanas, informal horse shows, and gaiting contests are established activities when weather and time permit.

After passing a test in horsemanship and horsemastership, qualified enlisted men, (noncommissioned officers and men in training) are issued mounted passes. These permit the holder to ride alone, or in groups, for pleasure during off-duty hours.

CONCLUSION:

We believe that we have a workable set up for horsemanship instruction at the C.R.T.C. and are clear as to the lines along which we should proceed. At the same time we are looking for further short cuts and economies in order to put over our instruction in the most effective manner and increase the time spent in the saddle.

March Schedules

By Lieutenant Colonel B. F. Hoge, Cavalry

MARCH RATE formulas and march schedules of a complicated nature appear every now and then in our textbooks and in our JOURNAL. Some commands have march tables printed and issued on small cards to the personnel. My objection to these methods is that they are unduly complicated, cannot be remembered, and the cards are soon lost, worn out or destroyed by rain and sweat. The method I wish to recommend is as follows:

Divide each hour to be marched into ten-minute periods. During each of the first five of these periods, walk 5 and trot 5, or walk 4 and trot 6, or walk 3 and trot 7, depending upon the rate of speed it is desired to march. During the last ten minutes of the hour lead 5 and halt 5. If a nine-mile trot is used the following rates of march will result:

5-5 schedule equals 5½ miles per hour.
4-6 schedule equals 6 miles per hour.
3-7 schedule equals 6½ miles per hour.

If an eight-mile trot is used each of the above rates will be reduced by one-half mile per hour. The above-quoted rates are not exact, but near enough so for all practical purposes. To memorize the above, it is only necessary to remember one set of figures, namely that the 4-6 schedule at 9 miles per hour gives a rate of six miles per hour, and that an increase or decrease of one minute of trotting causes an increase or decrease of rate by one-half mile per hour. Also, that an eight-mile trot reduces the rate by one-half mile per hour.

The above system has several advantages:

a. It is simple and can be remembered by all ranks.

b. It is flexible, because any one period of ten minutes can be broken into fractions, if terrain conditions make it necessary. Thus the 4-6 period can be changed to two 2-3 periods to fit the ground.

c. By starting the march when the minute hand is on one of the large number figures on the watch face it is comparatively easy to keep time accurately and avoid confusion.

d. Prior to start of march, the command can be notified of the schedule to be followed as, "We will march on a 4-6 schedule." Every one then knows exactly how the march is going to be made.

e. It provides for frequent changes of gait and the normal amount of leading.

f. A command trained to this system in daylight will march smoothly at night, because all soon learn what is coming next.

g. It obviates the need for a timekeeper, and keeps the command up to the rate desired because this rate is checked each ten minutes.

Loading Horses in Portée Trailer

By Lieutenant Stanley Archenhold, 2nd Cavalry

SINCE many of our horse cavalry regiments are now receiving portée trailers, a system of loading and unloading which has been developed in The 2d Cavalry might be welcomed.

LOADING—

a. Unsaddling and Formation—The squad should unsaddle and unbridle in rear of the trailer and place its equipment on the ground where it will not be in the way while loading. The squad then forms in column of fours in rear of the trailer. Both sets of fours then turn their horses over to their respective no. 3's.

b. Duties of members of squad—Under the direction of the corporal, as many men as are necessary lower the rear doors.

(1) *Corporal.* As soon as the rear doors are lowered, the corporal makes a careful inspection of the trailer to check the following:

(a) No projections, nails, etc., on inside of vehicle.

(b) All pins are present for doors, breast and tail bars.

(c) All mats are in place where wheel slots project into trailer.

(d) Side door in rear of trailer is closed and securely fastened.

(e) Front breast bar is in place and properly fastened.

He then causes No. 1 and No. 2 of the second set of fours to take a position on the left side of the ramp and No. 4 on the right side. He directs the first set of fours to return and take their horses.

(2) *First Set of Fours*—No. 1 followed by No. 2 lead their horses into the trailer. No. 1 ties both horses to the breast bar on the right side. No. 2 returns to the rear of the trailer. No. 1 remains inside. No. 4 leads his horse in and turns it over to No. 1 who ties it on the left side of the trailer. No. 4 returns to rear of trailer. No. 3 leads his horse up the ramp and passes the halter shank up to No. 1 who ties the horse in between No. 2 and No. 4. No. 1 leaves trailer by front side door. No. 3 leaves by rear door, goes to front door of trailer, enters, and remains with horses of first set of fours. No. 3 horse is followed immediately by No. 2 and No. 4 with the tail bar. No. 1 and No. 4 from second set of fours move to sides of trailer and place pins in tail bar as soon as it is in position. No. 1 brings in the breast bar for the second set of fours and assisted by No. 2 and No. 4 places it in position. No. 1 and No. 4 from second set of fours remain on sides of trailer and place pins in breast bar.

(3) *Second Set of Fours*—No 1, 2 and 4 first set of fours replace No. 1, 2 and 4 second set of fours along side of ramp. Second set of fours return, take their horses and follow same procedure as first set of fours. The corporal (using as many men as are necessary) supervises the raising and securing of the rear doors.

c. Equipment—No. 3 of both sets of fours remain in the trailer after their horses are loaded. As soon as all horses are loaded, the remainder of men get their equipment and pass it through the front side door to No. 3 of the first set of fours. No. 2 of both sets of fours returns and gets the equipment of their corresponding No. 3.

d. Personnel—All men except No. 3 of second set of fours and the corporal ride in same compartment with the saddle equipment. No. 3 of the second set of fours remains in aisleway between horses. The corporal makes a final inspection of his loaded vehicle and rides in the cab with the driver unless otherwise directed.

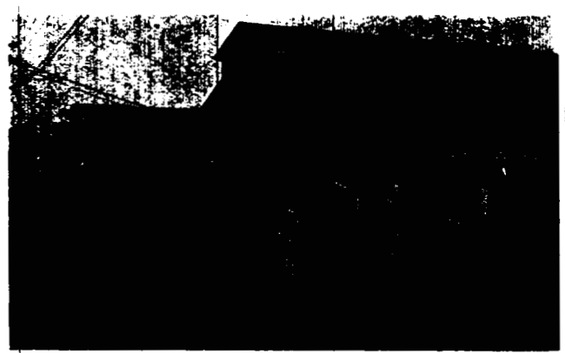
UNLOADING—

a. Saddle Equipment—Saddle equipment is unloaded in the same manner in which it was loaded. It is placed in rear of the trailer in such a place that it will not be in the way while unloading animals.

b. Animals.

(1) *General*—Men enter the trailer to untie their horses by means of the side doors. To prevent injury while unloading the first set of fours, it is *extremely important* that the rear side door be fastened and remain so from the time the front tail bar is removed until the last horse is out of the trailer. Of the three methods that follow, the first is believed to be the most satisfactory.

(2) *First Method*—The No.'s 1, 2 and 4 of the first set of fours take position as when loading. The tail bar is removed. No. 3 followed by No. 2 of the second set of fours unties his horse and backs him down the ramp. No. 1 followed by No. 4 then unties his horse, turns him around in the trailer and leads him down the ramp. No.'s 1, 2 and 4 then turn their horses over to No. 3 and return to the trailer to assist the first set of fours. The breast bar of second set of fours and tail bar of first set of fours are then removed. Horses of the first set of fours are untied and backed out until they can be turned around and are then led out of the trailer. The corporal then checks the trailer to see that all breast and tail bars are replaced in the trailer and that all doors are closed and securely fastened.



(3) *Second Method*—This method differs only in that the second set of fours backs the No. 3 horse out of the trailer, then takes down the breast bar and does a threes left about and lead out of the trailer. If this method is used, the rear side door *must* be closed and fastened before the breast bar is removed.

(4) *Third Method*—This method differs from the first in that the second set of fours leave the tail bar up. No. 3 unties the horses, pushes the breast bar to the left and executes a fours left about. They then remove the tail bar and lead the horses out of the trailer one at a time. The rear side door *must* be closed and fastened before the breast bar is removed.

EXPEDIENTS—

a. A latrine screen or the blankets of the squad may be used to load bad horses. The horse is led up to the ramp. Then the remainder of the squad, holding the canvas above their heads, encircle the horse, bringing the ends around the ramp and up to the trailer. Then they slowly close in on the horse. It is important that the canvas be of such a height that the horse can not see over it and that there are no gaps between it and the trailer sides or the ramp. If no canvas is available, several saddle blankets held together can be used instead.

b. Another method is to snap two additional ropes to the ring in the halter. One rope on each side is then passed well up into the trailer and out through the side. The horse is then led into the trailer and the side ropes are kept taut to prevent him from going off the side of the ramp. This has been found to be very satisfactory.

c. If trouble is experienced in finding room to get the No. 3 horse in, the following method is often helpful. Tie one lariat on the right side of the trailer well in front of the No. 1 horse. Then pass the lariat in front of the No. 1 and No. 2 horses and around the left side of the No. 2 horse. This lariat should be kept well up on the shoulder and buttocks of the No. 2 horse. Do the same thing on the left side of the trailer with the No. 4 horse. Then pull to the outside on the ends of both the lariats and lead the No. 3 horse into the trailer.

GENERAL HINTS.

a. Position of Horses.

(1) The first horse to be loaded and the last horse should be the boldest and most aggressive horses in the squad. This is especially true of the last horse.

(2) Timid horses should be the 2nd and 3rd horses loaded in the first set of fours.

(3) Mean horses should be loaded next to each other and on the outside if possible.

b. Whenever feasible, the rear wheels of the trailer should be placed in a small ditch or depression in order to allow the ramp to be as near level as possible.

c. If it is available and there is sufficient time, hay should be stacked along side the ramp to prevent horses injuring themselves by stepping off the sides.

d. When schooling horses to load, it is good practice to feed them in the trailer when they are loaded. Also, it is well in the beginning to make the loading the last thing for the morning so that when the horses are unloaded they associate that with the idea of being groomed and put away.

e. Hold shank close to the halter, keeping a firm pressure on the halter when the horse is led into the trailer.

f. It is important to get the tail bar in place *immediately* after the last horse of a set of fours has entered the trailer.

g. When loading green horses, it is advisable to use four men to handle the tail bar for the second set of fours.

h. Extra equipment carried by the squad should include two extra halters and shanks.

Quantity and Quality

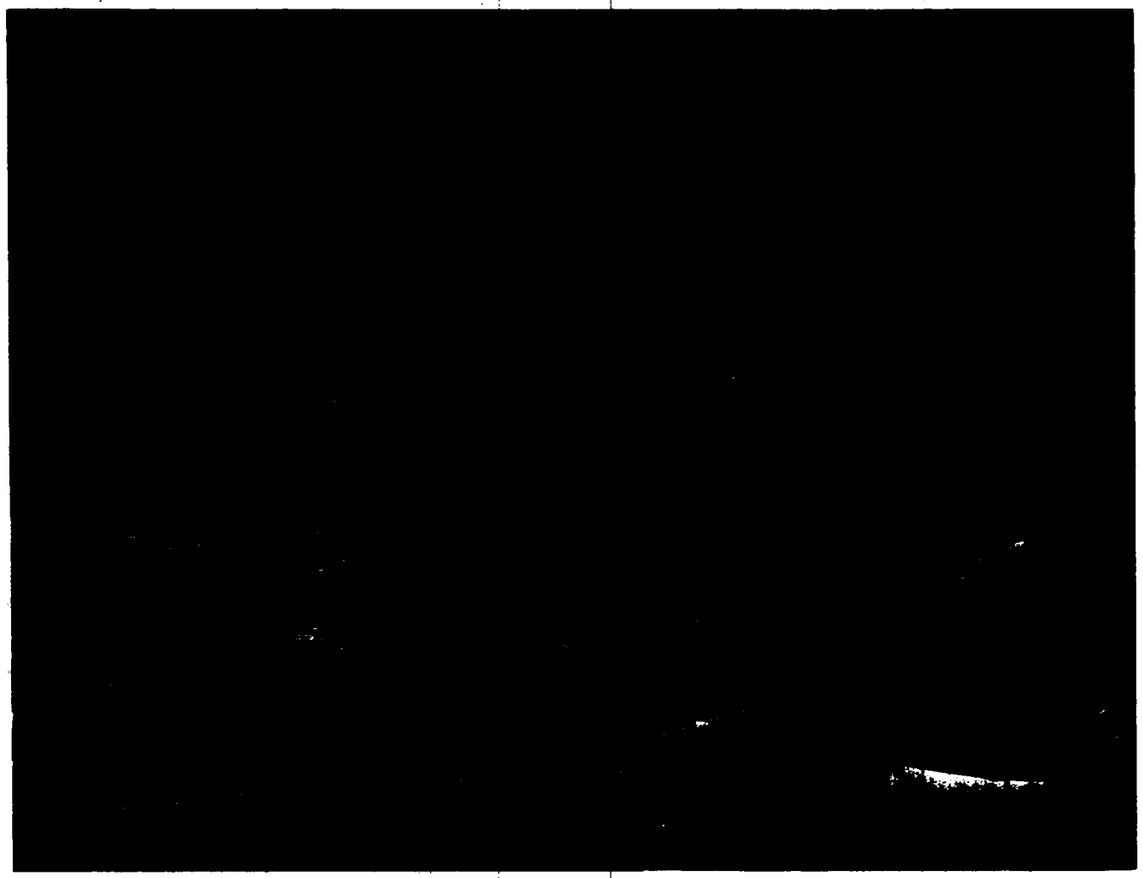
By Captain Charles E. Brebner, Cavalry

PRODUCTION! PRODUCTION! "Keep 'em flying." Multi-thousands of planes, tanks, guns. Men, millions. Dollars, billions. All are snatches from the lyrics of this strident symphony of war effort. Production—that recurrent bass note. But there has been little publicity on the manufacturer of spark plugs for the war machine—the second lieutenants who yesterday were officer candidates.

Would you like to hear the story? Those of you who went through World War I will find much that is familiar in it. You may be one of the 80,000 officers who emerged from officer training camps on this side, or one of the 13,000 commissioned from AEF schools in France. At the beginning of that war we had 8,990 commissioned officers; 5,791 Regular Army and 3,199 National Guard. We needed about 200,000 for an army of 4,000,000.

This time, by the end of July, 1941, four months before we found ourselves actually at war, the strength of the Army had been augmented by upwards of 85,000 National Guard and Reserve officers, and the reservoir was not yet dry. However, despite the fact that our position was infinitely better in this respect than it was immediately prior to the last war, the necessity for qualifying many more young officers was undeniable. In recognition of this fact the War Department had ordered the inauguration of Officer Candidate Courses at the service schools in June of 1941. The program contemplated the attendance of 4,000 candidates for commissions in all branches annually.

The coming of war has necessitated a modification of the picture. Seventy-five thousand selected men will receive training as Officer Candidates. Here *is* a quantity production job, with the accent on quality.



Captain L'Abbe, of Tactics, employs an enlarged map to explain an attack problem.

Considering only the Cavalry component, let us look at the plant, the material, the process and finally, the product. You should be interested—you are going to be using it.

Many of you have seen the plant, been through it, perhaps worked on its assembly line during the days when the Cavalry School did "business as usual." Last fall you read in The CAVALRY JOURNAL* about the physical changes here: the new Academic building, new Motors building, new Communications building, new students' barracks. You noted that there are six subassembly lines, each represented by a department: Tactics, Weapons, Horsemanship, General Instruction and Publications, Motors, and Communications. But perhaps you overlooked in that article the very brief line at the end of a summary of classes. It read: "—in addition, 100 officer candidates." That group was, in a sense, our "test order." What lay ahead was not particularly obscure and we had to discover our retooling needs. The class proceeded well enough and a gratifying percentage won their commissions. Undeniably, however, the Second Officer Candidate Class, which began October 6, profited by what we had learned, and, in turn, contributed to our knowledge of the production problems.

On December 18 information was received that in the third class there would be 200 instead of 100 officer candidates. An extra schedule meeting, a doubling of orders for all mimeographed material and the "line" stepped up smoothly.

Now we are getting set for the next step-up. The first of four increments of 100 students each will start its course of 12 weeks on March 9. This first increment will consist of 88 candidates for Military Police battalions and 12 candidates for the Air Corps. On April 6 and every three weeks thereafter a group composed of 88 candidates for the Cavalry and 12 candidates for the Air Corps will enter. Of the candidates for the Cavalry, approximately 75% will be trained for mechanized organizations and 25% for horse organizations. This program of continuous production will extend into 1943. The Weapons Department is moving into a separate building. The various departments are selecting young officers to assist in the detail work and to understudy the experienced instructors. April 6, April 27, May 18, and June 8 will come, the material will arrive, the factory will be ready and the workmen will be, or rather are, willing and able.

The Army has earned a dividend from its twenty-odd year officer training program. The fact that we had a hundred thousand officers is very good. True it is that we won't have to train as many new ones. The significant fact is that, needing fewer, we can make a more critical selection than was possible during the last war. Obviously with better material a better product can be made. Let us take a closer look at the state of prefabrication of this, to us, raw material.

*"Old wine in new bottles," September-October, 1941.

The prerequisites for selection are common knowledge. The individual must have indicated that he is outstanding—that he has potentialities as a leader. His mental capabilities have been rated by an IQ test. His background has been studied. Granted that college attendance is in itself, no touch-stone to insure success, still it is interesting to observe that of the present class 65% have attended college and 28% hold degrees. Approximately half of them enjoy varying degrees of familiarity with one or more foreign languages. As may be expected, they represent all fields of professional and commercial endeavor.

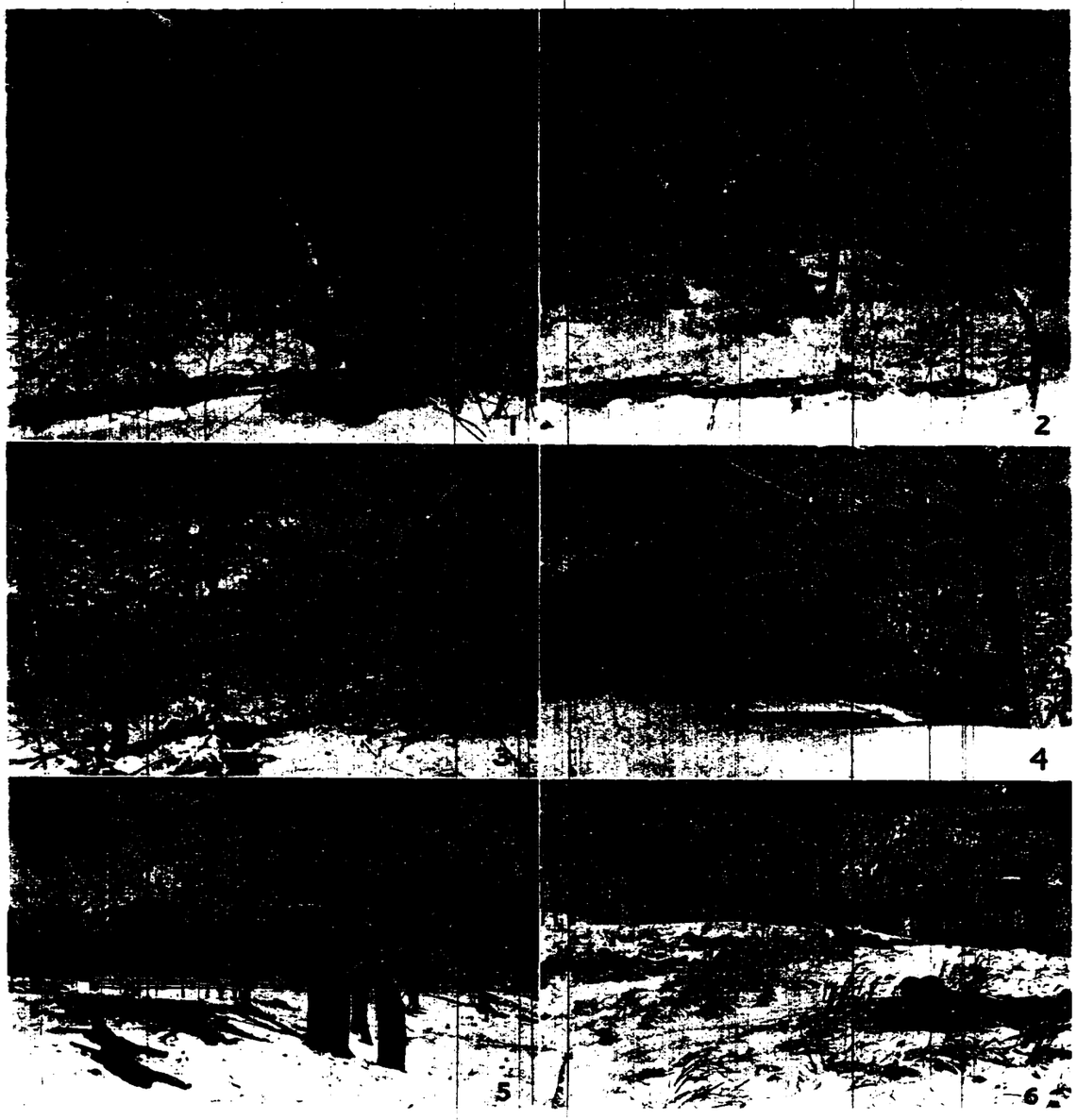
The attitude of these students, the temper of the material, is of paramount interest. These men are definitely "up on the bit." They are somewhat less disciplined than are the officer students in the Basic Horse and Mechanized Class but are more aggressively alert and inquisitive. They have a more tangible reward to work for. They are very attentive during lectures, are generally uninhibited in conferences and enthusiastically coöperate in applicatory exercises.

The plant and labor being ready and the material assembled, the wheels turn. Four of the subassembly lines begin simultaneously.

The first two weeks of instruction by the Department of Tactics are of a preparatory nature, including Map and Aerial Photograph Reading, Combat Orders, Analysis of Terrain and Organization of Troops. Upon this foundation are added in overlapping sequence: Attack, Security, Antitank and Antiaircraft Defense, Reconnaissance, Command and Staff Organization and Operation, Defense, Engineer Operations, Communications, Delaying Action, Counterreconnaissance, Logistics, Defense against Chemical Attack and Employment of Field Artillery. Tactical instruction is made extremely practical with the greatest possible proportion of hours within subjects devoted to outdoor applicatory exercises in which classes are organized into tactical units. The strongest accent is placed on the officer candidate as a *leader*. In map problems he is required to make decisions and on the ground he gets actual experience in troop leading of both horse and mechanized units.

The Weapons Department lathe turns and out come, not mere operators of weapons, but qualified instructors. In recognition of the impossibility of getting across every paragraph of the material contained in field manuals, the basic essentials have been refined out and reconstituted in an instructor's outline for each weapon and period of instruction. All instruction is based on these outlines. Each student receives a copy of the instructor's outline for *every* period. He has been cautioned to observe the manner in which instruction is accomplished. When he arrives at an organization he has in his hands an instructional set-up which he has seen operate.

Every lecture, every firing period, everything done by the Weapons Department is aimed at one ultimate goal



This series of pictures shows the development of an attack problem worked out by an Officer Candidate platoon using ball ammunition. 1—Scout pointing out situation to platoon leader who has come forward followed by his messenger who, being farther down in the stream valley, is not exposed to hostile observations. 2—Platoon leader having met his squad leaders is issuing his orders for the attack. (Note dispersion and use of cover.) 3—Part of one squad making its approach using cover. 4 and 5—Rifle groups having reached open ground build up the fire attack. 6—The light-machine-gun squad supports the attach from high ground on the left flank.

—the use of weapons in combat. Instruction in mechanical functioning is keynoted by the pithy observation that "a weapon out of action is a weapon lost." The theme song of technique of fire is "Effective Fire When and Where Needed." 10° below zero or 110° above, rain, snow, wind, and dust (Machine-Gun Ridge *can* be a miserable place—remember?) the classes go on, according to schedule, converting the theoretical into the practical. A maximum of realism is attained when Weapons and Tactics conduct joint problems with ball-ammunition.

It is only to be expected that the instruction by the

Department of Horsemanship has been somewhat modified from the pre-emergency, hell-for-leather days of Fort Riley. Students now arrive who have never ridden or who have had very limited experience with horses. The situation is not eased by the fact that the greater number of available horses have had very limited experience with students. The first task is to build up the self-confidence of the students. Training begins with the most elementary instruction for a considerable period at slow gaits; it progresses into gaiting, marching, close and extended order drill and jumping over low obstacles. Instruction in care of animals, packing and adjustment of equipment, animal management and horse shoeing procedure are conducted concurrently.

At the completion of the three-month's course, the successful candidate has obtained a thorough understanding of the military seat in theory and in practice so that he can not only ride it but teach it to others; he has a basic knowledge of the use and application of the aids; he can guide and control a horse over varied terrain; he can put in practice approved methods of marching, care of horses on and after the march and in garrison; and he has acquired an appreciation of the capabilities and limitations of the horse and the necessity for and methods of conditioning.

The Department of General Instruction and Publications performs a number of varied processes on its sub-assembly line. They include: A Study of the Components and Mobilization of the Army of the United States, Military Courtesy and Customs of the Service, Military History, Current Military History, all phases of Troop Administration, Training Management, and Technique of Instructing.

That last one is of particular interest. It keynotes one of the principal objectives of the Cavalry School—the development of instructors. In Training Management the student becomes familiar with the broader aspects of military training. One phase, the Technique of Instructing, is broken down and taught in detail. The mechanism of instruction as set forth in Field Manual 21-5 and an elaboration of the process of preparation by the instructor are explained and demonstrated. The class is broken down into groups of 25 and each student is required to make a two to three-minute extemporaneous talk, the purpose of which is to enable the instructor to give each man an initial rating and to comment on faults of voice and manner. Next, a basic military subject is assigned for each individual to present to his group as a five to seven-minute lesson using visual aids. This performance is criticized by the instructor and by three other students. A more advanced military subject is then assigned to each student which he must present, employing the demonstration method, in an eight to twelve-minute period. This time he is criticized in greater detail by his instructor and three classmates. The instructors are, and the students become, almost meticulous in these criticisms. However, no attempt is made to subordinate the student's personality to an established pattern. To the contrary, every effort is made to exploit the individual's natural ability and eliminate only his acquired defects.

The Department of Motors contributes its piece to the final assembly by means of a series of conferences and demonstrations covering General Automotive Features, Gasoline Motors, the Army Maintenance System, First and Second Echelon Maintenance, Driver Training, Capabilities and Limitations of Combat Vehicles, Difficult Terrain and Stream Crossings.

It goes without saying that as he moves along from subject to subject in each department the student leaves behind him a pattern of grades which indicates his assimilation of the knowledge offered him. Equally obvious is the fact that possession of knowledge does not in itself qualify a soldier as an officer. Proceeding on the hypothesis that knowledge is the tangible factor, the School is particularly interested in what might be termed the intangibles—force, initiative, tact, sincerity, common sense, coöperation, and leadership—in arriving at the final decision to commission the candidate. Toward this end all instructors carefully study each student, and, periodically, the results of their observations are consolidated within departments giving each candidate a rating of unsatisfactory, satisfactory, very satisfactory, excellent, or superior. This rating is made entirely independent of his scholastic standing.

The end of the "line" is reached and out of the plant steps a man. He looks different than he did three months before, and it is not entirely the new uniform he wears. What have we produced? an officer? The paper he holds in his hand says he is. The bars he wears on his shoulders proclaim to the world that he is.

But, consider one more analogy. A bottle of champagne smashes against an intricate assembly of steel and a warship slides down the ways. It is a warship. Men have built it to be such. The papers proclaim it to be. But as it slips toward the water the men who built it don't know whether or not it will float, even though they have confidence that it will. It does float. It is a ship. It is classed as a warship. Is it ready to fight? You know the answer. At this time it has passed its first test in that it will float. It is now a hull, specially designed to receive the guns and other equipment that will make it, in fact, a warship.

Our erstwhile officer candidate has floated. He is an officer in the sense that all that can be practicably done to him in the Cavalry School, in the time allowed, has been done. That which will qualify him to be an officer in every sense of the word can and must be added by the application of responsibility under the patient guidance of his organization commander.

That we have confidence in our own product is evidenced by the fact that at the time of writing, 14 former officer candidates, now commissioned, are assigned to the Staff and Faculty of the Cavalry School and several more will soon be added. They are doing a fine job. They will do a good job for you!

Mobile Surgical Unit

First Armored Division

*By Major L. Holmes Ginn, Jr., Medical Corps**

WE have developed in the 1st Armored Division a mobile surgical unit that appears to answer the need for a field operating room in highly mobile warfare.

The writer, who was fortunate enough to have been on duty with the old 7th Cavalry Brigade (Mechanized) and with the 1st Armored Division since its organization in 1940, has long felt that it was necessary to modernize our medical equipment if we are to render close medical support to rapidly moving mechanized troops. It was but a short step from the kitchen trucks and machine shops of the early days of mechanization in our Army to the visualization of the surgical unit as it appears today.

During the spring of 1941 through the enthusiastic support of the Division Commander, Major General Bruce Magruder, it was possible for the 47th Medical Battalion (Armd) to construct the first model of a field surgical unit which has undergone a rigid field test during the fall maneuvers of 1941. To be sure that we would have the same mobility as the remainder of the service elements of the division the standard 2½-ton, 6 x 6 truck was selected as the vehicle upon which to construct the unit. The bows were raised to give additional head space, the canvas was replaced by sheet metal and the interior lined with plywood. The rear was closed by close fitting accordion type plywood doors. A window, closed by sliding metal shutters was installed in the front and above the level of the roof of the cab. This gave us a small room, relatively light proof and dust proof.

The interior was kept simple. In the front end of the body, hot and cold water tanks were installed, heat being furnished by a burner from the standard gasoline field range. Air pressure was applied to both tanks so that running water was available without depending upon gravity flow.

Shallow cabinets were fastened to one wall to hold the necessary surgical supplies. A larger cabinet placed between the two tanks afforded space for the more bulky items of equipment.

Standard headlight assemblies were fitted in each corner of the roof so that it was possible to adjust the beams. They were operated from the battery and proved a satisfactory method of illuminating the surgical field.

For an operating table the wheeled litter carrier as issued was used but was found to be quite unstable. We then installed eye bolts in the floor under each end of the table. From these light cables under spring tension were fastened to each end of the litter, thereby correcting this difficulty.

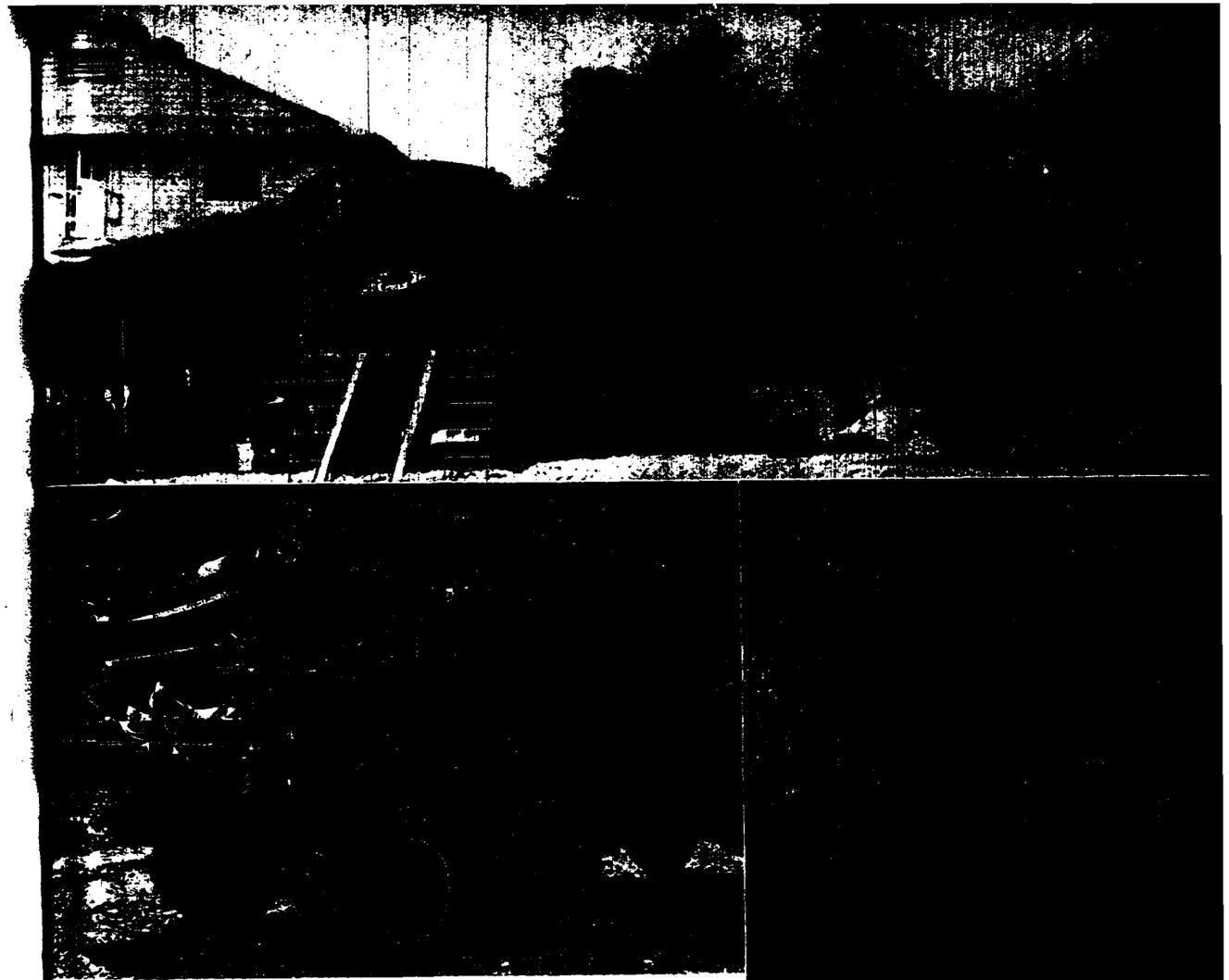
This arrangement had an additional advantage in that it was not necessary to move the patient from the litter on which he arrived at the station. Upon arrival the patient was placed on the wheeled litter carrier, preliminary examination and treatment was given and the litter carrier then wheeled into the body of the truck on an inclined track fitted to the tailgate.

Canvas wing tents extend from either side of the truck and give in effect a three room surgical unit. In actual use in combat, one side could be used for preoperative care and the other for minor surgery. This leaves the body of the truck itself free for the use of one surgical team.

We have used a three-quarter ton trailer which is towed by the truck to carry the additional supplies necessary for its operation, this has made the truck self-contained except for the necessary personnel to operate it. The time required to have it ready for operation has averaged about fifteen minutes from the time it stops. It is easily hidden in woods and obviously it is as mobile as the other trucks of the division since there has been no modification of chassis to construct this unit. One additional advantage which is of particular importance, considering its primary function, is the ease with which it can be kept clean as compared with the difficulty of performing good surgery in a tent.

This unit accompanied the 1st Armored Division during the Louisiana Maneuvers in September, I Armored Corps training at Camp Polk, Louisiana in September and First Army Maneuvers in the Carolinas in November returning to Fort Knox early in December, 1941. During this period the surgical unit was almost constantly in use, was moved many times and proved to be very satisfactory and practical for extended field service.

This is the first model and it is realized that improvements must be added. At the present time five more are being constructed for this division and some of our mistakes will be rectified. The water tanks are larger than we need and when full take up an undue amount of the available payload.



1—Rear view of surgical truck (experimental) 47th Medical Battalion (Armored) in operation. 2—Side view of 2½-ton cargo truck loaded with 15 litter patients. 3—Surgical team in truck.

By extending the canvas to the rear in addition to the sides working in "blackout" will be facilitated and the operating personnel and patients will be protected from inclement weather at all times.

The addition of this unit to our medical battalion has not completely solved the problem of increasing the mobility of the clearing station. Tentage is difficult to hide, slow to establish and almost impossible to move on short notice. Our ward space should be on wheels also. This is not as difficult to accomplish as it would appear on first consideration. A small bus which would accommodate twelve litter cases with sufficient space to permit attendants to care for the patients could be installed on our present 2½-ton, 6 x 6 chassis. This would necessitate a special body but we would have the advantage of using a standard chassis and would present no additional spare parts problem within the division.

The Medical Department Equipment Laboratory at Carlisle Barracks is now studying the problem of production of the two vehicles discussed above and it is hoped that in the near future we will be able to give our clearing stations their needed mobility.

As an emergency expedient we have found that it is possible to move fifteen litter cases in the standard 2½-ton cargo truck utilizing only the standard litter. The litter slings are used to secure the litters in place with six resting on the braces of the bows, six on the seats and three on the floor of the truck body. This is not advocated as an ideal means of transporting patients but in an emergency it could be utilized if sufficient ambulances were not available.

*Surgeon, 1st Armored Division.

Morale and Medical Aid

By Corporal Ray W. Smith, (Medical Detachment), 4th Cavalry

"The final word regarding victory and defeat is spoken, not by the arms and equipment, nor by the way in which they are used, nor even by the principles of strategy and tactics, but by the morale of the troops."—FOERTSCH: *The Art of Modern Warfare.*

THE medical field soldier attached to a reconnaissance cavalry regiment and thrown more upon his own resources as a result of the type of activity demanded from such an organization, is the subject of this brief article. The nature of his duty makes of him a potential morale factor. In the background are mental notes made during Medical Detachment, 4th Cavalry, participation in the Army and GHQ maneuvers in Louisiana.

The main task of a reconnaissance cavalry regiment is to get information about the enemy—his whereabouts, disposition, plans, and strength. The nature of the task calls for mobile action over a wide territory, and secrecy requires that reconnaissance missions be performed by small and often scattered units. In respects, this activity resembles that of the guerrilla. Confronted with actual casualties, the medical field soldier attached to a troop or unit engaged in reconnaissance, or on a mission of contact with, or delaying action against the enemy, could perform only bare emergency aid. Need to be where casualties would most probably occur would require him to keep up fairly well with his unit.

More and more the psychological factor, morale, is recognized as a valuable asset to the medical practitioner. Not in the "fake" sense, but as a legitimate and frequently vital auxiliary. And this is so, whether the practitioner be a regimental surgeon, or a troop aid man. The presence with field units of medical soldiers selected for their caliber as morale factors would provide a definite "lift," particularly to isolated units.

If stress is placed on this morale factor, it is because medical aid and its personnel have necessarily been shadowed by the innumerable other problems of military training, and because medical aid with a reconnaissance regiment, like the 4th Cavalry, is in experimental stages.

It does appear that more efficient and useful results from the presence of medical soldiers with field units may be obtained through taking a new, or perhaps, fuller view of such personnel. If the medical aid man is to perform adequately, his presence must induce the confidence of men about him.

Attainment of maximum usefulness from medical field soldiers is not great or difficult. Such personnel constitute a relatively small part of the organizations to which they are attached. It should be possible therefore to insure selection of men qualified to contribute to the confidence of their comrades, in turn insuring more timely and effective treatment of their illness or wounds, higher morale, and increased efficiency.

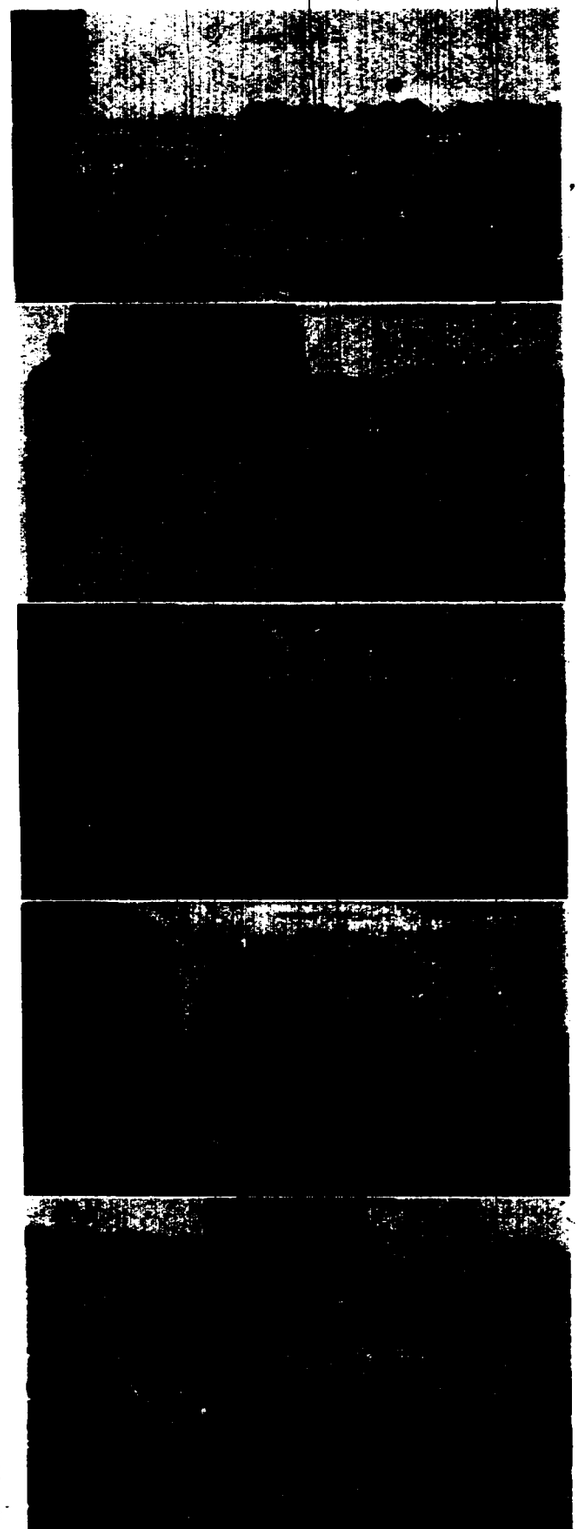
With all respect to the medical soldiers I have known, I believe that their importance from this standpoint has not been considered or utilized sufficiently. These are days of specialization in military life no less than in industrial, and a broader, fuller view of medical aid and equally broader, fuller view of training the medical soldier do appear desirable.

Isn't there still a tendency to undervalue medical personnel—their "potential" in the service? And may not this tendency be counter-acted healthily by action to select, train, and perhaps—yes—recognize and value the medical field soldier more highly in this fuller view?

One Purpose, One Mission

I am a soldier and I have spoken to you as one soldier to another. I have but one purpose, one mission, and that is to produce the most efficient Army in the world. Given the American type of soldier and our war industries operating at top speed; given your aggressive support on the home front, and it can be done, and it will be done in time.—GENERAL GEORGE C. MARSHALL, Speech at 1941 American Legion Convention.

MOTORCYCLE AMBULANCE*



DURING the Louisiana Maneuvers, 1941, a problem developed in the transporting of disabled motorcycles either from one bivouac to another or on the march. Having made brackets to fasten on the rear of Scout Cars to haul them, which proved unsatisfactory, a thought always lingered in our minds to find some means of hauling them with the least trouble. One day in October, 1941, in passing the Outside Salvage Storage in Camp Bowie, Texas, we saw an unattached front axle assembly for a 1931 Chevrolet by a pile of 1½" and 2" gas pipe. This gave us an idea, and in a short time we drew up the plans and gave them to Capt. John G. Bowes, Regimental Motor Officer. He secured permission from our Regimental Commander, at that time, Colonel Maxwell A. O'Brien, now Brigadier General O'Brien, to go ahead with our plans.

Having obtained the Commander's approval, a Requisition was submitted to the Salvage Officer for three hundred pounds of salvage 1½" and 2" pipe, one 1931 Chevrolet (Reversed Elliot Type) front axle assembly, two 7.00x15 wheels and tires, and a broken 1" driving axle.

Taking these materials to our shop, we stood three Indian Motorcycles up on their center stands in positions as shown in illustration. We layed 2" pipe in a rectangular shape around the motorcycles forming the frame. Then by marking the positions of the wheels, we placed pipe across and lengthwise, welding them together to obtain the strongest structure, using the least material and still maintaining the runways for the wheels.

Electric welding is used on the entire vehicle.

After completing the frame, we cut the axle in two and placed two pieces of 1½" pipe, one on each side, and welded them and the axle together lengthening the complete axle ten inches. Then we turned the complete axle assembly over to obtain a higher road clearance for axle and body. We then removed the tie rod and steering knuckle arms and after giving the wheels one degree Camber with 1/16" toe in and Zero Caster we welded a ½" iron block in the yoke making it stationary to the axle. We then welded the frame to the axle solidly as shown.

To form our hitch, we blocked the frame up behind a GMC 6x6 and placed two pipes from the corners as shown to the center of pull and welded them together at both ends, then added three shorter pipes between them to give more strength and pull-ability. We then cut a piece of ¼" metal to form under the outside pipe

*Designed and built by Pvt. 2d Class Specialist J. E. Meyers and Pvt. 2d Class Specialist W. E. Sprott Service Troop—113th Cavalry (H-Mecz) Regimental Motor Maintenance Platoon.

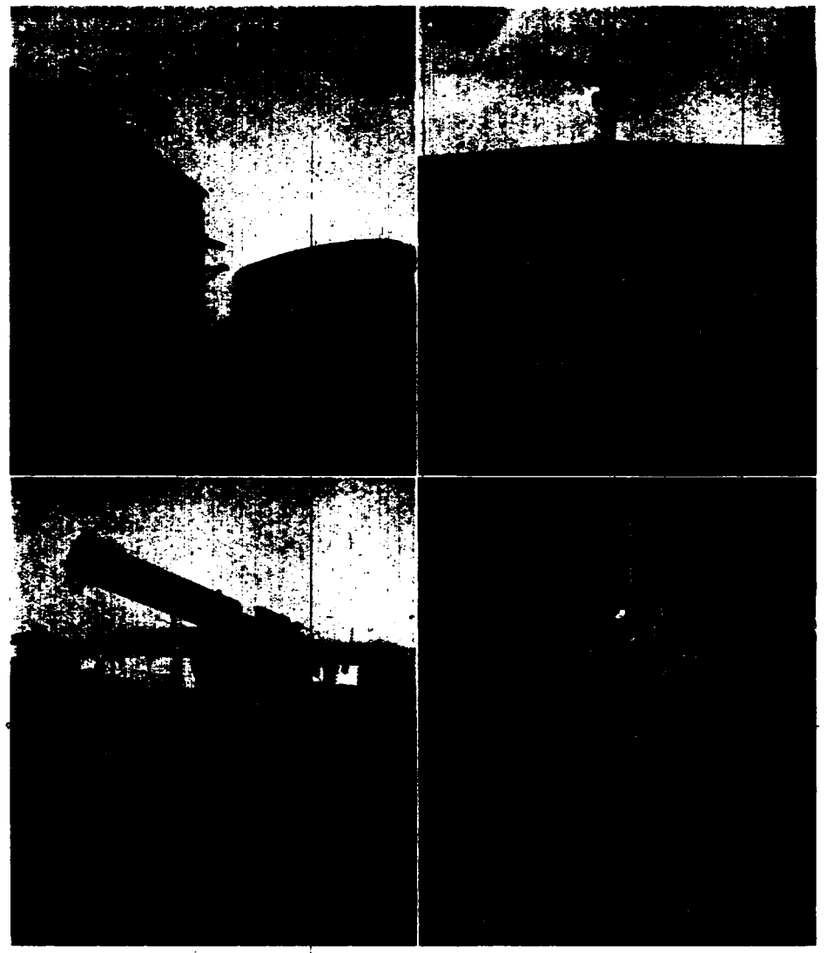
NOTE: Specifications and drawings will be furnished upon request to C. O. 113th Cavalry.

of the hitch and the top of the front pipe of the frame and welded it securely to both for added strength. From the old axle, we heated and formed an eye at one end of it three inches inside diameter, and placed the straight end of it in the center pipe and welded it to five pipes at their intersection making a very substantial hitch.

By using three old channel-iron bumpers, we made the runways and base for the wheels and welded them to the frame. To give more strength and added appearance, we took two pieces of 1½" pipe and welded them Bridge Span Style from front to rear above the outside rail. The lights were made by welding a clearance light at each rear corner and running the wiring inside the frame to the front of the vehicle, giving good protection to the wiring.

This entire trailer has a total weight of not more than 350 pounds empty, and not more than 1900 pounds fully loaded, and can be towed behind any Government Vehicle of ½ Ton Capacity on up with very little effort. It is designed so as to carry one, two, or three motorcycles and still maintain the load distribution, balance, and weight on the hitch.

NOTE: This organization has towed this vehicle approximately 3,000 miles under ⅔ or full load with not so much trouble as a flat tire.



MACHINE GUN MOUNT FOR PORTÉE TRAILER (EXPERIMENTAL) 113th CAVALRY

It consists of an iron pipe attached to a four-by-four which in turn is attached to the front end of the trailer. This pipe encloses a smaller pipe which makes the height adjustable and has a collar on top to fit the pintle. This gun has a 360° traverse, but in order to fire to the rear, would require two men to manipulate the gun, one man standing or sitting outside the trailer and the other man in the trailer. Numerous locations for the machine gun were tried, but none of them were as satisfactory as this one.

Blitz Maintenance

By Captain Caesar A. Fiore, Cavalry*

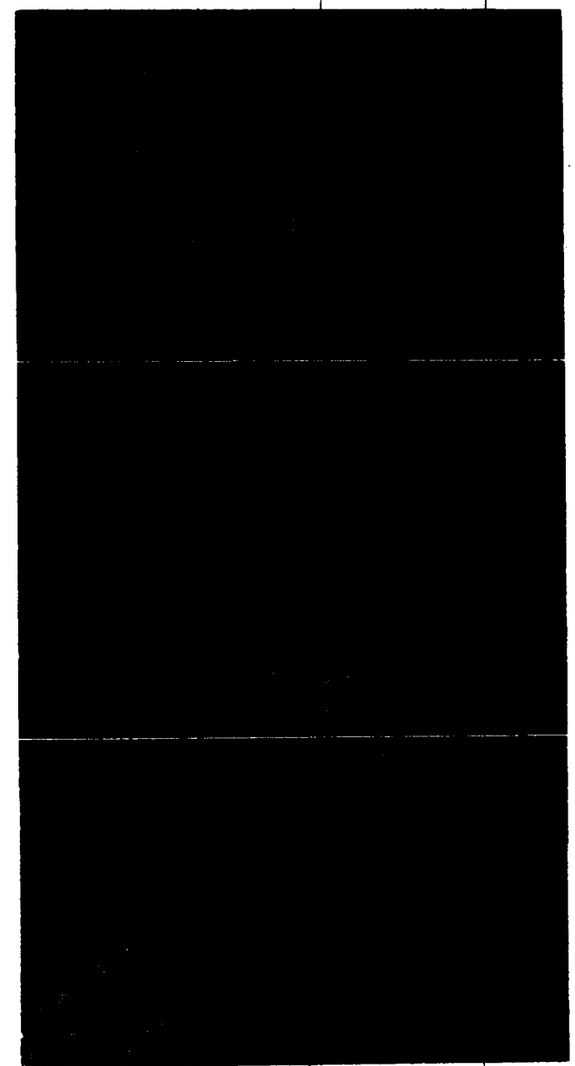
KEEP 'EM ROLLING, has been adopted by motorized and mechanized units of our armed forces as their slogan after the National Slogan "Keep 'Em Flying." In order to keep them rolling, particularly in combat and during front-line operations, we of the *reconnaissance* elements must learn new and better methods of maintenance, in the realization that our present plan of action is too outmoded and much too slow to produce effective results at a time when speed is of the greatest importance.

Maintenance problems in reconnaissance units are in no respect comparable to the problems of other motor units. For example, the present conception of motor maintenance assumes that a disabled vehicle merely pulls over to the side of the road and awaits the arrival of the unit maintenance truck. If the unit maintenance section is unable to correct the failure, they move on and leave the disabled vehicle for third echelon maintenance units to come by. This method pre-supposes a definite road of march and vehicles must maintain this road of march in order to receive the advantages of maintenance. Stray vehicles can of course receive aid even if off the beaten path but at best the system is slow and sadly inadequate for reconnaissance warfare.

For reconnaissance elements field maintenance presents a problem in itself. The normal action of a reconnaissance troop necessitates the coverage of an extensive area and as often as not the vehicles are widely separated. A reconnaissance unit to be effective *can not* be confined to one road but must operate on several and in order to fully accomplish the mission of reconnaissance it is frequently necessary to dispense entirely with roads and drive cross country.

It is for this reason that the present system of field maintenance must be altered for reconnaissance units. It is neither logical nor practical that a 2½-ton truck with boom and winch should go forward to make necessary repairs and replacements in the face of enemy action. The 2½-ton truck is too heavy and cumbersome for cross-country driving especially with the enemy in close proximity. Under fire the 2½-ton truck offers an excellent and costly target. Lack of speed, armor protection and maneuverability offers little chance of escape to the vehicle or its occupants in case of sudden attack. Furthermore the loss of the 2½-ton truck means the loss of priceless equipment and spare parts—enough for the entire troop.

The answer then, lies in that handy little vehicle which has thus far found so many other uses in our army—the *Peep* or as some folks would have it the *Jeep*. In any event the ¼-ton 4 x 4 is the answer to the mechanics prayer. In the accompanying photographs I have tried to show how we have equipped the "Blitz Buggy" with cabinet and a fair supply of tools and spare parts. The result is "Blitz Maintenance." The principle of using small fast maintenance vehicles in the field is not a new one. Recent G-2 reports accredited German successes in Blitz Warfare to their superior system of motor maintenance, particularly in combat. In short their system is *aggressive* where ours is *passive*. By learning some of the secrets of "Aggressive Main-



*Commanding, 92d Reconnaissance Squadron.

tenance" we will gain greater effectiveness and increased efficiency for our reconnaissance units in action.

Instead of the 2½-ton truck being used as the maintenance truck we consider it as a supply truck to carry spare parts and sub-assemblies. In addition, the supply truck can serve as a wrecker, car shop and general refueling station. The maintenance vehicle instead of being the 2½-ton truck is the ¼-ton 4 x 4 outfitted and equipped to do first, second and limited third echelon repairs on any vehicle in the organization. The small, sturdy and highly manuverable vehicle outfitted and equipped with cabinet and tools as shown in the accompanying photographs can do almost all of the work that has been done by the 2½-ton truck. The limit of effectiveness is not dependent upon the size of the maintenance vehicle but rather by the nature of the repair and the availability of replacement parts.

A troop maintenance section could well be set up as follows:

a. One 2½-ton truck, with boom and winch, well stocked with replacement parts. This truck does rear line maintenance and towing only. It serves as a mother vehicle to carry the supplies that the smaller ¼-ton trucks will need for the actual front-line maintenance.

b. Two or perhaps three ¼-ton 4 x 4 trucks outfitted with equipment as shown in accompanying photographs.

c. A combat vehicle, either scout car or tank, equipped with radio to receive calls from disabled vehicles. This vehicle will also serve to protect the maintenance section against local attacks.

To give an example of how this arrangement works let us assume that a reconnaissance troop is on a mission well forward of other divisional units and in the vicinity of enemy forces. The third platoon covering the right sector has a failure in one of its vehicles, let us say a burned out coil. By pre-arranged code symbols the third platoon commander radios troop headquarters "one scout car disabled," giving the nature of the trouble and the location of the vehicle. In most cases the maintenance section radio will pick up the message direct. But in the case they do not, Troop Headquarters will send them the message. Immediately one of the Maintenance Peeps gathers the required replacement parts and races off to the scene. Using its high road and cross-country mobility, it covers the distance rapidly. If the damaged Scout Car is so situated as to cause difficulty in location, guides are sent out from the disabled vehicle to assist the Peep in arriving at its destination. Once the Peep has arrived at the scene, it is only a matter of moments until the damaged combat vehicle is repaired and has again taken its proper place in action. The Peep returns to the maintenance section and awaits new missions.

In this manner the great majority of motor failures can be reduced in the minimum of time and without unnecessarily exposing more expensive equipment. It can be readily seen that the result will be increased speed in reconnaissance; and where time is the watchword "Blitz Maintenance" must be exploited to the fullest degree.

The cabinet itself is very easily constructed of white pine and waterproof plywood. The cabinet fits very snugly into the ¼-ton 4 x 4 and one feature which is of particular note is that the cabinet can be removed by merely lifting it from its place in the vehicle. The only alteration necessary to the Peep is the removal of two brackets holding the top brace. These brackets are then attached to the top of the cabinet and the brace for the canvas top is then carried in the position shown in photograph No. 2. (Previous page.)

In photograph No. 3 a display of all tools and equipment carried in the cabinet is shown. It is not necessary to list here all the parts and tools shown. The weight of the cabinet and all items shown complete is approximately 320 pounds. This is not an excessive load for the ¼-ton 4 x 4 vehicle.

The framework of the cabinet is made of 2 x 2 white pine with metal L braces at critical points. The covering throughout including the slide door in the face of the cabinet is made of ¼-inch waterproof plywood. Small hinges, hasps and locks are easily available; the entire cabinet can be constructed at a cost of approximately $15.00. NOTE: Detailed specifications and drawings will be supplied upon request to C.O., 92d Reconnaissance Squadron, Camp Funston, Kansas.

Experience

I believe that five hundred new men added to an old and experienced regiment were more valuable than a thousand men in the form of a new regiment, for the former, by association with good experienced captains, lieutenants, and noncommissioned officers, soon became veterans, whereas the latter were generally unavailable for a year.—From *Memoirs*, by GENERAL W. T. SHERMAN.

Demonstration Hall, the home of the Military Department at Michigan State College. (Building on left of flag pole.) Building at right is the new Jenison Field House.

The Cavalry Unit at Michigan State College

By Lieutenant Colonel Morris H. Marcus, Cavalry

EDITOR'S NOTE: In subsequent issues of The CAVALRY JOURNAL, similar descriptive articles about all of the other Cavalry R.O.T.C. units will be published.

* * *

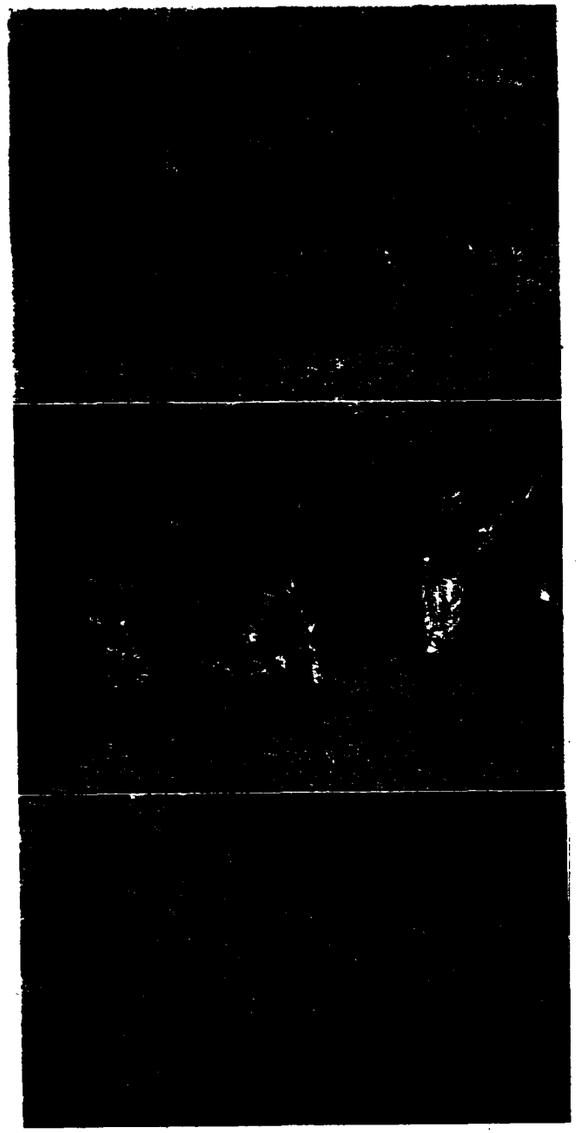
THE problems of all R.O.T.C. units differ according to school policies and geographical location. The War Department prescribes a program of general instruction to be followed and recommends the arrangement of courses so that a proper balance between theoretical and practical instruction may be obtained. Climatic conditions and college facilities in the various sections of the country regulate the arrangement of this program.

To illustrate in three different sections of the country —students at Texas A. & M. College are able to have outdoor practical instruction throughout the entire year; the University of Illinois has a tremendously large armory within which all dismounted units may drill throughout the winter, but they have no riding hall available to the Cavalry unit; at Michigan State College we have no armory suitable for dismounted drills, but we do have a riding hall in which mounted instruction may be carried on throughout the year. Weather conditions prohibit outdoor drill from October to April.

NORMAL TRAINING SCHEDULE. Let us now follow through in a brief way the course of instruction followed by a Cavalry student. The Cavalry Unit consists of 75 Advanced Course students and 350 Basic students. The school year is divided into three terms. Michigan State College freshmen (Cavalry Unit) are first given a course in military courtesy and discipline after which they are immediately started on dismounted drill which lasts throughout the fall term until weather conditions prohibit outdoor work. During the winter term when no outdoor instruction can be given, they are instructed in rifle marksmanship and horsemanship; rifle marksmanship being conducted on an indoor range with facilities for thirty students. In the spring term, as soon as weather permits, mounted drill is commenced. This includes at least one mounted parade for every freshman student during the spring term. Dismounted drill is, of course, conducted concurrently. Other subjects required to be taught to freshmen are so placed as to fit into this schedule.

The student continues his training as a sophomore in the fall term of his second year with mounted drill and in the spring term with both mounted and dismounted drill and combat exercises. The winter term of the sophomore year is devoted to the theoretical study of weapons, technique of rifle fire, combat principles, and other subjects.

Advanced Course students are selected from those sophomores whose records show outstanding work scholastically both in the Military Department and in other Departments of the College and who have demonstrated qualities of leadership throughout their basic training. In order to make the course as practical as possible for Advanced Course students, all juniors and seniors are detailed as instructors of the Basic students in close and extended order drills and combat exercises during the fall and spring terms, always, of course, under the supervision of a commissioned officer. Our Corps Organization calls for the appointment of senior students as officers and juniors as non-commissioned officers. Classes are so arranged that either a junior class or a senior class meets at the same time as a freshman or sophomore drill class in order that these Advanced Course students will be available to act as instructors. During the first week of each fall term, while the freshmen are being given military courtesy and discipline, both the junior and senior classes are given a course in Methods of Instruction, both theoretical and practical, in order better to prepare them for carrying on this type of work during the balance of the term. In this way full advantage has been taken in the past of every opportunity to give these students a maximum of mounted training and



Top: **Students test their strength.** ***Center:*** **Animal management in bivouac, Fort Custer R.O.T.C. Camp.** ***Bottom:*** **Cavalry students from the University of Illinois, Culver Military Academy, and Michigan State College join forces at the Fort Custer R.O.T.C. Camp.**

practical instruction throughout the year. Other required theoretical subjects are taught insofar as possible during the winter term.

STUDENT HORSEMANSHIP ACTIVITIES. Michigan State College is essentially an agricultural college. It renders a great service to the farm people of the state of Michigan through its extension courses, radio programs, and special Farmers' Conventions. Horsemanship has therefore always been a strong factor in maintaining the R.O.T.C. in the spotlight. Due to the limited hours allotted for instruction in equitation, students are encouraged to ride on their own time. Basic students are allowed riding passes as soon as they complete their freshman course, and a great many of them take advantage of this opportunity to ride on Saturday afternoons and Sundays. Bridle paths are now being constructed to encourage this activity still more. During inclement weather the riding hall is opened for their use.

From the above schedule one can readily see that the riding hall of Michigan State College is a very busy place. In fact, from 8:00 o'clock in the morning until 6:00 PM, during inclement weather, there is not one hour free except that between 12:00 Noon and 1:00 PM. (Artillery classes also use the riding hall for Gun Drill.) Our horses are worked from three to five hours every day. We have a remarkably good group of horses, and they are all in fine shape.

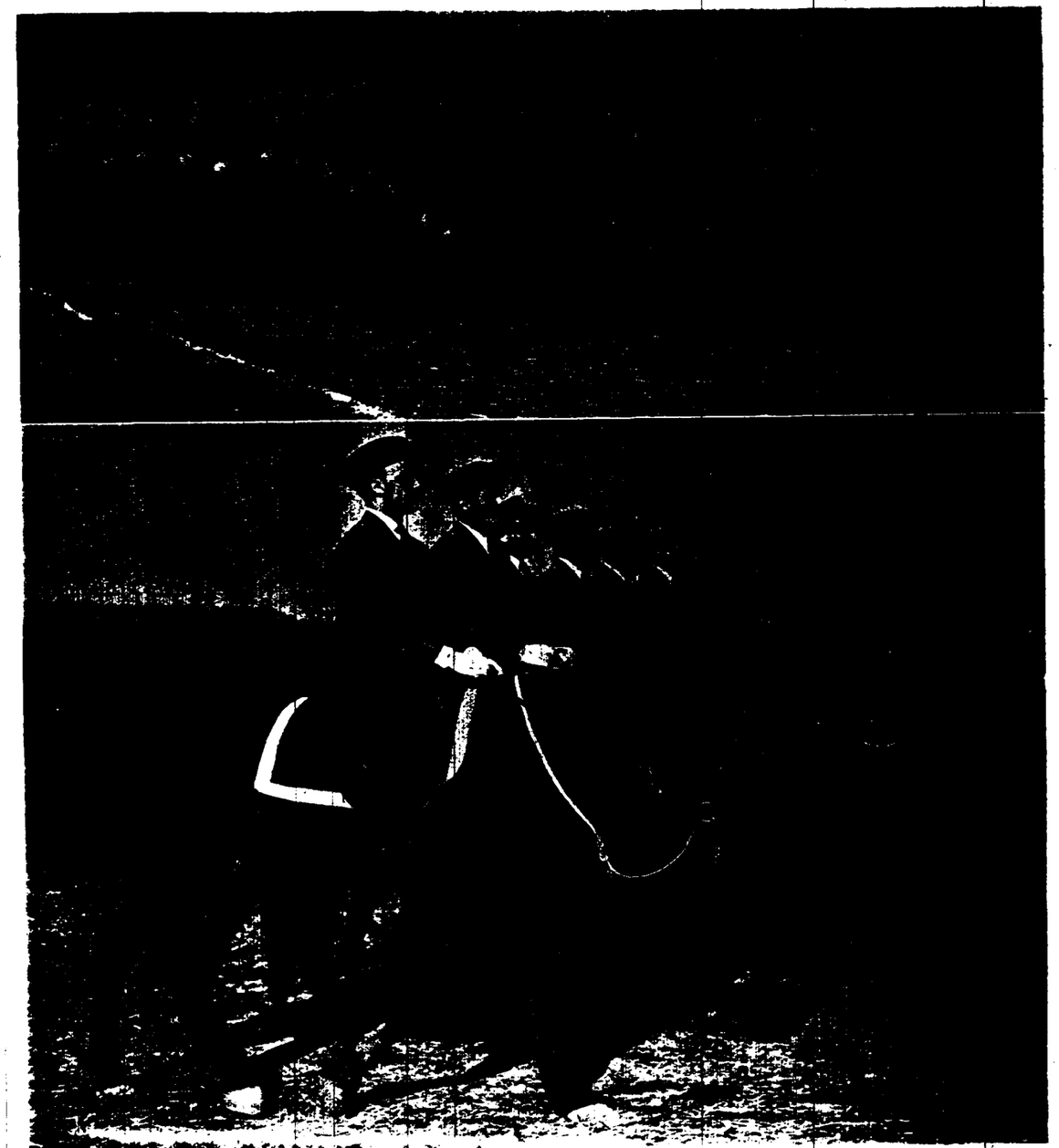
NEW POLICIES: A short while ago a directive was received that every effort would be made to make our course of instruction a practical one. In view of the above schedule and the fact that our course was already quite practical, how could we change this to give our students more practice? The following items have been instigated and may be of interest to others:

On Thursday, December 4, 1941, the entire senior class of Cavalry students was taken to a nearby city where it watched the assembling of the medium tank from the ground up. Major John G. Hritz, Executive Officer, personally conducted the class and afforded them ample opportunity to ask questions. From here they went to another plant and watched the assembling of the large 2,000 h.p. airplane motors. On the way home they visited an airplane factory. It is hoped that similar tours may be organized and conducted through defense plants now being constructed.

Our history course this year was re-arranged so that it might be conducted by the students themselves. Each student was assigned a subject, required to write a monograph, and deliver his lecture to the class. The students were enthusiastic about this method of conducting the course, and received a great deal of practical value from it. So enthusiastic were they that some of them have even asked if the entire balance of the year could not be conducted in the same manner. This, of course, would not be practicable, but other methods of giving them "practice teaching" have been set up.

Senior students will be detailed to conduct the instruction in rifle marksmanship and in freshman equitation under the supervision of the regular instructor. Inasmuch as their classes do not occur at the same time during the winter term, this must be conducted on a voluntary basis. So far, there is no lack of volunteers.

CONCLUSION. The foregoing is a very brief resumé of the activities which are carried on by the Cavalry Unit at Michigan State College throughout the year. Everyone here is coöperating to take advantage of every opportunity which presents itself for improving the training of the R.O.T.C. student. The resulting product may not be an exemplary example of a perfectly drilled individual, but he certainly is a Reserve officer of high quality, capable of making his way in the service and of leading a platoon efficiently. Reports indicate that Michigan State College graduates already on active duty have not only made a favorable impression upon the service as a whole, but have brought honor and distinction to their *Alma Mater*.



Top: **A Pershing Rifles unit contains cadets from all branches.**
Bottom: **Freshmen and Sophomore Cavalry students on parade.**

R. O. T. C., New Mexico Military Institute*

By a Cadet

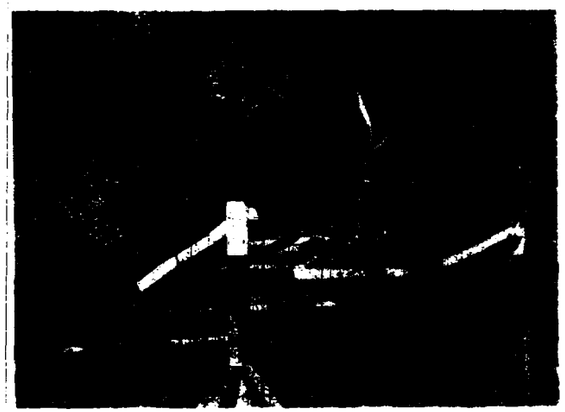
IN the present day expansion of the Armed forces, our New Mexico Military Institute is playing a significant rôle in supplying Cavalry branches with capable young officers. Being one of seven Senior R.O.T.C. Cavalry Units we are naturally proud of the records our graduates are making. This may sound boastful but I think it is warranted in the fact that one of the primary objects for which the school strives is—to build justified confidence. After four years of intense training in leadership, horsemanship, map reading, scouting and patrolling, and basic combat principles; the graduate is prepared for his first assignment with a working knowledge of the elementary principles of Cavalry Combat and imbued with a spirit of coöperation in the combat "team."

Our system is based upon three main objectives, namely: Leadership, horsemanship, and combat principles.

(1) Leadership, the first of these objectives for we have realized for a long time that nine-tenths of the successful tactics for small units is found in the quality of personal leadership. For this we have here a small scale, model of a regular army regiment. A typical cadet will experience the four natural grades, including the private, corporal, sergeant and officer; and will acquire a first hand knowledge of each. A platoon or troop commander learns by actual experience how to instill in his unit an appreciation for coöperation in coping with any situation that may arise. In brief the objective is a team with a leader.

(2) Next on our list is horsemanship; we know that our value as Cavalry Officers will depend primarily upon our interest in, knowledge of, and ability to instruct subordinates in the distinguishing characteristic of our service. Just as a tank is to a tank-commander; a horse is to the Cavalryman. In the course of our training we learn how to ride, care for, and condition any type of horse that may be assigned us. There are some cadets here who on nearby ranches have lived in a saddle all their lives and also some who have never seen a horse before. No matter which, they all get the same instruction in military horsemanship, care of animals and stable management. A cadet is given the opportunity to become as proficient in this art as he wishes. Aside from the regular cavalry drills we have a first class jumping team, a renowned polo team, and special periods for those interested which we call "privilege riding." In all four grades of tactics, under expert tutelage, we have required equitation classes twice a week during the warmer months. These all speak for themselves, I think, in that we have had no unfavorable reports on the riding ability of any of our graduates.

(3) For field operations our training has been specialized under map reading, scouting and patrolling, and basic principles of combat. Of course we have theoretical class room work in all these, but they are not valued half so highly as the practical experience we receive in actual problems. We plan to have three day marches in which a leader will have to be able to read a map or else. . . . In problems of scouting and patrolling the corporal or lieutenant now affects every principle he has learned in reconnaissance, cover and concealment adhering to and performing his mission, etc. Combat principles involve the greatest range of practical activities, for daily we have problems in mounted and dismounted combat or a combination including offensive, defensive, security, outpost and machine gun. On Saturday mornings we have mounted and dismounted problems of a broader scope, the actions being either advance guard, rear guard or individual patrols. These require the leader to be on the alert all the time, to give his orders, to know the limitations and capabilities of his assigned arms, in making his estimate of the situation and type of action he will employ. The majority of our leaders, with practice, are performing their jobs in a manner that would make any unit respect and follow them anywhere.



Of course we do not have the time nor the special mechanized arms and equipment to place ourselves on a level with a regular army unit. But we do utilize the time we have to the greatest possible extent and study the basic principles of each individual weapon and motorized unit.

The general attitude of the cadets toward this training is one of earnestness and appreciation, for we realize that before many months have passed we shall be applying these principles on a much graver scale. It is our desire to acquire a first-hand knowledge of the Cavalry and supporting weapons, maintaining always a deep respect and appreciation for the other branches of the armed forces.

*Lt. Colonel E. G. Cullum, Cavalry, P. M. S. & T.

He that can enjoy the intimacy of the great and on no occasion disgust them by familiarity or disgrace himself by servility, proves that he is as perfect a gentleman by nature as his companions are by rank.—*Colton.*

Oklahoma Military Academy

Cavalry Unit

By Lieutenant Cullus M. Mayes, Cavalry

I

THE Oklahoma Military Academy, owned by the State of Oklahoma, is an essentially military Institution. The college section embraces the first two years of college, while the high school section includes the last three years of high school. Only excellent high school sophomores are admitted. It has a classification of M-I by the War Department. It was established by an act of the State Legislature in 1919 and although a military school, had no War Department Unit until 1924 when the usual Junior Unit was established. This continued until 1930, when its status was changed to Senior and a Cavalry branch was established. Both Cavalry and Infantry were carried concurrently until 1934, when the Infantry Unit was abolished for lack of students. Its "Honor School" rating was first given in 1932 and has been maintained without interruption.

Thus the growth has been progressive throughout. The present Unit consists of three Officers, twenty-one enlisted men and ninety-five horses, with the full equipment necessary for training. As an essentially military school, it is conducted as much as possible along the lines of the United States Military Academy. All cadets must be members of the R.O.T.C., under military control and discipline at all times.

The type of cadet is excellent Cavalry material, both mentally and physically. Both the tradition of the country and the temperament of its people are those of horsemen. At the average age of eighteen the normal height is 5′ 10″ and the weight is 154 pounds. As a majority of the cadets are well accustomed to horses and have ridden the greater part of their lives, the usual problems of this automotive age have been solved before the cadet arrives. This allows more time for the novice minority and insures rapid progress with the majority who are thoroughly accustomed to horses.

II

The Academy is located in northeastern Oklahoma, about one mile west of the city of Claremore and is adjacent to the Will Rogers Memorial. The Campus occupies a plateau about one hundred feet above the valley of the Verdigris river and 630 feet above sea level. Extending west from the campus proper, on which the buildings are located, is a reservation of approximately 260 acres of rolling country interspersed with woods. It is well adapted to "Russian rides" and possesses many natural obstacles. These features of the ground enable the cadets to be conveniently and thoroughly trained in cross country riding as well as Cavalry combat. There is an excellent level mounted drill field opposite the stables which is used as a practice polo field and an outdoor riding hall for equitation. The parade ground and drill field are adjacent to the buildings as are several dismounted drill fields.

This country is excellent from a climatic and topographical point of view. The winters are open and rain seldom interferes with the training program. Hard surfaced roads are supplemented by numerous dirt roads which facilitate marches and problems off the reservation. The numerous hills afford excellent observation and the varied terrain concealment of troops by an alert commander, with the Verdigris River and its tributary streams which present natural obstacles which must be overcome.

The country around Claremore is farming and range land, and the inhabitants very coöperative with any phase of military training.

III

The Academy was planned with a view to its gradual expansion. As a result of this far sighted policy all buildings are convenient to each other and all can accomodate twice the number of cadets that the present two sets of barracks allow (three hundred). Buildings are of brick fireproof construction, are modern in every detail, and are heated with steam. Those which are used by cadets will be briefly described:

The Academic Building. The Original building of the Academy. Contains the Administrative offices, library (lighted by fluorescent light and containing 5,000 volumes), laboritories and seventeen classrooms.

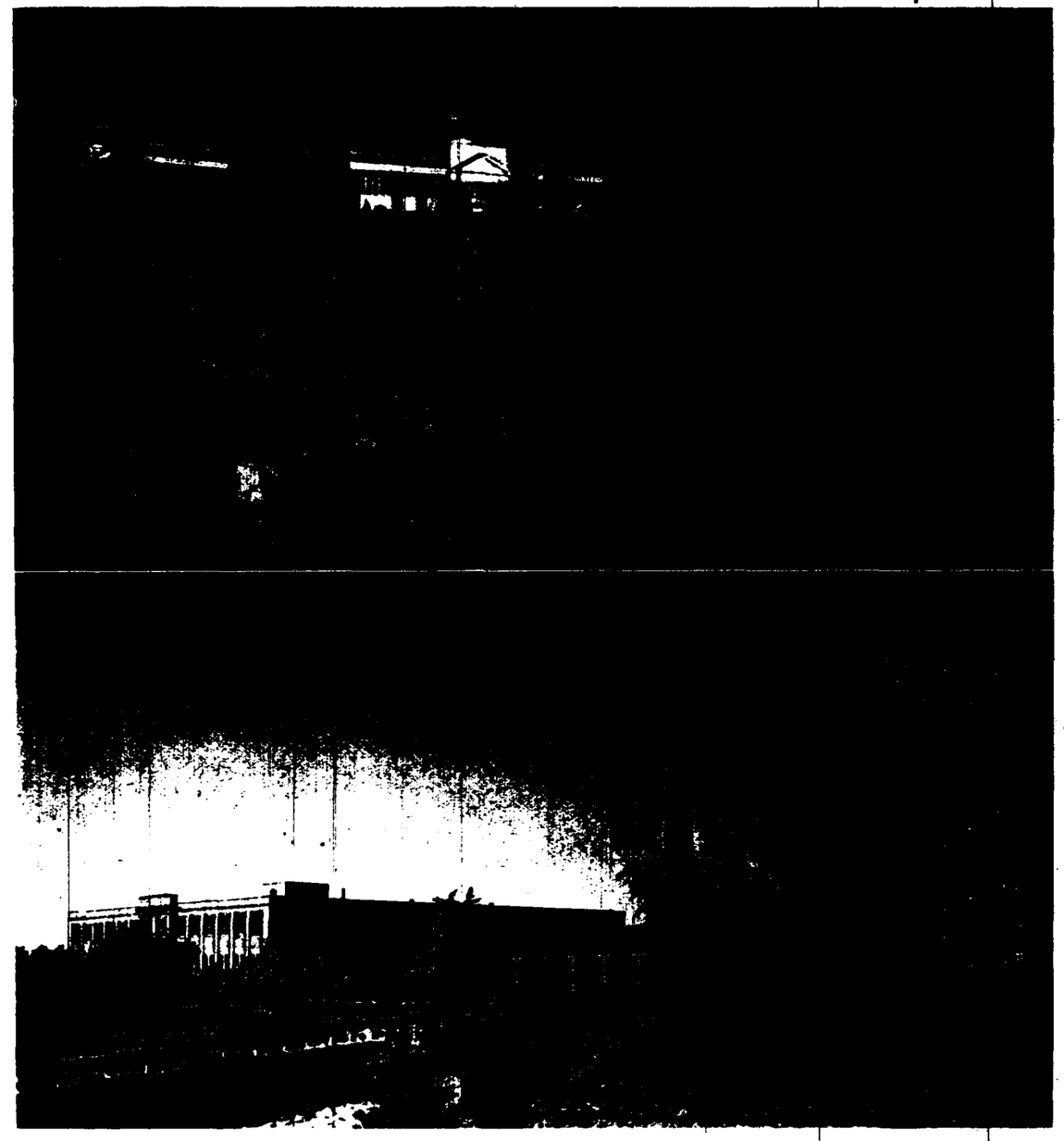
The Meyer Barracks. Built in 1930. Houses the second Squadron—two cadets to each room, one troop to a floor. Indoor troop instruction can be given in each troop area.

The Markham Barracks. Built in 1927. The Cadet Staff and First Squadron are quartered here, one troop to each floor. The original gymnasium in the basement is now used as a secondary intramural area in bad weather.

The Mess Hall. Built in 1924, between the two barracks. Dining room, kitchen, storerooms and a pastry kitchen are all on one floor.

The Auditorium. Built in 1936, has a seating capacity of nine hundred, also contains the Commandant's office and reception lobby on main floor. The Post Exchange, recreation rooms, barber shop and band room are in the basement.

The Field House. Built in 1936, an unusual building. The northern section contains the P.M.S.&T.'s offices, three large, well lighted classrooms, the Armory



OKLAHOMA MILITARY ACADEMY.
Top: **Administration Building from South Barracks.** ***Bottom:*** **North and South Barracks. Building between is mess hall.**

and storerooms. It consists of two stories and a basement and is used for no purpose other than Military. The central section is the gymnasium, 110 x 70, with the athletic equipment rooms. In inclement weather, indoor instruction, including dismounted drill, is given here as rifles and equipment do not have to be taken out of the building. The south section is 27 x 74 swimming pool with showers, lockers and dressing rooms at its east end.

The Stables. Built in 1930, are of brick with concrete standings. Quarters for the unmarried men of the detachment, saddler's shop, saddle room and grain room

are in the stables proper. The forage shed and shoeing shop are conveniently nearby, but sufficiently distant so that no fire hazard will be created.

There is also an excellent indoor heated rifle range that can be used the entire year for rifle marksmanship, musketry and other training of that nature.

The Infirmary. Built in 1927, is a modern, two-story building completely equipped for all normal medical needs. It houses the medical staff and accomodates eighteen bed patients in its eleven rooms.

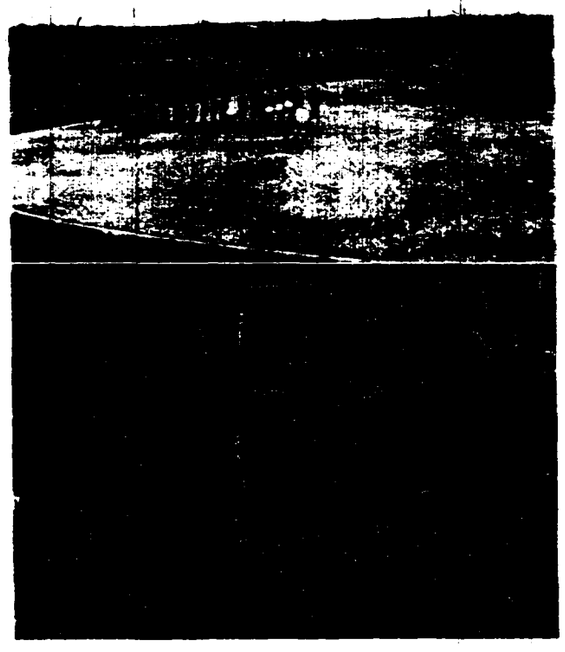
The President, Commandant, P.M.S. & T. and three senior faculty members have quarters on the campus.

The Athletic Field, constructed in 1937, has subsurface drainage and is used for ceremonies and training when ground conditions are not favorable elsewhere.

IV

The academic objectives of the Oklahoma Military Academy are:

1. To give the student of junior college status a sound and thorough education corresponding to the first two years of a four year college course. He will pursue the proper curriculum to enter the third year of college as well or better grounded than in the first two years of a senior college. Should he take a terminal course here, he will have the proper groundwork for an entry into the business world.



Terrain is well suited to Cavalry instruction.

2. To correct, by remedial courses, those deficiencies usually found in the student's basic education and to offer essential courses absent from the curriculum of the smaller schools. It is often necessary to completely rehabilitate the student who has been allowed to avoid the mathematical and scientific subjects and who finds later that he wishes to pursue a course requiring these subjects.

3. To give the student of high school status a thorough basic education and to guide him toward a profession to which he is adapted. Great care is exercised that a balanced proportion of Arts and Sciences are taught so that the student will be properly prepared for college or to enter business at the termination of high school.

The President, Captain John C. Hamilton, USA, Retired, is a graduate of the United States Military Academy, class of 1918, and spent his entire seventeen years of service in the Cavalry, both horse and mechanized. He was an instructor at West Point from 1924 to 1928 and has a thorough knowledge of deficiencies usually found in first year cadets. The courses and methods of instruction are patterned along the same lines and, in some cases, are identical with those of the U.S.M.A.

Accuracy and thoroughness are demanded in all academic work. Methods of study are taught. The system is an immense aid in teaching courses in Military as the need for exactitude is impressed on the cadet in every phase of his endeavor and his life here.

The result of misplacing a decimal point or writing an ambiguous or involved paragraph is kept before the cadet at all times and is translated into possible loss of life or battle. From an engineering or military point of view, method without accuracy is worse than ignorance.

Almost all courses found in the first two years of West Point are carried here, as well as some of the third year courses.

The curriculum was completely revised and modernized in 1934. Courses of doubtful value were eliminated and those of mathematical and scientific application to the present world conditions were added. The Academy is a member of the North Central Association of Colleges and Secondary Schools and cadets are admitted to West Point and Annapolis with a physical examination only.

V

Physical Development and Training.

All Senior R.O.T.C. cadets should be organically sound, irrespective of whether they be Basic or Advanced. If this is not required, a large number of rejections will take place when the physical examinations for the Advanced Course are held at the beginning of the third year. Also, throughout the entire four years, the Institution's loss through illness will be kept at a minimum.

Beginning this year, cadets were examined thoroughly and any who were not fairly certain of being

suitable Advanced material were rejected. This should reduce waste to a minimum and a small fraction of what it has been in previous years, as well as facilitate training.

Due to the automobile it has long been realized by the War Department that the physical quality of our manpower was on a rapid decline and the present emergency has amply proven their fears. Although a large proportion of the cadets are excellently developed when they are admitted, a progressive physical development schedule is carried out during the entire time the cadet is here.

New cadets enter one week before the Corps returns. During this time they are trained by a selected detail of Military III's and IV's under the supervision of the Commandant's Department and Director of Athletics. This is a period of organization and hardening the new cadets. During the first month the Corps is progressively hardened so that by October first the entire academic, military and physical program can be carried without undue strain.

Physical development activities may be divided into five groups:

1. Corrective work under the Athletic Director. Here the cadets who have shown deficiencies in the physical examination (such as posture, lack of chest expansion, lack of development in any member) are given specific exercises under his supervision.

2. The new cadet system forbids hazing and is taken directly from West Point. New cadets are required to double time and "brace" for cadet officers and non-commissioned officers only, and maintain a correct posture at all times.

3. Intramural athletics, a normal formation for one hour each afternoon, are required of all cadets not on a Varsity squad. Rotation is required so that all cadets will learn each of the more common sports.

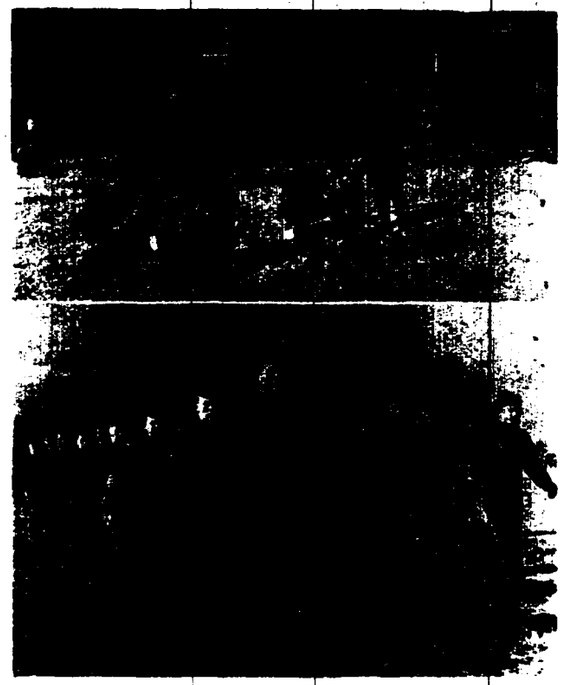
4. Varsity athletics are restricted to cadets who are proficient in both academic work and conduct. Sports include polo, football, basketball, boxing, tennis, baseball and wrestling.

5. Free time. In such free time as he has, cadets utilize the facilities for privilege riding, swimming, tennis and golf.

VI

Military. The Commandant's and P.M.S. & T.'s Departments are maintained separately but are thoroughly coördinated. A member of the latter is Commandant, thus uniting these two essential functions as both are so closely related in their objectives; i.e. to turn out the best officers possible.

Due to the essentially military nature of the Academy, the P.M.S.&T. receives far more hours than is required by regulations. The Basics have a minimum of seven hours per week on school days, and the Advanced nine. With four hours Saturday morning for field training, the totals are eleven and thirteen respec-



Showing type of cadets.

tively, exclusive of field inspections, parades and ceremonies.

As the curriculum for Senior R.O.T.C. Cavalry Units is prescribed by the War Department and is well known to all Cavalry Officers, no attempt will be made to cover it. Only salient points of the training here will be considered.

The Saturday morning field training period is from eight until noon. This was instituted in January and will be continued in next year's schedule. The advantage of having a continuous four hour training period needs no explanation. All of us have sensed the futility of starting an exercise in the usual hour period and finding that we have to neglect proper emphasis on details so that the class may be brought in at the proper time. Even here, where the field area adjoins the stables, the normal period was just insufficient. This Saturday morning period may be divided into three one hour and twenty minute periods, two two-hour periods or one for the entire morning.

Field inspection is at 1:30 PM Saturday, Barracks inspection at 9:00 AM Sunday morning and parade at 4:00 Sunday afternoon. These last two formations are conducted by the Commandant's Department.

As training films take about thirty minutes, these are shown in the Auditorium between the supper and evening call to quarters. This allows the P.M.S.&T. to utilize the 11:30 AM—12:30 PM week day period in full.

This section of Oklahoma has open winters and very

few days are lost from inclement weather. However, the installations here allow indoor training in almost every phase except riding.

The Indoor Range, 80 x 32, is used during the entire year for marksmanship, musketry and competative rifle shooting. Rifle marksmanship is one of the most popular activities in this section of the country and the Academy won the Senior R.O.T.C. championship of the Eighth Corps Area in 1941.

Calesthentics are under the Director of Athletics, but Advanced students are trained by him to give these exercises. Gymnasium formations are made by troop or squadron under their own officers.

As the number of inclement days is fairly constant from year to year and the hours allowed by the Academy far above normal, a little planning insures full utilization of bad weather. Lectures, stable management and technical work can be taught at such times to allow the fullest amount of field training, riding and outdoor work during the long periods of favorable weather.

SUMMARY

The advantages the R.O.T.C. enjoys at the Oklahoma Military Academy are:

1. Full coöperation from the authorities with complete understanding of the P.M.S.&T.'s problems.
2. Complete integration with the Institutional plan. The Military Department operates as an Academic Department and the P.M.S.&T. sits as a member of the Academic board.
3. The curriculum, teaching methods and standards are conducive to the making of an excellent officer.
4. Integration of the Commandant's and Military Departments assure excellent discipline and training in handling men.
5. Climatic and topographical conditions lend themselves to maximum outdoor training.
6. Installations are more than ample for all purposes.
7. The Academy authorities are as anxious as the Military that the best possible officers are graduated.

100% Officer Membership in the U. S. Cavalry Association

2d Cav. Div. Hq., Maj. Gen. John Millikin, Comdg.
2d Cav. Brig. Hq., Brig. Gen. Chas. H. Gerhardt, Comdg.
92d Rcn. Sq., Capt. Caesar F. Fiore, Comdg.
8th Cav., Col. Chas. S. Kilburn, Comdg.
1st Cav. Tr. (Rcn.) (Sep.), Capt. W. V. Martz, Comdg.
1st Rcn. Tr., Capt. Russel D. V. Janzan, Cmdg.
2d Rcn. Tr., Capt. Anthony F. Kleitz, Comdg.

98% Officer Membership

1st Cav. Div. Hq.	7th Cav.
1st Cav. Brig. Hq.	9th Cav.
3d Cav. Brig. Hq.	102d Cav. (H-Mecz)
4th Cav. Brig. Hq.	104th Cav. (H-Mecz)
691st Tank Destroyer Bn.	106th Cav. (H-Mecz)
3d Rcn. Tr.	107th Cav. (H-Mecz)
3d Cav.	12th Cav.
4th Cav. (H-Mecz)	112th Cav.

Directions for Modification McClellan Hooded Stirrups

1—Remove hood from stirrup by punching out all rivets.

2—Reduce the width of the bottom of the stirrup from 4½ to 3 inches by sawing off the tapered portion of the front of the stirrup, as follows:

a—Mark a line on the bottom of the stirrup 3 inches from and parallel to the back edge of the stirrup.

b—Continue this line up on the sides of the stirrup, intersecting a point approximately 1/16" from the edge of the cresent washer located near the top of stirrup.

c—Cut off excess portion using line as a guide.

d—Round all edges on front of stirrup with a wood file similar to the edges on back of stirrup.

Nothing is more important in war than unity in command.—*Napoleon*

Horse Feathers

Thumbs Down!!
Japs—Germs—Its

TROOPER I: "Jane's a nicely reared girl, isn't she?"
TROOPER II: "That ain't hay—and not so bad from the front either!"

A pedestrian is a father with a son home on furlo'.

"If brevity is the soul of wit, my gal's skirt sure is a wow. She looks like she was poured in it and forgot to say 'when'—and it's one joke I can see through."

PROUD MOTHER: "My Elmer joined the cavalry only two months ago and already is a four letter man—AWOL. Isn't that grand?"

TROOPER: "Do you shrink from kissing?"
WHOOPER: "No, if I did I'd be nothing but skin and bones."

SERGEANT INSTRUCTOR (exasperated): "The stork that brought that John should be arrested for smuggling dope!"

Luck is a good word if you put a P before it.

THE YOUNG THING: "Oh, I see, the chin strap is to keep the funny hat on!"
TROOPER: "Yeah. Funny hat! Well, you're wrong, Sis. It's to rest the funny jaw on, see?"

You can generally tell what a trooper is by what he does when he has nothing to do.

If you have a good temper, keep it;
If you have a bad temper, don't lose it.

PROUD NATIVE: "What do you think of our town?"
TROOPER: "It certainly is unique."
NATIVE: "What do you mean unique?"
TROOPER: "It comes from two Latin words—'unus' meaning one, and 'equus' meaning horse."

Guerrillas

PVT. BULLNECK: "Say, Sarg! This gorilla warfare I've been readin' about sure appeals to me."
SERGEANT: "*Gorilla* warfare *would* appeal to YOU—you ape."

Often, the difference between a wild horse and a tame horse is *two bits*.

"Say, Trooper, how long is your car going to keep stalling like this?"
"Just as long as you do, Whooper."

Investigate!

Some day there's going to be an investigator appointed to investigate the investigation of an investigating committee appointed to investigate the investigators of an investigation.

LADY: "I know you have pet names for the big guns, but what do you call the shells?"
TROOPER: "Depends on how close you are to where they bust, mum."

"My gal wuz up at de dance las' night wid anuther trooper."
"And what did you do, Private Bones?"
"I cut her acquaintance, yassuh! I sure cut 'im good and plenty!"

When asked about what, in his many battles, had struck him most, Veteran Trooper replied, "Sure, and what struck me most was the many bullets flying around that didn't strike me."

RECRUIT: What do I do if I lose control of this jeep?
INSTRUCTOR: Hit something soft and inexpensive.

"Who is that gal with the French heels?"
"That's my sister, but those *heels* with her ain't French."

LADY: "Is that a blooded horse?"
TROOPER: "It sure is. *Oscar*, bleed for the lady!"

The Service and the Loyalty I owe, in doing it, pays itself—*Macbeth*

NONCOM QUIZ*

WHERE other quizzes have dealt with specific phases of tactics, this one is much more general and includes questions on Reconnaissance, Security and Offensive and Defensive Action. Score 11 points for each whole question answered correctly. A perfect score is 99, and 74 is the lowest passing grade.

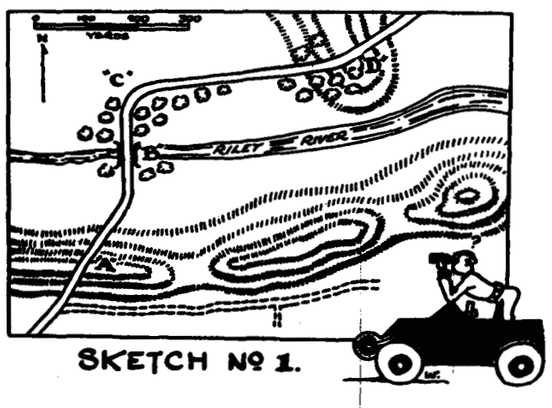
After answering all questions refer to a solution on page 92.

TEST

Questions

1. You command a scout-car platoon of a reconnaissance troop on a reconnaissance mission. Your platoon is moving north along the road shown on Sketch No. 1. Your point, at "A," observes the bridge 200 yards to its front and notes the right-hand turn in the road 100 yards beyond.

Explain briefly your method of reconnoitering and crossing the bridge with your platoon.



SKETCH No 1.

2. After the platoon crosses the bridge the point car cautiously approaches the turn (Point "C," Sketch No. 1), observes carefully in the new direction and, upon orders from the platoon leader, proceeds toward the ridge at "D." When about midway between "C" and "D" the point car receives heavy machine-gun fire from enemy at "D." The road is too narrow to permit the car to turn around in time to escape the ambush.

Briefly, what would be your plan, or method of employing the rest of the platoon to assist the ambushed car?

3. You command a front-line interior rifle troop, the platoons of which have just completed physically occupying their assigned defense areas and coordinating their fires. No contact has yet been made with the enemy but from rumors you believe there may be some in less than an hour. Some engineer tools were dumped in your defense area and the bulk of the men of the platoons are ready to use them. You must decide whether the first priority in work with the tools will be:

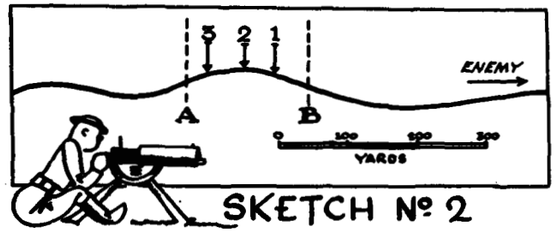
a. Measures for maintaining fighting power of the troops, such as constructing fox holes and slit trenches, or

b. Measures for increasing the effect of fire, such as clearing fields of fire.

Which do you decide?

4. The area assigned to your troop to defend is part of the initial delaying position assigned to the Squadron, and includes both the forward and reverse slopes of the geographical crest, between "A" and "B" in Sketch No. 2. Indicate at which point (1, 2 or 3) you would locate a machine gun attached to your platoon so as to have "position defilade."

b. If the gunner *were* located so as to have "position defilade," would he be able to see his target or targets?



SKETCH No 2

5. Consider a rifle troop attacking as an assault troop as part of a larger force in a dismounted attack. This troop has been able to maintain its expected rate of advance. An adjacent troop has been held up by the strength of the enemy resistance. How would you assist the troop that has been held up?

6. *a.* Name the three tactical groupings into which a troop is generally divided in the offensive.

b. Describe briefly the composition and purpose of each.

7. A troop commander (Sketch No. 3) has issued an order for a mounted pistol attack on the enemy column shown at "A," the attack to be in two waves.

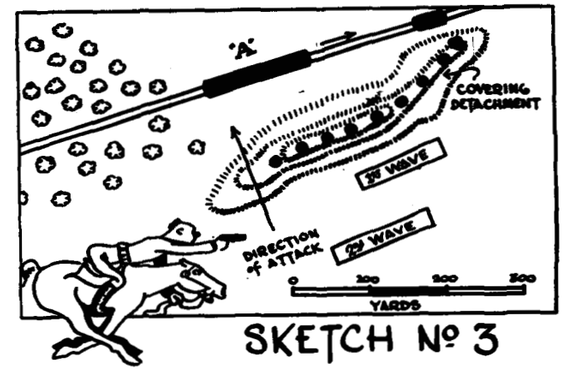
a. What is the position of the troop commander during the attack?

b. What is the approximate distance between waves during the attack?

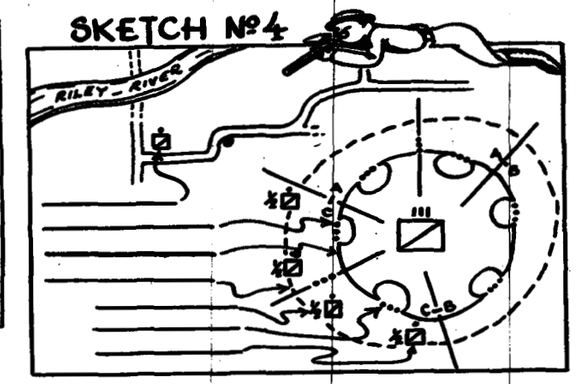
c. Where would be a suitable position for the LMG platoon?

d. What is the action of the covering detachment during the attack?

*Prepared under the direction of The Department of Tactics, The Cavalry School.



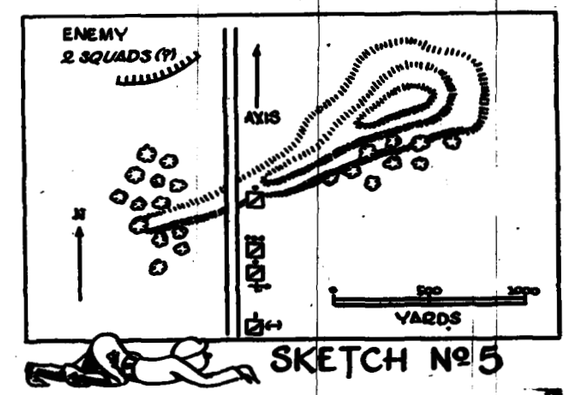
SKETCH No 3



8. Your regimental commander decides to bivouac for the night, selects the area and assigns sectors for the outpost. Your squadron commander assigns sectors of responsibility to the troops of the squadron.

Indicate on the appropriate blank space (Sketch No. 4) the names of subdivisions of the outpost. Where a subdivision is numbered, indicate the number.

9. Your platoon, with one LMG squad attached, forms the *advance party* of an advance guard in which the balance of the troop comprises the advance guard support. Your point of one squad (see Sketch No. 5) has just been stopped by hostile fire. With the situation as shown on the sketch, what is your plan of action?



SKETCH No 5

A Modified Pup Tent

By Lieutenant John R. Lane, 1st Cavalry Brigade

HERE is a boon for junior officers since the revised table of basic allowances eliminated the small wall tents for troops and officers below the grade of a field officer.

The modified pup tent illustrated was conceived by the author prior to and used during the Third Army maneuvers in Louisiana and met with great success in all kinds of weather under varied conditions.

The tent was made by adding a two foot extension to the length, three foot side walls, and full front flaps to an issue pup tent. Button flaps were installed at all corners, the end, and front for rolling up any section or for securing during bad weather.

Materials used were ten salvage shelter halves, eleven issue tent ropes, and ten large, or regular tent pegs. The pieces were cut out by the author and may be assembled by any saddler or commercial tent maker.

This makes a tent 5 feet, 9 inches high, 7 feet, 6 inches wide, and weighs about 20 pounds.

NOTE: For further particulars write to the author.

NONCOM QUIZ--A Solution

(*Concluded from page 91*)

1. The platoon leader goes forward in his car to join the "point" car at "A." The cars are placed behind the crest so that the occupants can observe the bridge from the cars. A more detailed observation may be made dismounted from positions along the crest on either side of the road if necessary.

This observation having disclosed no evidence of enemy, the platoon leader orders the "point" car to proceed to the bridge to make a detailed inspection, and cross under protection of the platoon leader's car from "A." The "point" car advances slowly down the hill, and off the road to cross the open ground, and approaches the bridge from the left (west) flank. Halting his car, the car commander and a rifleman dismount near the bridge and go forward to make the inspection.

Having satisfactorily completed the reconnaissance and inspection, the "point" car then crosses the bridge, moves on to the turn at "C," observes the high ground at "D" and proceeds on to that point to cover the crossing of the platoon leader's car, which would remain on the ridge at "A" until the point car reaches "D." Succeeding cars of the platoon would then follow the platoon leader's car, by bounds, and the patrol could continue on its mission.

2. From his position on the hill at "A" the platoon leader observes the enemy fire from "D." Quickly estimating the situation, he orders the guns of his own car to open fire on the enemy position and signals for the 2d section to come up. Briefly explaining the situation, and pointing out the enemy position at "D," he orders the 2d section to move rapidly under cover of the ridge to a position approximately 500 yards east of "A" and attack the enemy flank and rear by fire from a covered position along the crest. This plan of action offers maximum support to the ambushed car without exposing the other cars of the platoon to the danger of being ambushed.

3. *B* is correct (See par. 635, FM 100-5).

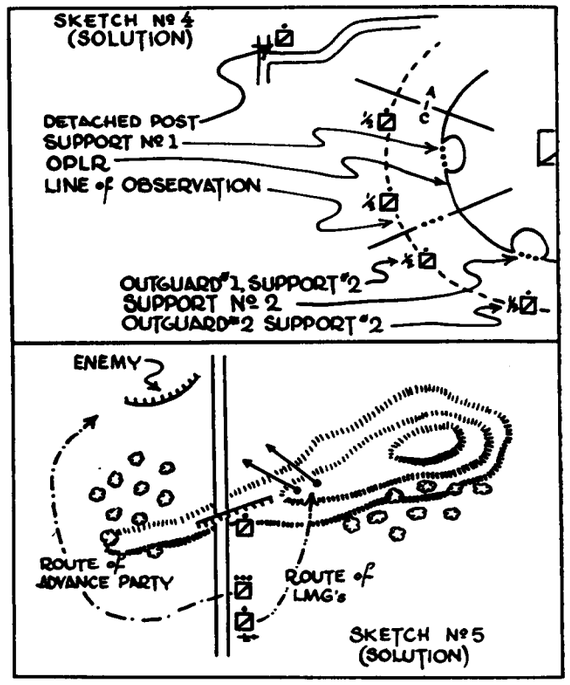
4. *a.* Gunner located at (3) would have "position defilade."
   b. Gunner *would not* be able to see his target or targets.

5. The advancing troop pushes forward to its objective, thus exposing the flanks of the enemy resistance. It then continues its assistance by bringing fire on, or attacking, the flanks and/or rear of the enemy position.

6. *a.* Main attack, secondary attack, reserve.
   b. (1) Main attack consists of the bulk of the force and strikes at the enemy's weak point.
   (2) Secondary attack consists of the lesser part of the force. It is employed to neutralize enemy fire and movement, to deceive the enemy as to the direction of the main blow, and to assist in the capture of the principal objective by seizure of adjacent key terrain.
   (3) The reserve—one-fourth to one-half of the command held out against unforeseen circumstances, to exploit the success of other attacking units or to extricate the command from dangerous developments.

7. *a.* Leading the second wave.
   b. Seventy-five to 100 yards.
   c. On the ridge.
   d. Split and form combat patrols on either flank.

8. (Sketch No. 4—solution.)



9. (Sketch No. 5—solution.)

Prompt aggressive action is required. The platoon leader with the LMG squad leader gallops up to the point, observes and estimates the situation. He instructs the corporal in command of the point to place heavy fire on the enemy patrol and informs him that an attack will be made against the right (west) flank of the enemy. He directs the LMG corporal to place his light machine guns on the ridge, as shown, and to support the attack. The platoon leader then rapidly returns to and leads his advance party around to his left and attacks the hostile patrol, mounted.

Book Reviews

REMEMBER PEARL HARBOR! By Blake Clark. New York: Modern Age Books, 1942. 127 pp.; $1.25.

The author, for the past twelve years has been Assistant Professor of English at the University of Hawaii. He knows the Pacific, has visited all of the Hawaiian Islands, and wrote the recent, much praised *Paradise Limited*—an informal history of the fabulous Hawaiians.

When the bombing started, December 7, 1941, Mr. Clark was at breakfast. What happened from then on he describes what he believed all Americans should know. Although submitted for censorship, it is the first full detailed account of what really happened on that fateful Sunday morning at Pearl Harbor when the infamous Japs attacked the United States.

Read this book, and you will *never forget Pearl Harbor!*

BOMBS AND BOMBING. By Willy Ley. New York: Modern Age Books, 1942 (second printing). 124 pp. $1.25.

Mr. Ley gives the reader what every civilian should know about all the various types of bombs—high explosives, incendiaries, gas, land mines, "bread baskets"—their contents and effects—what each is intended to do—civilian demoralization, military destruction—the bombardier's techniques and difficulties—bomb sights, psychological strains, level and dive bombing; and the various types of defense—AA guns, balloon barrages, air-raid wardens, etc.—in simple, clear words and line drawings, for the thousands of volunteers in the Civilian Defense Program and for the plain citizen who wishes to understand the news dispatches from Europe's capitals by an authority on explosives and incendiaries, the Science Editor of *PM*, Willy Ley.

WAR ECONOMICS. Edited by Emanuel Stein and Jules Bachman. Farrar & Rinehart, Inc. New York. 501 pp. $3.00.

The author covers just about everything that the subject implies.

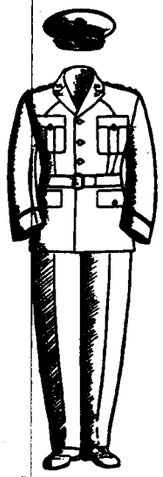
World War I for us did not last long enough for the American economy to feel the full impact of a prolonged war. We entered the present war, however, with a much greater awareness of the implications of war for our economic way of life; far more than ever before Americans now realize that a large-scale conflagration must have profound repercussions on every phase of economy; whole industries have to be organized, others disrupted and all find their activities subjected to government control.

This comprehensive volume describes the effects of war on the economy—our transition from a peacetime to a wartime economic organization—an analysis of the task of maximizing production of critical war essentials, etc.

This work is preëminent in its field.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Bring it alive with the



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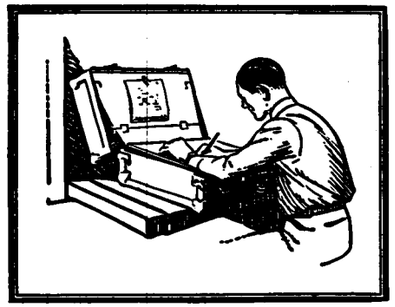

▶ **The troop commander has the unenviable position of being halfway from the top and halfway from the bottom, subject to the pressure of working both ways from the middle. Unless he assigns some clerk the full-time job of digesting the latest regulations and orders, some essential duty must suffer while he tries to keep abreast of the latest procedures.**

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FLIGHT IN WINTER. By John Clinton Adams. Princeton University Press, Princeton, N. J. 1942. 281 pp. $3.00.

This volume contains a lesson for America. It is a story of human fortitude. It is the heroic account of the Serbian Retreat of 1915.

This is a book for today, and especially for all who believe in the unconquerable fortress of the human spirit. They knew they were going to defeat, but the Serbs literally were men who preferred death in a battle for faith and freedom, to slavery. They followed a great tradition. They did not deny their heritage!

This book has a tremendous appeal to military readers.

HISTORY OF THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES, 1891-1941. By Colonel Edgar Erskine Hume, Medical Corps, United States Army. Washington: The Association of Military Surgeons. 371 pp.; Well Illustrated; $2.00.

The author deserves special recognition for this authoritative, comprehensive and painstaking achievement.

This volume belongs in the library of every member of the medical profession. It contains portraits of all of the Presidents of the Association from the beginning and all of the Secretaries and Editors of *The Military Surgeon*. Likewise, it contains many other pictures of what has transpired at the annual meetings of the Association and abstracts of the more important papers that have appeared in *The Military Surgeon*. Finally there is a General Index, from 1891 to 1941 inclusive, of the articles in *The Military Surgeon*. The only ones omitted from this Index are those of transient value of purely clinical interest. Everything pertaining to military medicine as a specialty is included. This apparently is the first history of the kind ever published for, or by a branch of the Army.

THE JAPANESE ENEMY, His Power and His Vulnerability. By Hugh Byas. Alfred A. Knopf. 1942. 107 pp. $1.25.

The author is the well known correspondent for *The New York Times*. He feels that it is only by a knowledge of Japanese ambitions, emotional orientations and institutions that we shall come to know the strength and vulnerability of the Japanese enemy. From his unique knowledge of the Japanese Empire he tells how the Japanese mind works, who are the real rulers of the nation, what is their plan for this war, and what we must do to defeat our enemy.

"This is a book about the essential spirit and social structure of our Pacific foe rather than a book of facts and figures."

JAPAN'S INDUSTRIAL STRENGTH. By Kate L. Mitchell. Alfred A. Knopf. New York. 1942. 140 pp. $1.50.

This is an authoritative work prepared under the auspices of the International Secretariat, Institute of Pacific Relations. It reveals the extent to which we have underestimated Japanese power and suggests what we may expect in the future. Completed only a few weeks before the outbreak of war, it embodies the latest information on the subject from both Japanese and English sources.

It is a compact and useful handbook.

MILITARY LAW AND DEFENSE LEGISLATION. By A. Arthur Schiller. West Publishing Co., St. Paul, Minn. 1941. 700 Pages. $5.00.

During war the lawyer is constantly faced with problems that are tied up with military law or the related fields of emergency, defense, or war-time legislation. The law schools are beginning to meet these conditions by adding courses on military law. This up-to-the-minute text is designed for just this purpose. It is a teaching book that adquately covers the field.

The book opens with a consideration of the constitutional extent of military power. Then follows a chapter devoted to the organization and composition of the Army of the United States. Chapter III discusses military law proper and opens with a survey of the sources of military law, followed by cases devoted to military jurisdiction and its relation to civil jurisdiction. The final chapter is devoted to the civil rights of the soldier, based primarily on sources relating to the Civil Relief Acts of 1918 and 1940.

The Articles of War, the Selective Training and Service Act of 1940 and the Soldiers' and Sailors' Civil Relief Act of 1940 are to be found in appendices, while indexes of cases, opinions, legislative and administrative materials, and a subject index complete the whole.

ARMY TALK, The Language of U. S. Soldiers. By Elbridge Colby. Princeton University Press. Princeton, N. J. Illustrated. 232 pp. $2.00.

This book is for the friends and relatives of soldiers so that they might understand the strange and colorful means of communication known as "army talk."

Some "cleaning up" of the language obviously was necessary for publication, but the author retains the rich human interest and spirit of the U. S. Army.

Army Talk includes slang terms of both ancient and recent origin, official and technical terms that have passed into general army speech; also, new terms since 1940 that have not yet gained general acceptance.

This is the first serious effort to present not merely a casual glossary but a "familiar dictionary" of the expressive speech or jargon of the American soldier.

SOME COMMON DISEASES OF THE HORSE. By George H. Conn, B.S.A.H., D.V.M. Orange Judd Publishing Company, Inc. New York. 1942. Illustrated. 187 pp. $1.50.

While this book is directed mainly to civilians who own farm and saddle horses, it is also useful to the mounted services. It contains brief and practical advice on the nature, cause and treatment of disease, the common ailments and the care and management of horses when sick. In other words, it is an excellent elementary course in hippology, and other relative material.

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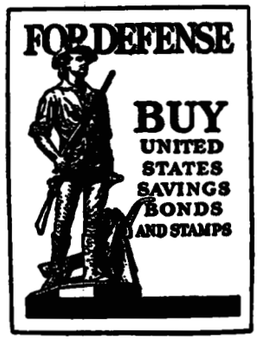

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FACING REALITIES

★ ★ ★ ★

The Cavalry Journal consistently has endeavored to impress upon *everyone* the urgent necessity of utilizing horses in war—commercially and militarily.

The United States has the greatest horse and mule reserve in the world!

It seems utterly incredible that the general public, in particular, seemingly nourishes an antipathy for the horse, possibly because of the general impression that the "horse and buggy days" smack of obsolescence in our now over-motorized age. Where is our true sense of values? The automobile has been publicized and propagandized in the civilian mind to such an extent that the use of the horse in any manner now seems completely beyond the mental range of the public at large.

Like it or not, the present transportation problem in the United States is critically acute and is becoming more so, daily. The rubber-gas crisis already has arrived and found commercial motor transportation facilities totally unprepared for the emergency, although horse and mule power obviously is the solution to the short-range transportation problems. Related concerns, therefore, such as vehicle, harness, shoeing shops, livery stables, etc., must *set the stage* now for the full commercial use of animals.

As to the military use of animals, the contemporary "victorious" armies of Germany, Russia and Japan have used animal transportation wherever and whenever possible to conserve gasoline and rubber. This is just plain common sense; it permits a more balanced use of resources. Horses are employed in combat because *only* horsemen can quickly and thoroughly search out all manner of terrain especially under adverse weather conditions. In combat *nothing* can replace the horse for the purpose for which his use is intended!

The *Jeep* is our most valuable motor vehicle *for reconnaissance,* but as a transport vehicle it unquestionably is the most extravagant of all motor trucks in proportion to the gas and rubber expended.

It is a proven fact that the commander who possesses good cavalry divisions has a distinct advantage over one who has none. Witness, Russian cavalry at Rostov—the first major German retreat along the Russo-German Front—November 28, 1941!

Let us face realities! It should never be charged that for lack of foresight *we* might have *too little* Horse Cavalry maintained at peak efficiency—and have it arrive *too late*—should the Axis strike south of our southern frontier in conjunction with a thrust to our north!

The UNHOLY ALLIANCE

"THERE MUST BE SOME EXPLANATION!"

"WAR OF NERFS! JAWOHL!
–BUT AMERICANS *HAF* NO NERFS!"

AXIS ARYAN ALLY.

EDITOR'S NOTE: *These cartoons, from his book "The New Order," are reproduced by courtesy of the internationally famous Polish artist, Mr. Arthur Szyk.*

Japanese Grand Strategy

IN 1909, Homer Lea, the frail American hunchback who became a Lieutenant General in the Chinese Republican Army, startled the military world with his amazing book, *The Valor of Ignorance*,[1] proclaiming Japan's war-like intentions toward the United States. In extraordinary clarity, by word and map, he outlined the inevitable conflict and the course that Japanese aggression would take. By some, he was acclaimed as the greatest military mind of the century; but by the majority he was declared a visionary, denounced as a war-monger—just another crack-pot! In Japan, however, his book was *required reading* by officers in all the services.

Today, military prognosticators are uncomfortably aware of the fact that Lea's *Estimate of the Situation* was sound, as evidenced by Japan's close adherence to his prophecy.

* * *

Japan's military and naval strategy since December 7, 1941, in general, has been well pictured by the press, but the questions that are asked most often are: "What *lies behind* Japan's strategy?" "Why are Japan and Germany allies?" "Where does Russia fit into the present picture?" To reach the root of such considerations one must turn back to the late 1920's and early 1930's when Japan's policies affecting the present situation became definitely crystallized.

In perusing the vast quantity of data on this subject we found a book in the Army War College Library which probably is the most revealing and enlightening volume available, i.e., *When Japan Goes to War*, by O. Tanin and E. Yohan (co-authors also of *Militarism and Fascism in Japan*). Unfortunately, this book, published in 1936, is now out of print, but *International Publishers*, New York, in fine coöperation, authorized us to present a condensation, mainly by means of excerpts, of the "meaty," 55-page introduction, which throws considerable light on the strategic events leading up to the present conflict—as follows:

Background

The program of Japanese aggression—i.e., the establishment of the undivided rule of Japan throughout colonial Asia, usually expressed in the terms "Asia for the Asiatics," "Pan-Asia," or "The sacred mission of Japan to preserve peace in Asia"—was frankly enunciated in the late 1920's and early 1930's, not only in numerous articles by Japanese journalists but in a series of state documents.[2]

A study of the history of Japanese aggression from the time of the Sino-Japanese war of 1894-95, and an analysis of the last period of that history, 1931-34, reveal that the continental and maritime trends of Japanese aggression were so closely interwoven, that they could not be regarded in isolation from each other, and that every success achieved by the one trend inevitably necessitated further steps by the other.

Japanese plans, however, were not confined to China. The time had not yet arrived for armed force, but the prerequisites for the further struggle for the extension of Japanese positions were already being created.

While the tentacles of Japanese imperialism stretched towards the Soviet Far East, to the Mongolian People's Republic, to the Soviet Republics of Central Asia and to Baku, to the Panama Canal, Hawaii, Singapore and Suez, intense war preparations were made in Japan, in Manchuria and in the mandatory islands. The Japanese stopped at nothing in ruthlessly pushing their program. With bomb and revolver the militarist removed from his path not only former Chinese allies (Chang Hsueh-liang and Wu Ching-cheng but even representatives of the Japanese bourgeoisie suspected of lacking patriotism (Hara, Hamaguchi, Inukai, Dan, Inouye, Muto and others).

Everyone remembers that the success of Japanese shipping and Japanese foreign trade throughout the Pacific during the World War stimulated Japanese imperialism to attempt to seize the wealth of mining and raw materials in Shantung. The policy of the "Twenty-one demands" and the Nishihara loans in China developed simultaneously with the preparation, and later the enforcement, of intervention in Siberia.

In the beginning, the occupation of Manchuria in 1931 was followed by the advance of Japanese troops in Chingchow, the attempt to seize Shanghai, the increase of Japanese activity in North China, and the increased pressure upon the Nanking government. To the extent that Japanese imperialism consolidated its positions in Manchuria; its propagandists talked more and more about the further plans of Japanese aggression. In 1932 the *Japan Times*, semi-official organ of the Japanese Ministry of Foreign Affairs, wrote:

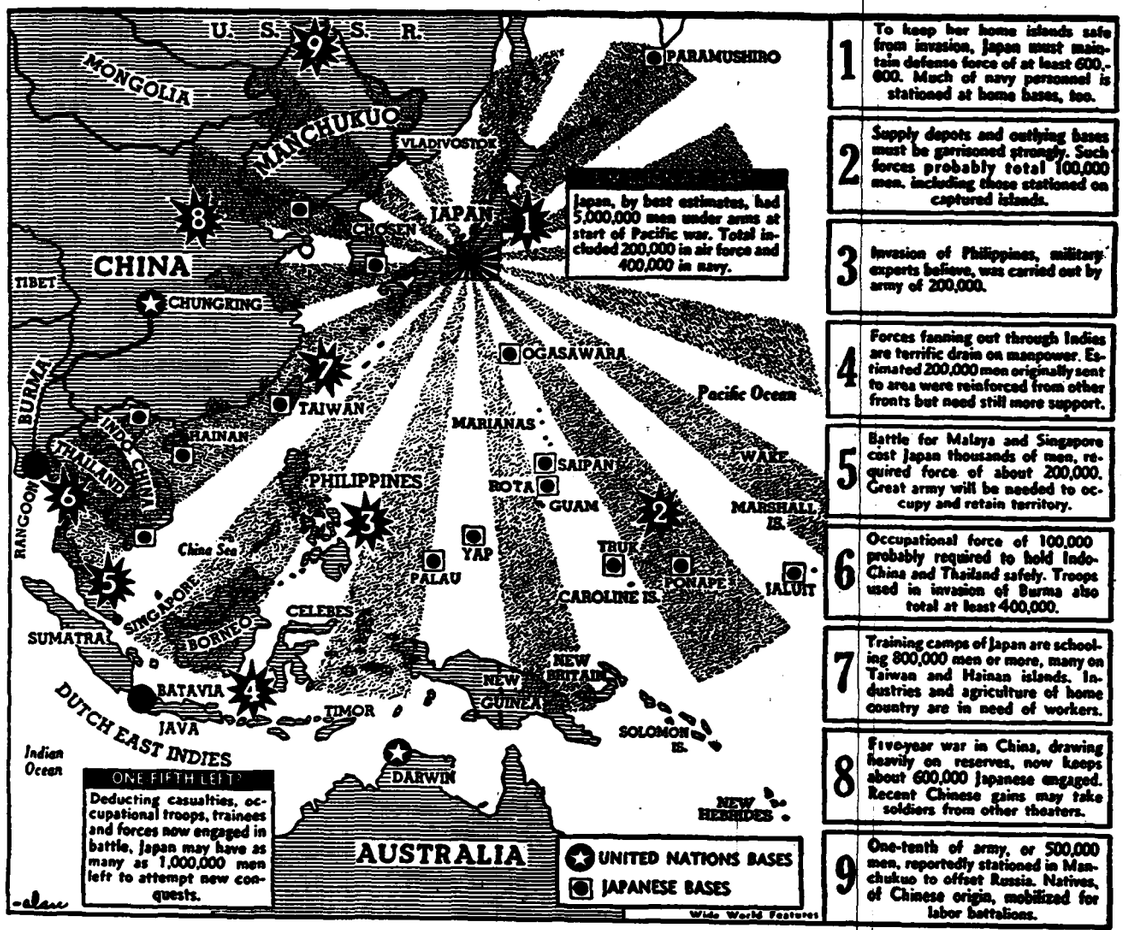
"Manchuria is the life-line of Japan, but the source of her raw materials and the market for her manufactured goods is far to the South of this territory, in the regions which constitute South Asia, the Malay States, the Dutch East Indies and the South Sea Islands. . . ."

(*Japan Times Supplement*, June 30, 1933): "Japan's feeding line lies in South Asia. . . . There, vast territories and enormous products await the Japanese people. The great natural resources of the South Seas are to feed the Japanese people. . . . There is sufficient room in the South Seas to feed 500,000,000 people. . . ."

In the pursuit of these aims all methods were employed, such as the negotiations conducted by Mr.

[1]Harper and Brothers, New York. Reprinted, 1942.

[2]Baron Tanaka's memorandum of 1927 (usually referred to as *The Tanaka Memorial*); the declaration of the Japanese government of April 17, 1934, in which they virtually demanded the establishment of a Japanese protectorate over China; and the pamphlet published by the Press Bureau of the Japanese Ministry of War in October, 1934, in which Baron Tanaka's plans were formulated in greater detail.



Matsuoka in 1933 with the Dutch government for the creation of Japanese air bases in New Guinea and with Portugal for the purchase of Macao and the island of Timor, and the extension of Japanese oil and rubber concession rights in Borneo. In this light we must regard the dispatch of an Investigation Commission to Afghanistan, following which, Japanese instructors were invited to teach in Afghan military schools. Through the marriage of an Abyssinian prince to the daughter of a Japanese noble the Japanese were enabled to equip airdromes in Abyssinia and to receive a cotton concession there. In conformity with a similar plan young Arabs were invited from Egypt, Syria, Palestine and Hedjas to be educated in Japan at government expense; Japanese helped draft a program for the industrialization of Irak; new commercial agencies and companies were established in Yemen and in Turkey, thus bringing Japanese strongholds and influence nearer the Suez and Baku, respectively.

Most profitable of all, of course, was the dumping of hundreds of millions of *yens* worth of Japanese goods (the product of slave labor) on these new colonial markets, because this brought commercial profit and created the grounds for strengthening Japanese military-political influence. This advance was so obvious that even German writers, who were not in the least inclined to expose Japan's military-political plans, remarked that "Japanese trade is a material and important state-political factor. Her aim can be clearly traced: Great Britain, principally, the Asiatic part of the British Empire, and the U. S. S. R.; Great Britain must be systematically squeezed out of the Asiatic colonies and dependencies, and strongholds must systematically be established in the countries bordering on the U. S. S. R."[3]

It will be useful here to recall that this is exactly how Baron Tanaka presented the problem in his memorandum. He wrote:

"In a certain sense, Manchuria and Mongolia are key positions by holding which we can seize the wealth of

[3]Captain Wagner, "Der Politische Charakter des Japanischen Handels," *Deutsche Wehr*, September 20, 1934.

the whole of China. After this we shall subjugate India, the South Seas, Asia Minor and Central Asia, and finally Europe."

The German allies of Japanese imperialism were more familiar with the Japanese plans than any one else. For example, Dr. F. K. Practorius in an article in *Deutsche Wehr*, September 20, 1934, entitled "Die Wehrpolitische Lage der Mandschurei," wrote: "In history great aims are always achieved only by the appropriate means. In the present case it is not only a matter of materially possessing the Chinese Eastern Railway but of political domination in the Far East, in the whole of Asia. Japan has two roads to domination in Asia: She can either confine herself to the struggle for China, leaving other countries, particularly Russia, aside, or surround Manchuria right up to Turkey, and supplement this with domination in the Eastern seas. In the East this will be a line from Manchuria, through Mongolia, Turkestan, Afghanistan and Persia to Turkey, which will mean completely eliminating the influence of Russia and, ultimately, the complete elimination of the American and British strongholds in the East. Many things are urging Japan towards the latter far-reaching aim. Of course, the complete command of Manchuria is a condition precedent for this." (Note: Voluminous statistics document this statement.)[4]

In the pamphlet of the Japanese Ministry of War, we read in this connection:

"In China there is a group of so-called adherents of Europe and America, which dreams of taking advantage of the crisis of 1935-36 to seize Manchuria, and is banking on the fall of Japan's political positions in Eastern Asia. Such activities, in the final analysis, are mistaken from the point of view of the future of China herself and will lead to disorder in the Far East. Hence, in no circumstances must they be tolerated by the Empire. However, these activities will increase or diminish according to whether or not the naval forces of Japan will be crushed by the American naval forces. This is clearly seen from the experience of previous naval conferences, when on every occasion the Empire was subjected to the pressure of Great Britain and America an anti-Japanese movement sprang up in China; and on each occasion intervention became necessary.

"What does Japanese intervention in China proper mean? It means war in the Pacific; it means that the United States and Great Britain must inevitably be involved in the struggle. . . . ."

Japano-German Sympathy

It is generally known that German fascism openly expressed its sympathy towards the Japanese militarists. The "coördinated" *Wirtschaftdienst* wrote:

"We Germans have no reason whatever to condemn Japan when she resorts to expansion to satisfy the needs of her state and people. 'Asia for the Asiatics' must no longer be an empty phrase; it must become the fulfillment of a definite demand. If we take the speech Adolf Hitler delivered in the Reichstag on May 17th as the guiding thread we will understand that from the point of view of German National-Socialism we can raise no objection to this policy of 'Prussia of the East.' Over there, in the Far East, a young, vigorous and virile nation is obeying the law of blood and race."

Matsuoka, in the name of Japanese imperialism, as readily blessed Hitler and the Third Reich's plans of conquest, in a (1934) book. He wrote:

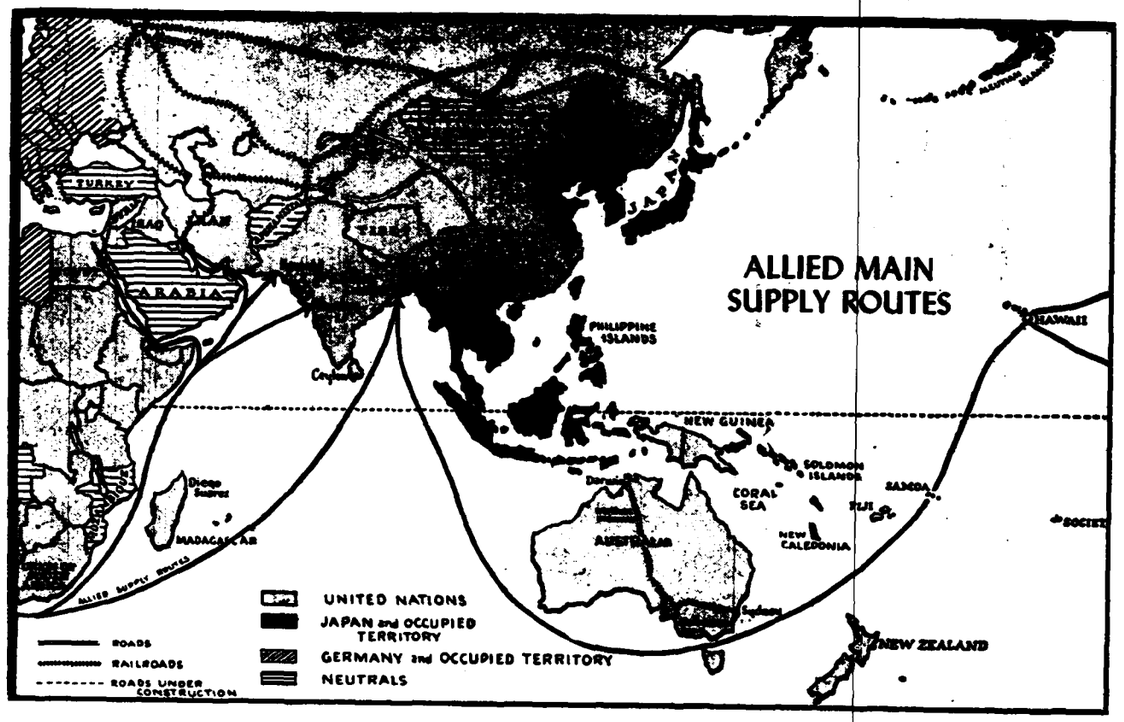
"The German nation mourns the loss of Alsace and Lorraine. Even if Hitler had not come into power the Germans would never have abandoned the idea of restoring these districts to Germany. The Germans are indignant at France for its possession of the Saar and Poland, for its possession of Upper Silesia. By race and even by history these two regions belong to Germany. Hitler's policy is disturbing international peace: but Germany, groaning under the heel of the Versailles Treaty, has no other way out. Hitler is dreaming of creating a Third Empire, by which he means a Great Germany with new territorial frontiers."

From the moment Germany, following Japan, withdrew from the League of Nations, both countries, as pioneers in a new war for the repartition of the world, began to plan practical coöperation. This is not confined to the diplomatic field, as witness the agreement whereby Manchuria was to supply beans to Germany in exchange for the manufactures of the German chemical-war industries and for armaments to be supplied to Japan. We can take it as proved that Germany helped Japan to reëquip her munitions industries and, in particular, in organizing the manufacture of aircraft.

Undoubtedly, German National-Socialists did not do this "for the sake of the beautiful eyes" of the Japanese militarists. Kurt Hesse, in his book, *The Hour of Destiny of the Old Powers*, indicated the hopes they placed upon the outbreak of a Japanese anti-Soviet war. He wrote:

"If Russia is tied up in the Far East it will immediately create a situation in which her Western Neighbors Rumania and Poland, would try to realize their national ideals, notwithstanding pacts of non-aggression like those which were recently concluded between Warsaw and Moscow. But then, Germany, too, will be confronted with the question of rectifying her own Eastern frontiers. After that, the whole of Europe will be set going. . . . If the world today admits the justice of the Japanese demands (and we must say at once that there is no other alternative), the conclusion must be drawn that the place in life that we need, must also be recognized."

[4] In 1935 numerous books dealing with the inevitability of an armed struggle for the command of the Pacific appeared in Japan. The authors of *When Japan Goes to War* cite as examples: Masudzaki Koko, *The Forthcoming Naval Conference and the Navies of Japan, Great Britain and the United States*, with a foreword by Okada and Uchida; Ishimaru, *The Climax of the Antagonisms in the Pacific*; Hirata Sinsaku, *In the Name of 1936*: Vice-Admiral Sosa, *Japan and the Naval Conference of 1935*: Ishimaru, *The Inevitability of an Anglo-Japanese War*.



Other German National-Socialist writers declared still more frankly that their object in banking on Japanese aggression was to weaken the European Powers and thus to clear the road for German aggression. This was expressed with inimitable cynicism by von Leers in *Die Tat* as follows:

"We do not idealize in the least the Japanese. Nor do the Japanese idealize us. Nevertheless, there are very important points of contact between the two countries and the two nations, certain real common interests and a spiritual kinship. In politics we cannot expect all our friends to acquire blue eyes and to become blondes to please us. Politics are a matter of real interests of nations and have little in common with race kinship. From the standpoint of our position we are interested in the prosperity of every non-European Power. Every such Power will bind the forces of our neighbors and thus will release the German forces. The ascendancy of Japan, which is the strongest non-European Power, means strengthening the positions of Germany, particularly since the Franco-Soviet rapprochement." (September, 1934.)

Anti-Soviet Considerations

As to Russia, the nature of the plans entertained by the aggressive wing of Japanese imperialism can be judged by a statement in late 1935 in the semi-official Japanese newspaper, *The Harbin Shimbun*, mouthpiece of the General Staff of the Kwantung Army:

"Policy towards Russia must be built up on the understanding of the slogan: Asia for the Asiatics. The value of the Russians for Asia is beneath consideration, and we emphatically deny that the Red Russians have any economic and political culture, or that they have made any contribution to such culture. If the three great elements of the world are Europe, Asia and America, then the thing called Russia is absolutely superfluous. We declare that our policy is to eliminate Red Russia from Asia and to clear Asiatic territory of the adventures of Red Russia. There are certain types of people who talk about the independence of Siberia; others in their sleep see visions of the independence of the three regions, with their sparse population and inconvenient geographical position, can create an independent state and exercise independence. In the epoch when Japan and Asia were hemmed in, when the light came from the West, Asia perhaps needed the Russians; but now, when asphalt roads have replaced the old deep-rutted roads, the Russians are superfluous baggage. A people which lacks the ability and forces to create culture and civilization has no future except the road of doom and collapse. The land East of the Urals and the Altai is Asia. It is the place for the expansion of Japanese culture. In that Northeastern corner of Asia the influence of Japan must become supreme, and Japan must strive at least for the lands East of the Baikal. This is the slogan that is before the eyes of the Japanese. Our policy towards Russia is expressed in that slogan. . . ."

The real reasons, however, for the anti-Soviet activities of the ruling circles in Japan were formulated in a resolution previously adopted at a meeting of "the representatives of business circles" convened in the autumn of 1933 by Mr. Hirota, Japanese Minister of Foreign Affairs, to discuss the problem of Japano-Soviet relations. The resolution read in part:

"The main policy towards the U.S.S.R. was set forth in the Japano-Soviet Convention concluded in Peiping. In view of the existence of this convention a pact of non-aggression is superfluous; but if the U.S.S.R. desires to conclude such a pact owing to the changed situation in the Far East and the creation of Manchukuo, Japan may agree to conclude one if the U.S.S.R. agrees to the following conditions: (1) The absolute cessation of the revolutionary movement in the Far East, particularly in Manchuria and Japan. (2) The withdrawal from the Far East, and particularly from the frontiers of Manchuria, of all military contingents. (3) The repeal of all laws imposing restrictions on Japanese enterprises in the Soviet Far East; in particular, to carry out fair measures at the fishery auctions, to abolish import duties on all articles required for the fishing industry, and to modify the regulations governing the hours of labor; in regard to oil concessions, to conclude an agreement concerning the sale of oil in Japan, to prolong the period of oil prospecting, to lengthen the working day, and to modify the inspection regulations; to modify the regulations and control of the production of coal. (4) To permit the opening of new Japanese enterprises in the Far East (Soviet) and, in particular, to grant Japan lumber and mining concessions. (5) To develop Japano-Soviet trade and to abolish its one-sidedness so that as much, or more, is purchased from Japan as Japan purchases. (6) The immediate surrender of the Chinese Eastern Railway."

This resolution is supposed to enumerate the terms of a pact of non-aggression; in reality it is a masked enunciation of a program of war containing demands which reflect the interests of different strata in the camp of the ruling classes of Japan. But that only enhances its sig-

Speaking of the Russian fortified areas created on the Far Eastern frontiers, General Koiso, Chief of the General Staff of the Kwantung Army, said:

nificance!

Restraining Influence

"We did not suspect that the Russians were capable of performing such perfect and rapid work. We are surprised at their ability to build, and astonished at the sums they have spent on these fortifications."

From this necessarily followed attempts to compare Soviet achievements in strengthening its defenses with the military strength achieved by Japan. It must be said that in a number of cases the achievements in regard to reëquipping and reorganizing the Japanese army have been understated. Such was the opinion expressed by Nagaoki, who is regarded as an expert on Asia. He said:

"The military forces of the U.S.S.R. greatly exceed the forces of the Japanese army at the present time. It is particularly important to bear in mind that modern warfare is scientific warfare, and, however well troops may be trained ideologically, they cannot fight against the forces of physics, chemistry and mathematics. To count on victory in a hand-to-hand struggle against excellent airplanes, tanks, machine guns, etc. would be too much to expect of soldiers, however brave they may be.

"Moreover, not only the question of armaments is important. Modern war is not only a struggle with the aid of armaments; it is also rivalry between the economic power of countries. As the Japanese dislike Communism, they dislike the successes of Communism in the U.S.S.R. Hence the tendency to deny the fact that Communism in the U.S.S.R. has had a certain amount of effect. This is not the time to conceal the actual situation in the U.S.S.R. out of fear of Communism." (*Osaka Mainichi*, March 15, 1934.)

Although this may be an extreme opinion, the Red Army's superiority in aviation, mechanization, infantry, artillery and cavalry was very widely admitted in Japan. This opinion was expressed by the members of the Japanese Upper House early in 1934 in an interview with the then Minister of War, Lieutenant General Araki. They said: "It is the duty of the soldier to die on the battlefield, but we do not wish to die in our homes from air bombs dropped by the Soviet airfleet."

As an example of "glancing back at the U.S.A.," we will quote the opinion of a Japanese naval officer who said:

"We will try once again to depict the international situation that will precede the great world war.

"If we can assume that Great Britain is doing all she can to drag Japan into a war against America we can be quite certain that America, on her part, in order to insure victory over Japan, is burning with the contemptible desire to turn the latter against the Soviet Union.

"For example, we, of course, know the source of the rumors that have been persistently spread everywhere recently about a Japano-Soviet war. But even in our military circles we often talk about the impending great Japano-Soviet war. What will happen to Japan if she is compelled to wage war against the U.S.A. and U.S.S.R.? Will she not be in the position of Germany during the great World War? Surrounded by the enemy at the front and in the rear, and not nearly so well prepared as Germany was before the World War, will Japan be able to fight?

"Probably the Soviet Union would like to pick a quarrel; in that case we shall have to operate simultaneously in the East and West.

"There is certain order in military operations. One's forces must be concentrated and hurled against the principal enemy, against the main target. Undoubtedly that main target is the U.S.A.

"Our plenipotentiary, Matsuoka, on his way to Geneva, stopped in Moscow and proposed that the Soviet

government conclude a pact of non-aggression with Japan on the condition that the U.S.S.R. recognizes Manchukuo. Matsuoka says, 'Of course there are a number of bad sides to the position taken by the Soviet Union, but those who are opposed to concluding a pact with the U.S.S.R. evidently do not realize the seriousness of the danger of 1935-36.'

"However, we are not in the least afraid of the Soviet Union. On the contrary, we know from reliable sources that it is afraid of Japan.

"Meanwhile, America, weighing up the situation, has offered her coöperation to Soviet Russia, which the latter has accepted.

"In this connection it may be said without exaggeration that we must not belittle Russia. She may play the rôle of the wolf stealing in by the back door. It is necessary also to strengthen our friendship with the U.S.S.R., otherwise a Japano-Soviet war will break out.

"If, however, Japan fights the U.S.S.R., the U.S.A. inevitably will intervene. It cannot be said with certainty whether, in the final analysis, a second world war will break out, but we can be quite sure that in this war Japan will undergo very severe trials."

Japanese Militarists' Views

There is ample evidence to substantiate the belief that the Japanese plan in 1933-36 definitely contemplated war with Russia prior to becoming involved with America:

"During the past few years (early thirties) Japanese military and naval circles have attached increasing importance to the Northern direction as the most dangerous of all possible directions of operations in the future war in the Pacific. It is believed that with the present relations of naval forces and naval bases of the U.S.A., and of Japan, the Japanese navy would enjoy a number of advantages in the Central and South Pacific. These advantages arise from the fact that the principal bases of the United States navy are extremely remote from Japan and the Asiatic mainland. The (ship-route) distance from Panama to Pearl Harbor, (Honolulu) and from the latter to the coast of Japan is 10,800 miles. Hence, a fleet operating in this area would need a cruising range of 25,000 miles merely for a return voyage, allowing a few thousand miles in reserve for maneuvering purposes. Even with bases in Hawaii, the cruising range would have to be about 12,500 miles. . . . America cannot use Guam and the Philippine bases, which are nearest to Japan because, being insufficiently fortified, they can be captured by the Japanese fleet before considerable American naval forces can be concentrated there. Moreover, the approach to these bases from the American coast is threatened in front by the Bonin and Marianas Islands, and on the flank by the Caroline and Marshall Islands, on which, in violation of international agreements, Japan constructed submarine and air bases and anchorage for its surface fleet. . . .

"The position in regard to the Northern route is different. First, the distance from the coast of America to the coast of Japan is considerably shorter—not more than 3,000 miles—and shorter yet from the last group of the Aleutian Islands. A fleet operating here will need a cruising range of 8,000 miles only. Moreover, this route is not intersected by Japanese mid-ocean bases. . . . Japanese naval experts therefore believe that the security of the Northern route is now the most important problem in the plan for an anti-American war in the Pacific. . . ."

During the period of Japanese intervention in the Soviet Far East, General Saito wrote: (*Japan and America*).

". . . Look at the map and study the position of Petropavlovsk Bay, which lies nearer to the Southern end of the Eastern part of the Kamchatka peninsula. If a powerful American fleet establishes itself there, the command of the North Pacific will pass to America. Even if our Empire possesses three squadrons of eight battleships and eight large cruisers, our navy will be unable to do anything there. . . .

"Only one conclusion can be drawn from this, i.e., the U.S.S.R. must be dislodged from the Pacific Coast and the latter seized and fortified before the outbreak of the Japano-American war. *Hence, war against the U.S.S.R. must precede war against the U.S.A.*

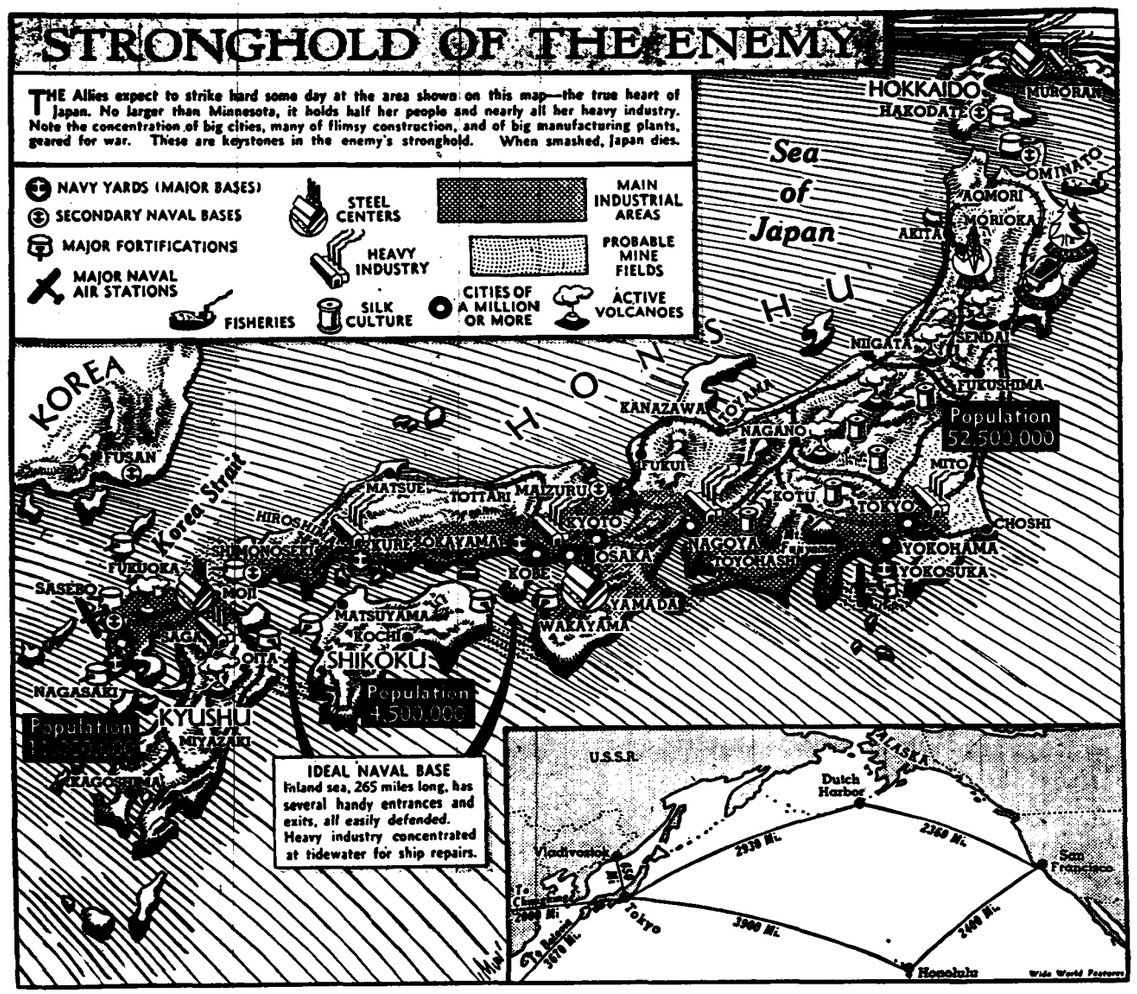
"Thus, before entering into a decisive conflict with the U.S.A. Japan must defeat the Soviet Union and in that way so fortify her position as to be able to come out fully armed with a secure economic base and advantageous strategic positions in the impending war with the U.S.A. for the command of the Pacific."

This argument is accompanied by demagogic "proof" that Japan, generally speaking, could agree, if only temporarily, with the United States on disputed questions, whereas it was impossible to come to an agreement with the U.S.S.R.

The Fascist writer, Furuya Eichi, stated:

"The U.S.S.R. has reached the very gates of Japan. It is the U.S.S.R. that manipulates the Communist Party of Japan like a puppet and is destroying her (Japan's) pillars of state. This rôle cannot in the least be compared with America's. America is a powerful country; the U.S.S.R. is not such yet. But when the latter has settled its internal position and becomes powerful it will cause Japan incomparably more trouble than America. The conduct of America is more or less that of a gentleman; the U.S.S.R., however, is Japan's mortal enemy.

"America wants Japan to be stronger than the U.S.S.R. in the Far East. It is not in the interest of America to crush Japan entirely because she knows that there is no other power that could combat Communism, which has spread over the continent (of Asia). Is it not clear, therefore, why Russia is Japan's principal enemy? . . . Nevertheless, the problem of maintaining its positions in China is not only a problem that confronts Japanese imperialism in its struggle against the U.S.A.;



it is the premise of success in the struggle for the command of the whole of the Pacific, because both for a war against the U.S.S.R. and for a war against the U.S.A. Japan must utilize a part and even a great part of China."[5]

From these general considerations the leaders of the militarists proceed to the concrete "dangers" threatening Japan from the side of the U.S.S.R., and in this connection they enumerate the well known objects of seizing the Soviet Far East.

Germany also adds stimulus to this thesis:

". . . From this the conclusion is drawn that frustrating the Five-Year Plan and provoking anti-Soviet war must be complementary phases of Japan's drive against the U.S.S.R. Every year's delay in this drive enables the Soviet Union to grow stronger and consequently, in the final analysis, will make the realization of Japanese plans impossible. . . . Japan must wait no longer, because the measures adopted by the U.S.S.R. in the Far East may strengthen its position to such an extent as to nullify all chances of Japanese success." (*Militär Wochenblatt*, No. 34, 1934.)

The Japanese militarists leaders, however, knew perfectly well that even their capture of a section of Soviet territory would not constitute the decisive defeat of the enemy. As S. Hirata, (*Bungei Sindsyu*, February, 1933) correctly wrote:

"If Chita and Irkutsk were vital centers of the Soviet Union the situation would be different; but Far Eastern Siberia is a second-rate raw material territory of the Soviet Union, and a battle on its frontiers would not represent a crushing blow. Even if it suffered several defeats in succession, the Red Army would not be disabled. . . ."

[5] "Who Is Japan's Real Enemy?" in *Nihon Oyobi Nihonjin*, May, 1933

Editorial Comment

The authors of *When Japan Goes to War* then, in five succeeding chapters, proceed carefully and exhaustively to analyze the natural resources of Japan and her possessions, the nation's productive and manufacturing capacity, *as of 1936*. They conclude that after the first year of a *major* war the strain proportionately will become unendurable for Japan. Since 1936, we are well aware of the fact that Japan has supported five years of undeclared war with unconquerable China. And while Japan recently has acquired considerable territory in the South Pacific area and now is a *have* nation, her material losses probably have equaled if not exceeded her immediately usable gains. We should not underestimate, however, Japan's organizing capacity.

The answer to the present predominant question—Why did Japan change her 1936 plan to attack Russia and, instead, drive initially to the South and East leaving her "back door" open to Russia and her "skylight" open to the United States—has not been made public; but Germany's long existing influence over Japanese strategic operations is only too evident.

Japan unquestionably made her momentous decision to attack the United States when Germany was threatening Moscow and believed that Hitler could contain Russia on the European Front, making it unprofitable for Russia to open an Asiatic Front against Japan. In this connection it must be recalled that the momentum for Japan's initial attack of December 7th was well under way prior to the Battle of Roskov (Russia's southern flank) on November 28th, which became a *turning point in the German-Russian conflict*. To strike Russia prior to a Japano-American war was undoubtedly Japan's original intention. But due to her "Unholy Alliance" with the Nazis and her premature assumption, in the fall of 1941—that Moscow would fall to Germany, and that much of the strength of the Soviet would be curtailed—her change of plan was precipitated. It seems likewise indisputable that Japan was forced into the war *ahead of her own original schedule* and in a direction that she had planned for her *second* phase of conquest.

To be sure, Hitler's publicized rendezvous with Japan in India, if successful, might have accomplished both of Japan's objectives: by furthering Japan's effort in China and in crippling her long despised enemy, Russia, thus enabling Japan, at her leisure, to realize her ancient ambitions in Soviet Asia.

Japan, for her part, has dominated much of the South Seas, has cut the Burma supply line to China, and now threatens India; while Germany, behind schedule, still strives to interrupt the United Nation's supply lines to Russia and Britain, even at the expense of exposing her flank to the Allies and of creating a dreaded Western Front.

On the other hand, neither Germany nor Japan is willing to wholly trust the other. Germany now appears more concerned about her own selfish hide, while Hitler's obviously waning affection for his Axis signatories and Quislings is significantly important.

In view of the present war situation, it is quite possible that Hitler, having double-crossed Italy, France, and other countries under his "benevolent protectorate," has also played Japan for a "sucker" in his effort to divert the non-Axis effort from Germany to the East. Japan, on the contrary, in a deliberate desperate effort to justify her military expenditures and unify her internal factions probably believed that she must strike "now or never" and was willing to *gamble* her fate on a possible quick grab of the South Seas territory, Burma and India before America, China, Russia, and Britain could assemble their means to intercede. From the point of view of *grand strategy* it appears, at the date of this writing, that Japan has more accurately estimated the situation than has Germany—with the possible exception that she definitely has underestimated the non-Axis long-term war potentiality.

Japan, in spite of her initial successes, already is overextended and her war machine certainly has not survived the ordeal without considerable wear and tear! China, despite the drain of her long war, is still a power with which Japan must reckon. What if Russia decides to anticipate Japan's ultimate intentions and beat her to the punch? *Russia now finds herself in a key position!*

In any event, *time* will work against Japan. Finally, when the full impact of the non-Axis war resources can reach and strike her, the *Rising Sun* inevitably will set.

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Soviet Cavalry Operations

By Colonel P. Karpachev*

THE use of powerful machinery and mechanized weapons in battle is characteristic of modern warfare. In modern war, engines have influenced tactics and modified the order of battle. However, it has not by any means diminished the importance of the cavalry.

The cavalry if plentifully supplied with machinery and mechanized weapons is still powerful, and is not only capable of defending itself against tanks and armored cars but can destroy them wholesale. This has been convincingly demonstrated by the Soviet Cavalry in these nine months of war.

Both in the early defensive state of the war and during the vigorous counter-offensive, the action of Soviet cavalry discredited the theory of certain shortsighted military experts that the days of the cavalry as a fighting arm were over.

In the first stages of the war when the enemy's panzer troops were pressing eastward into the heart of our country, the cavalry formations acting in conjunction with other arms heroically fought to stem the fascist assault. They stubbornly defended every inch of ground and inflicted heavy losses on the enemy.

The main duties of the Red Cavalry were as follows: They struck at the flanks of advanced enemy bodies, operated on the flanks of their own armies to cover their retreat and helped defend important strategical points and lines and operated in the enemy's rear.

The Cavalry's defensive operations were active and resolute. Here is an example of the Soviet Second Cavalry Corps that was assigned to occupy a defensive position on the Reut River, and by vigorous action was to cover the retreat eastward of one of the Soviet armies. A small body was detailed to occupy a favorable position along the Reut River while the Corps' main forces were concentrated on the flanks in order to strike at the advancing Rumanian First Royal and the Third Infantry Divisions and the 50th German Panzer Division. The

*Soviet Cavalry.

enemy, engaged in battle with the cavalry, was suddenly attacked by the striking forces. All the enumerated groups were routed and the Soviet Army was able to retire in good order to the south bank of the Reut River and there organize its defenses.

A highly instructive instance of the action of Soviet cavalry in liquidating the enemy thrusts is furnished by the operations of the Second Cavalry Corps in the vicinity of Balta. Mobile enemy groups were approaching Pervomaisk. The Second Cavalry Corps was ordered to reach the Balta area by a forced march and to strike at the flank of the enemy's wedge. In two days the Corps covered a distance of one hundred kilometers through roadless country fighting all the way and then by a sudden blow shattered the enemy's 293rd and 297th Infantry Divisions and the 19th Motorized Division recapturing the town of Balta and liquidating the thrust at Pervomaisk.

No less successful operation of this type was the flank attack moving from the District of Krichev-Chausa eastward with the aim of seizing Roslavl by a lightning blow and turning the flanks of the Soviet Army operating north of Roslavl. The Soviet Cavalry was ordered to strike at the flanks of the enemy's Krichev group and to prevent him from seizing Roslavl.

On August 2, 1941 Soviet Cavalry made a sudden assault and an unexpected artillery offensive: 30 enemy tanks, 50 truckloads of infantry and two trenchmortar batteries were destroyed near Shumovka-Ponyatovka.

This war has shown that the cavalry can not only stem the advance of the enemy's panzer troops but can also annihilate whole tank formations. An instance of this type of action was the Shtepovka operation successfully effected by the first Guard Cavalry Corps.

The enemy's panzer troops were speeding eastward toward Suman threatening to surround one of our armies. The Soviet First Cavalry Corps augmented by tanks was ordered to stem the enemy's advance. By a series of vigorous movements the cavalry surrounded the German ram near Shtepovka and routed the 9th Tank and the 25th Motorized divisions. In this battle our troops also captured considerable other military equipment, 300 trucks, 8 passenger cars, 180 motorcycles not counting those destroyed.

The duty of Soviet cavalry, when acting in the enemy's rear, is to destroy his communications, transports, stores, headquarters, manpower and armaments.

Highly successful raids of this kind were made by units of the Second Guard Cavalry Corps. In one zone of operation from August 23rd to September 2nd, 1941, it routed the German 430th Infantry Regiment, wrecked headquarters, two other regiments and the topographical department of the 6th German army, killed 2,500 German soldiers and 19 officers, destroyed 200 trucks, four armored cars, two tanks, 4 guns, six trenchmortars and 30 heavy machine guns and captured 65 machine guns, 1,500 rifles and automatics and a large number of horses, machines and other equipment.

These examples show that when properly and skilfully utilized, cavalry units and formations are capable of accomplishing any task set them.

Beginning with December, 1941 the position of the Soviet-German front was markedly changed.

Having worn down the enemy in previous battles the Red troops passed to a counter-offensive. On a number of sectors they drove the enemy out of his fortified positions and without allowing him to entrench himself began to drive him westward.

In offensive actions the Red Cavalry is used as one main force in routing the enemy's groups. It is chiefly used for flank attacks, for widening breeches in the enemy's defenses by turning his flanks and by pursuing him in retreat.

Our offensive has furnished many examples of bold, resolute and daring actions. On the sixth of December our First Guard Cavalry Corps by a flank blow near Venyev and Stalinogorsk routed the 17th Tank, 29th Motorized and 167th Divisions of Guderian's group. This enabled our troops to advance rapidly, while on the 7th of December the Soviet Army on whose flanks the Guard Corps was operating inflicted severe defeat on Guderian's troops by a vigorous counter blow. The enemy was driven out of his main defense centers and abandoning armaments and leaving the field strewn with dead and wounded, retreated westward.

Highly significant was the action of our Second Guard Cavalry Corps near Ruza, December, 1941. Unable to withstand the assault of our troops near Ruza, the enemy began to retreat west and southwest. An order to prevent the enemy from breaking contact with the Second Guard Cavalry Corps was launched against the retreat of his lines. Routing the enemy's rearguard, the cavalry cut the German lines' retreat and by a dashing attack annihilated his 78th Infantry Division and captured 40 guns, 200 trucks, numerous wagons and wireless sets and other equipment.

These instances demonstrate the important part played by the cavalry in the Soviet peoples' patriotic war against German fascism and the wonderful effectiveness of its action when properly directed and closely combined with the action of the other arms.

Cossacks of the Don, Kuban and Terek, and the collective farmers of the Northern Caucasus have risen to reinforce the Soviet Cavalry whose fame is spreading far and wide. These popular levies are burning with eagerness to enter the battle and to demand an account from the fascists for all the atrocities, robberies and violence they have perpetrated on the Soviet people.

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"Organization is the servant of tactics and not its master."

At Soviet General Dovator's CP*

*By Eugenie Krueger***

MAJOR-GENERAL DOVATOR is one of the most outstanding Soviet cavalry commanders now fighting with his Cossacks on the Moscow front. For daring and courage displayed in fighting, his unit—the 3rd Cavalry Corps—was a short time ago renamed the 2nd Guards Cavalry Corps.

Finding Major-General Dovator's headquarters is no easy job. One can imagine the difficulties of the Germans in the days when his Cossacks wrought havoc in their rear, considering that on this side of the front we spent a full day in trying to locate the headquarters of the Cossack Guards. Finally, we were given the most accurate and precise direction: "Look for Dovator where the fighting is hottest."

This was not so simple either, for fighting today is quite hot on all fronts around Moscow. Nevertheless, we listened to the advice and actually found the Guardsmen at a place where the most heated battle was in progress. Clouds of smoke were rising from beyond the forest and the air was rent by the booming of artillery and A.A. guns, the roar of exploding bombs, the clatter of caterpillars.

* * *

Precisely in such conditions Dovator's cavalrymen feel at home. They are always sure to appear where they are least expected—particularly by the enemy. Such was the case recently when the Germans broke through near a very important point, and for 24 hours mounted Guardsmen raced from one flank to another, through forest and across rivers covered with a thin crust of ice, without pausing to rest, to reach the place where danger threatened, where help was needed at once, for in this situation every minute was precious.

The Guardsmen went into action immediately on arrival and checked the enemy. They still recall their excursion into the German rear, when 3,000 horsemen, with Major-General Dovator at their head, broke through the front line and for many days, behind the back of the German generals, smashed headquarters, dispersed transports, and broke communications, with the result that the German generals were thrown into a panic. Only in a state of panic could an Order be issued announcing to the German troops that, contrary to rumours, not 100,000 but not more than 18,000 Cossacks had penetrated their rear.

Actually, there were only 3,000. They twice scattered the headquarters of the 6th German Army. The topography department of the headquarters was completely wiped out. Once, from an ambush, they blew up 56 motor vehicles. Under the very nose of the Germans, far in their rear, the Cossacks mined the highway. The first lorry of a column was blown sky-high and blocked the way for the rest. The Cossacks opened machine-gun fire. The main thoroughfare in the German rear presented an ugly sight. And the Cossacks then turned off the main thoroughfare on to quieter roads.

These were the days when they moved across enemy territory, and as they raced through the villages, squadron after squadron of them, singing Cossack songs, the people ran out to welcome them. The German Command was compelled to form a special detachment to fight against Dovator's group. Soon the German major who headed that detachment, together with his staff, were seized by the Cossacks. Completing their raid, Dovator's Cossacks fought their way back across the front line and rejoined the main Soviet troops. Many people still remember this raid—particularly the enemy.

* * *

Today Dovator's Cossacks are fighting for Moscow. We met them in one of the most difficult sectors of the front. The day was drawing to a close when the Major-General returned from the main line to his headquarters. Without pausing to remove his coat he walked over to the table and unfolding a map proceeded to explain the situation and the plan of subsequent operations. His speech was quick, laconic. Giving little time to minor details he tried to make everybody understand his main idea. His enthusiasm is contagious, his speech picturesque and expressive. This is how he speaks of his Guardsmen:

"Our weapons? Rifle! Sabre! Hand-grenade! Fire-bottles! There is one of my commanders. Believe it or not, he once got on a horse and attacked a tank. Queer chap. But what can you do with him if he actually did destroy the tank. And he is by no means young. I scolded him, but inwardly I thought: This old boy is made of real stuff, he is a real Guardsman!"

The door opened to admit Issa Pliyev, Guard division commander.

"Pliyev had a characteristic battle here," Dovator began. "Our favorite sport is striking blows at the flanks. In a complex situation we decided to cut the German communications. With small forces at his disposal Pliyev successfully waged a two-day battle and himself led the cavalryman into attack. Never was it necessary for me to go in person to help improve the position in Pliyev's division or in the division under Brigade Commander Melnik."

The Major-General again bent over the map and gave the final orders. After a curt "Everything will be done as ordered" and a salute the commander left.

Dovator, his eyes on the retreating figure, smiled as only a friend can smile.

"You know what those words mean? Only one thing—he will dislodge the Germans!"

*From *The British Cavalry Journal*.
**War Correspondent.

THE COSSACK

By Lieutenant Robert B. Rigg, 106th Cavalry

TODAY, as in the past, the Cossacks are adding important chapters to the wartime history of horse cavalry. In World War I the Cossacks were the first Russian soldiers to alert themselves and start for the Russo-German border which they crossed within twenty-four hours after war had been declared on Imperial Russia.

In his memoirs, the French General Foch stated that, ". . . the Cossacks saved Paris." His reference was to the great number of German soldiers who were required to stem the Cossack's drive to Berlin at a time when those soldiers might have swung the balance in Germany's favor on the *Western Front*.

World War II finds new and old Cossacks on the offensive against a powerful mechanized foe. Full light has yet to be shed on their current actions, but their success alone is enough to prove the great value of the soldier on horseback.

Training

No accident is this present day success of the Cossack. Their Spartan training methods are producing results in the field of battle.

The *Kazak*[1] is an exceptionally well trained horseman and soldier. He has been taught to face any situation, and never to be surprised by changes. All are trained to a philosophy which produces soldiers who, when faced with an obstacle, have not the least hesitation in taking the offensive.

From the onset of his military career the Cossack is taught that he, by virtue of the rigid training he undergoes, is equal to several times his number in enemy soldiers. He is told why this is so, and it generally amounts to just what Cossack officers do stress—hard training under field conditions. Cossacks spend the larger portion of their training time in the field. Not only is he taught that he can oppose superior numbers of enemy, but in their training he is told to expect opposition of superior strength. Consequently his stability is never jarred when he finds the situation this way. It is, however, the application of a RIGOROUS TRAINING PROCEDURE, and sound DISCIPLINE in the course of it that makes the *Kazak* feel superior.

The Cossack as an individual is a hardy, fun loving, prank playing soldier. He is rough in manner but decently educated. He never forgets that he is above all a soldier first. He is inclined to seek fun in the course of his training, and for that reason Cossack officers make all aspects of training dynamic so that no interest will be lost. A typical example of this is to be found in the *djigitovka* which does much to maintain spirit in the Cossacks military routine. This will be discussed further on.

Officers make every effort to see that their men develop individual prowess. Pride and care in the development of the Cossack's horse is one subject which does not need to be stressed by officers for it exists with every man. Teamwork in a Cossack unit starts with the combination of man and animal. No greater team can be found than the Cossack and his horse.

". . . the battlefield is not the place to discover or develop daring."

[1]The Russian word for Cossack.

". . . it develops the body in QUICK ACTION, and the mind in QUICK THINKING."

A soldier's qualification for a place in the ranks of any organization is not reckoned from the length of his training or experience, but from his proven excellence in horsemanship, arms, and general soldiering. Commanders have no hesitancy in leaving a vacancy in their ranks if they do not feel the soldier is fully qualified. "It is better for an officer to have two who are good, than twenty who might be a burden," is a favorite saying of theirs. The Cossacks also like to say that the most important part of the saddle is the girth because one depends most on that part. They view their organization with this same simple logic which places importance upon individual soldier, his training, and his ability.

Horsemanship

In horsemanship the Cossack chooses to start where many leave off. To the *Kazak* the horse is a weapon, which should be just as handily used as a rifle or machine gun. He therefore is to be seen riding or using his mount in a variety of forms. Horsemanship as the Cossack regards it, is only of value if it has practical application to his military purpose. His riding form varies with what he is doing, and at times the foreigner might think that he is inclined to be careless as regards his horsemanship. However, this is not the case if the true facts are examined. No cavalrymen can ride in close order drill with more dress and precision than the Cossacks, yet in the field when riding fast and long the Cossack does not maintain uniformity in his position in the saddle as some other cavalrymen do. His riding varies in form with what is required of him, speed, endurance, cover, etc.

Djigitovka

The term *djigitovka* is used to describe the Cossack's well known exhibition of horsemanship and daring. Stunts performed in a *djigitovka* are the Cossack's most difficult and daring. They were originated years back, and the American cowboy borrowed a few though not the more spectacular ones. Too few realize that in this stunt training the Cossack is achieving more than just a better balance in the saddle. The *djigitovka* has an

important place in the military training of the soldier . . . it develops the body in QUICK ACTION and the mind in QUICK THINKING, and schools the Cossack in accepting danger as a normal part of his daily routine. The ability to THINK and DO in a crisis requires a poise and coördination which is not easily developed. Participation in the *djigitovka* is on a competitive basis, and all seek to take part in it. As it is regularly scheduled preparation for it becomes a part of training, and it is in this that the Cossack develops the skill and precision which not only serve to make him a daring horseman, but a soldier who can meet any situation.

According to the Cossacks the battlefield is not the place to either discover or develop daring. It must begin long before it is necessary to put it to real use, and needs to be developed in the soldier the same as any other quality. The few injuries which are sustained in stunt riding serve to save injuries and casualties later. A soldier who spills in the *djigitovka* as a result of improper adjustment of his equipment is much better insured against the same thing happening later on when the result would be more serious in combat. This is the Cossack approach to training in horsemanship, and it reveals one very important fact. The Cossack does think always in terms of his ultimate task . . . combat.

The Stunts

There is nothing on a horse that the *Kazak* has not at one time or another tried. They stand on their animals' backs and they crawl underneath their bellies, at the gallop. They pick up objects from the ground while carrying heavy sabres in their teeth. Cossacks can pick up handkerchiefs with their teeth, and this stunt, it might be added, is one of their best. They can ride to a point and halt and jump over their horse's head in almost one single motion, or they can make their animals lie down.

Many stunts originated from military expedients developed in combat. Their horses were taught to lie down in order that the rider might fire from the cover of his mount's belly. Riding standing up in stirrups crossed over the saddle is a normal procedure in one phase of scouting. The reconnoitering Cossack in this position rides up to a hilltop and exposes only his head to peer over it. If suddenly surprised he has only to drop into the saddle, and ride away without the loss of time he might have suffered had he been dismounted.

One amusing stunt which finds its way in many *djigitovkas* is the combination of one man in front of the saddle and riding backward and one man in rear of the saddle of the same horse. The two play cards across the saddle as the animal gallops around.

The Cossack horse is generally smaller than the U. S. Army remount, and for that reason it is well suited for stunt work. The animal is well trained in most cases, and will respond to the Cossacks aids regardless of the latter's position. For combat no man and animal team is more effective than the Cossack and his horse. These and other such stunts serve to perfect this splendid combination for war use.

Morale

The Cossack has never been a pampered soldier. There is no provision for producing a high state of morale among Cossacks except that of SOUND TRAINING. Their *esprit de corps* springs from: pride in their heritage, wholesome competition between individuals, and pride in their horsemanship and skill.

Their distinctive uniforms are also a source of pride with all Cossacks. It is interesting to note that they were the only military units which the Soviet government permitted to keep their former uniforms. Colorings were somewhat modified, but they still retain the same cut of caftan, etc.

Summary

Cossack units are not all horse cavalry. In Cossack divisions they supply their own engineers, artillery, and infantry. In addition they possess some mechanized units which have only recently been developed. However, it has been their horse soldiers working both in organized *sotnias*,[2] and in guerrilla groups who have been so effective against the Nazis in this winter's campaign.

Under the Imperial government the Cossacks[3] conducted their own system of public education, and they were the best educated people in Russia then, outside of the nobility. Under the Soviet government they have continued along the same lines though not playing the political part as much as formerly. However, as before they still are the backbone of the Russian Army.

[2]Squadrons.

[3]The Cossacks are titled according to their geographical location as Kuban, Terek, Don, Ural, etc.

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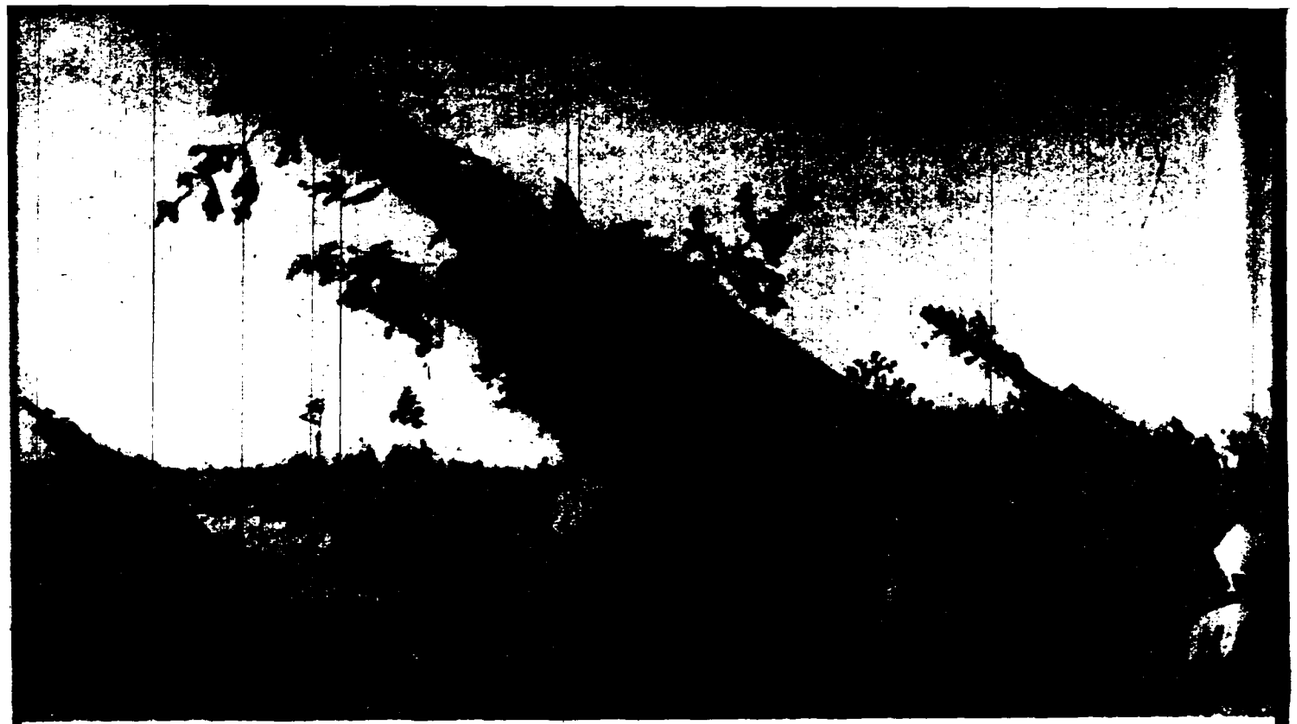
No general can be lucky unless he is bold. He must have a spirit of adventure, a touch of the gambler in him.—*General Wavell.*



Red Army AA Battery

IZVESTIA: Use of Small Arms Against Planes, Tanks

Expert marksmanship with rifles and machine guns has often given Red Army infantrymen victory over enemy planes and tanks, IZVESTIA *said in an article published March 20. Stressing the point that cavalry and infantry should always rely on its own weapons in an emergency rather than leaving the job to the artillery or other powerful weapons, the Soviet Government newspaper points to the need for close coöperation between simple and complex arms. The article said:*

THE Red Army possesses powerful war equipment, including special antiaircraft arms. The simplest fighting weapons applied skilfully and according to perfected methods serve to increase the power of our arms. These simple weapons do not replace special, complex and powerful arms, but coöperate with them, providing additional means of destroying the enemy.

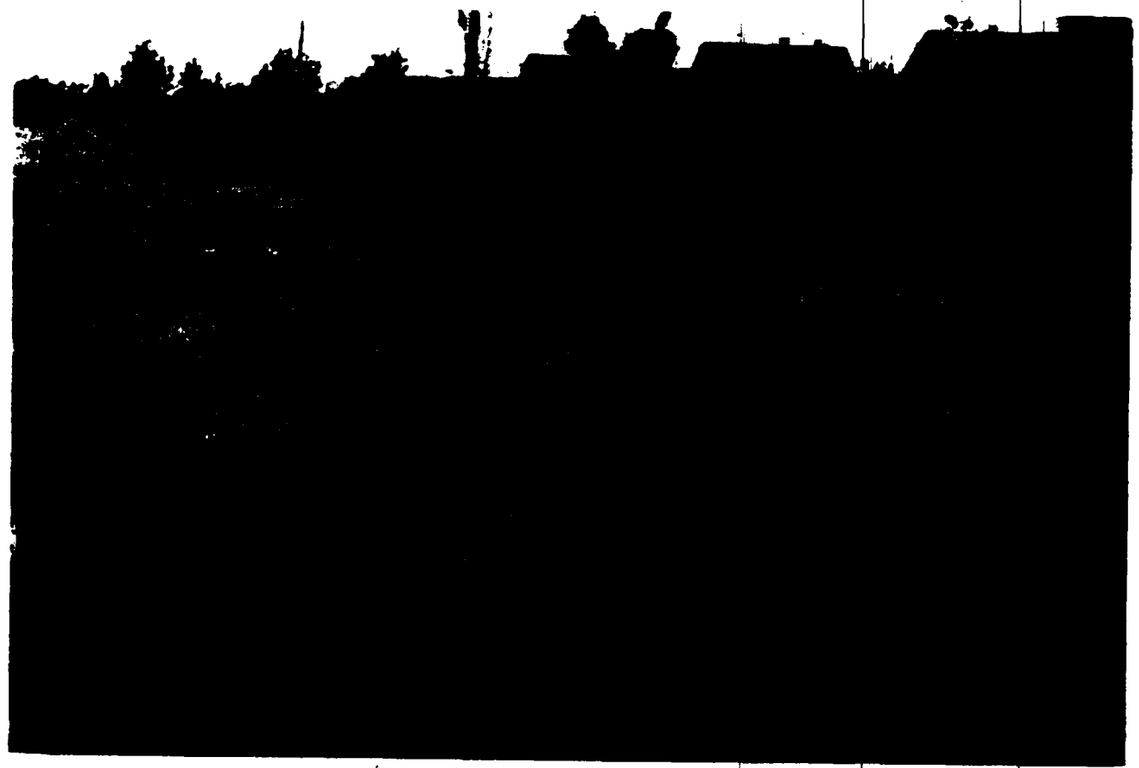
THE IMPORTANCE OF SIMPLE ARMS

Only truly brave, resourceful and cool men can engage a powerful fighting machine with mere rifles in their hands. Any army in the world may well envy the staunchness and fearlessness of the Red Army men. The German generals may learn something from the Soviet rank-and-file—to understand the importance of simple arms in modern warfare. Recently a unit commanded by Kolomiitsev brought down two enemy planes by rifle and machine gun fire. A battalion of skiers commanded by Karpov recently beat off an enemy air raid by machine gun and rifle fire, bringing down a German plane.

RIFLEMEN BAG AIRCRAFT

Red Army men Nikitin, Dorofeyev and Kuzmin, escorting an ammunition train, brought down by rifle fire an enemy bomber which attempted to attack their train. Commissary technician Golomidov brought down a fascist fighter by automatic rifle fire. A unit commanded by Senior Lieutenant Kruchkov in a few days brought down four German planes with fire from antitank rifles. Machinegunner Fedorenko set fire to a Junkers with one well aimed machine gun burst. Red Army man Munk brought down an enemy bomber with several machine gun bursts. Red Army man Potukevich brought down a Messerschmitt-109 with a self-loading rifle. Sergeant Melnikov, Lieutenant Stasin and Junior Lieutenant Bambal brought down one enemy plane each after the second or third shot with an ordinary rifle. Such examples are numerous.

Thorough instruction in rifle marksmanship.



Debris of a Nazi bomber.

Guerrilla Warfare to Increase, Says Kalinin

SOVIET guerrillas will step up the pace of their relentless war behind enemy lines, Mikhail Kalinin, Chairman of the Presidium of the Supreme Soviet of the U.S.S.R., predicted March 17 in an address made to a group of guerrillas who received decorations. He called guerrilla warfare the "most effective way for the people to take part in the war," and said that the guerrilla groups constitute a sort of Soviet government in territory supposedly controlled by the enemy.

Illustrating Kalinin's words came a TASS report that a Soviet guerrilla brigade operating near Leningrad now dominates an area of over 3,500 square miles, including parts of two German occupied districts. These guerrillas recently collected a caravan of foodstuffs which they sent into the beleaguered city. The guerrilla commander and commissar addressed the following letter to the newspaper *Pravda*:

"For eight months our brigade has been fighting the Germans far behind their front lines. As a result of our operations, Soviet rule is virtually restored in a territory over 120 kilometers in length and 80 kilometers in depth, into which the Germans are afraid to poke their noses. Neither punitive expeditions nor savage air raids on peaceful villages have helped the fascists. Our Soviet district administrations continue to exist behind the enemy lines, and guerrillas using our districts as bases are striking ever stronger blows at the enemies of our motherland. We send you greetings and assure you that the guerrillas will not lay down their arms while a single German remains on our soil."

Kalinin Speaks to Guerrillas

In his speech to the guerrillas Kalinin said: "I believe the guerrilla movement is one of the best sources of aid to the Red Army. It is valuable not only because the guerrillas disorganized the enemy rear, because they strike at enemy armament, manpower and communications, because they tire the enemy and keep him always wary behind the front, and because the guerrilla movement brings forth the most courageous and efficient of our peasants and urban workers. The greatest value of the guerrilla movement is that it gives an out-

In areas not suited to motorized vehicles, Guerrillas penetrate German lines and operate against their lines of communications.

An air-sledge ready to start with detachment of automatic riflemen.

Russians Fully Utilize Air-Sledges

A detachment alights from air-sledges in enemy rear.

Guerrillas receive instructions.

let to the hatred and the fighting abilities of the masses of collective farmers and city residents in their struggle against the German invaders.

"Even far behind enemy lines the guerrilla movement is consolidating the population and increasing its confidence that the capture of our territory is temporary. It directly organizes the masses against the fascist invaders. The guerrillas are a kind of representative Soviet government in the enemy rear. In their persons, the rural and urban citizens of temporarily occupied districts see the Soviet Government, and this strengthens their fighting spirit and increases their confidence that the Germans will be driven out.

"Guerrilla warfare is the most effective way for the people to take part in the war. I think that in the spring and summer the guerrilla movement will not diminish in scope. Judging from all indications, it will grow considerably, and the guerrillas will deal ever stronger blows at the enemy rear."

In the last few months the guerrillas have taken full advantage of the Russian winter. Usually wearing skis, they have swooped down on enemy supply columns, slaughtering guards and carrying off or destroying truckloads of military supplies. They have mined highways and railways, blown up bridges, cut telephone wires and collected important information which was transmitted to Red Army headquarters by radio. In February a ski detachment from the Karelo-Finnish Republic north of Leningrad, made a foray behind Finnish lines. Heavily armed with machine guns and automatic rifles, they captured four villages after defeating enemy garrisons. The Soviet guerrillas held meetings at which the Karelo-Finnish peasants learned for the first time of Red Army victories during the winter. The fascist had told the peasants that German troops occupied Leningrad and half of Moscow.

Price on Guerrillas' Heads

The Germans have offered a standing reward of a farm, horse, cow and 5,000 marks cash to any peasant who will betray the hiding place of a guerrilla detachment. Finding their rewards disdained, they have resorted to various ruses in their efforts to entrap the Soviet patriots. Recently guerrillas sighted a number of German trucks loaded with women advancing along a road on which enemy columns had frequently been ambushed. Curiously, many of the women were carrying rifles. A young girl who was cook for the guerrillas was sent out to reconnoiter. She reported that German soldiers had dressed themselves in women's skirts and jackets, seemingly either as a disguise or for protection against the cold. The guerrilla commander promptly led his detachment in an attack on the trucks. The Germans leapt out and ran for cover, repeatedly tripping over their flapping skirts and falling into snow drifts. The German detachment was wiped out.

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If a general shows confidence in his men but always insists on his orders being obeyed, the gain will be mutual.—*Sun Tzu.*

Employment of Cavalry

Use of Cavalry Divisions*

THE enthusiasm of numerous converts from horses and mules to motors has resulted in considerable propaganda in favor of complete elimination of animals from the modern field of combat. The views of such extremists should be studied with caution not through fear of drastic changes but because their contentions are *not* being borne out on the battlefield.

Mud, deep snow, swamps, jungles, forests, mountains, streams, boulder-strewn hills or fields and other types of terrain *stop* armored vehicles. Troops in otherwise favorable sectors may accomplish the same end within limits by constructing artificial or reinforcing natural obstacles and by the extensive use of antitank weapons and other devices.

In a majority of the above conditions cavalry can still function. Its value in Russia will not be an isolated case if this war continues many years on many fronts. The ability of the Russian forces to fight the winter war of 1941-1942 may be a major factor in the Axis defeat.

German cavalry was used effectively at Gomel in August and east of Bryansk in October. . . . We are unanimous in our desire for speed and power to the limit but when that limit may be defined by conditions of terrain and weather we must be guided by well considered studies and experience and not by wishful thinking.

When armored forces are operating under favorable conditions of weather and terrain, motorized units for close support are vital. If the period of operations is long, however, the change of seasons may relegate armored forces to a secondary or unimportant rôle. Likewise, if the depth of the theater of operations is great enough, the terrain features are bound to change with a similar effect on the use of armored forces.

If the rate of movement is great, say 100 miles per day, cavalry cannot provide close support for armored forces. Seldom, however, in close combat can armored forces average more than 30 miles per day. Cavalry can provide close support in such situations with less wear and tear than infantry on foot. Streams that are considerable obstacles to armored forces present little or no delay to cavalry. Furthermore, the relative silence with which cavalry operates and its ability to move at night are valuable characteristics. All in all, there are excellent grounds to substantiate the belief of many officers that cavalry still has a definite place under certain conditions of modern warfare although it has been definitely subordinated, if not eliminated, where motors can be used.

The greatest flexibility of thought and organization needs to be maintained in this respect as armored operations will not only vary unavoidedly, due to equipment available and terrain, but *must* be altered in technique, intentionally and continually, to achieve maximum results. If the war has taught us only one lesson, it should be that blind adherence to doctrine and convention must fall before imagination and ingenuity, assuming equally good judgment is applied in both cases.

*An excerpt from *Mobility and Motors*, by Lieutenant Colonel Arthur G. Trudeau, C. E. Instructor, Command and General Staff School. The article appeared in the April, 1942 issue of C. and G.S.S. *Military Review*.

Cavalry in Russia*

IT is the contention of our military experts as well as many of those abroad that the cavalry arm of the Russian army has been a big factor in fighting the war for Russia. It was this arm that the German army met at Tula, at Moscow and at Rostov and the strength of its blows left the Germans reeling and paved the way for the savagely counter-attacking Soviet army.

Last winter found the Germans knocking at the doors of Moscow; but the intense sub-zero Russian winter made motors virtually useless. Without vast sheds in which to heat their tanks, personnel carriers, and various other army vehicles, for starting in the sub-zero weather, the Germans found their blitzkrieg stalled. It was then that the Soviet cavalry came into its own for its horses did not "freeze up" as did the German mechanized army and it could maneuver over deep snow that stalled the German tanks and cars.

The power of an army depends to a great extent upon its maneuverability and its mobility, a mobility that is not confined to favorable conditions; such was the German army that invaded Russia last year. This according to military experts was the one flaw in the German war machine that rolled on so successfully until the Russian cold and counter-attacking Soviet cavalry brought it to a halt and ultimately drove it backward.

This week's war news again brings the Soviet cavalry to the fore. For Russia is now in the process of thawing out from what has been described as the

*Front page, Army and Navy Journal, May 2, 1942.

hardest winter in many years. The vast plains and fields are described as "spring swamps" which have bogged down other ground forces. The Soviet cavalry in an ever broadening scale are harassing the Germans at every turn by lightning raids on villages, communications, supply depots, etc.

According to the most reliable estimates—and it must be remembered that they are estimates—the Russians used more than 200,000 animals for cavalry purposes during the winter campaign. Another 800,000 animals were utilized for draft and pack purposes. These figures compare to: 50,000 cavalry animals possessed by the Germans, plus some 910,000 additional for draft and pack purposes; 325,000 draft and pack animals by the Japanese and 50,000 cavalry animals; and 25,000 animals for cavalry use by the United States plus 12,000 for draft and pack purposes.

However, if reports received in this country, (chiefly through correspondents for the Russians have not allowed any military observers to gain any comprehensive material on their campaigns or plans) the Soviet cavalry arm soon will be bolstered by powerful cavalry armies that have been training in the rear of the main lines. . . .

From the meager reports filtering from the Russian battlefront, the Russian cavalry is not having too great difficulty with the German tanks, armored cars, etc. When these vehicles attack, the cavalry scurries to terrain where the operation of automotive vehicles is out of question. All the crack Soviet cavalry personnel are taught how to handle hand grenades for blasting stalled armored cars and tanks, mortars for lobbing shells on unsuspecting Germans, and automatic arms to provide firepower in their lightning charges.

The achievements of the Russian cavalry speak pretty much for themselves. They have performed a job in hurtling the Germans from fixed positions, blasting stalled armored or mechanized units, or conducting forays against behind-the-lines positions. They were particularly effective during the sub-zero weather when the German mechanized elements bogged down and during the next few weeks of Russian "thaw" should be just as troublesome for the Germans.

One phase of the use of cavalry to aid the hard-pressed Soviet army has been the guerrilla cavalrymen that have hammered at the Germans since the invasion of Russia began. . . .

Airborne Troops

TROOPS transported by air include parachutists and troops transported in gliders or transport airplanes.

The speed and range of modern aircraft permit landing of these troops over wide areas and their employment in surprise attacks.

These troops have the same mobility as infantry after they land. They will try to capture civilian and military vehicles to afford themselves rapid transportation.

Parachute troops are most vulnerable from the time they leave their transport plane until they are able to collect their weapons and form for action after landing.

Troops transported in gliders are most vulnerable from the time they are cut loose from the towing airplane to the time they are able to form for action.

Troops transported in airplanes are most vulnerable from the time the airplane is landing to the time they are able to form for action.

Equipment

Only light weapons are carried on the person of the descending parachutist, while heavier weapons are parachuted separately, usually in different colored chutes.

The weapons of air landing troops include all types of infantry weapons, light artillery and light tanks.

Plans for Defense and Offense

Plans must include provision for *immediate* attack of hostile landing forces.

Provision must be made to prevent the obtaining of vehicles by hostile troops which may land successfully.

It is particularly important that plans of fire and movement be *prepared* and *practiced* so that friendly troops do not fire into friendly troops.

Be prepared at all times to meet promptly, boldly and aggressively any attempted landing by troops transported by air. Practice defense measures, and *rehearse* prepared plans.

Insure a thoroughly reliable and timely warning service equipped with suitable means of signal communication.

Coördinate defense activities with those of the local civil defense agencies, and with the air force in that area.

Conceal naturally, or camouflage, weapons for sited defense.

Destroy the parachute troops while they are descending, or as soon as they land. Do not permit them to gather their heavy weapons and reorganize for ground operations.

Destroy troops in gliders and transports while they are landing. This requires *coördination* with the air force in that area, and the blocking with obstacles of the possible enemy landing sites.

Block their attempts to gain motor, and other, transportation; for whatever tactics troops transported by air employ, they must work quickly. Bold prompt action may be decisive.

As an indication of the importance of proper measures, troops transported by air have been landed in actual warfare at the rate of 3,000 fully-equipped troops per field per hour.

Impressions of THE AMERICAN ARMY

By Lieutenant Ricardo Bouroncle, Peruvian Army

EDITOR'S NOTE: *Qualified by his two year's experience as an officer attached to European Cavalry forces, his graduation from the United States Cavalry School, Fort Riley, Kansas, and his experience with his own army, Lieutenant Ricardo Bouroncle, now stationed with the 11th Cavalry, tells our readers how our army compares with others.*

TEN months ago I came to the United States of America from Europe where I had been sent by my government, the Republic of Peru, to study foreign armies. It had been an unusual experience and a very rich one, for I was attached to the French army for two years, during which time I had seen the war explode and the German army invade France. Moreover, I had an opportunity to study the armies of both France and Germany in action. With this background I came to the United States. In my first impressions of the American army I was amazed. With eyes of a fresh observer, undimmed by constant association with your army, I now propose to give you a short commentary on some of the outstanding characteristics of the American army, which are so different from those of other countries. I will also essay a brief comparison between the American army and those of Europe and my own country.

RICARDO BOURONCLE
1st Lieut., Peruvian Army

My experience with the American army includes three months with the 1st Cavalry Division, two months of which I spent with them on maneuvers in Louisiana, and then the basic course at the Cavalry School at Fort Riley. At present I am serving with the 11th Cavalry.

Discipline

After observing the contrast in discipline between the French and German armies, my first wish was to study the discipline of the American army. On this subject I feel I should offer preliminary explanations, since I now realize that some of my first impressions were misleading, due to my early lack of understanding of the psychological peculiarities of your people.

After having observed the weak discipline of the French Army, I naturally was strongly impressed by the iron discipline of the triumphant German army. This observation led me to the natural conclusion that strict discipline is indispensible to an army, and that an army's efficiency is in direct ratio to the rigidness of its discipline.

In the United States Army the discipline is very far from being rigid. My first and logical conclusion, therefore, was that your army is not a good one. But I soon found that I had carelessly disregarded another factor which I later perceived—the people, the absolute democracy of your country, each individual's highly developed sense of duty. After I had appreciated these fundamental differences in your people, I saw my mistake.

While discipline in your army exists, it is an inner discipline, a discipline not always apparent to a new observer. Your discipline differs from that of other armies because you are a different people. To understand your discipline, it is necessary to live a while with you. I stress this point because foreigners' first impressions were that your army lacked discipline.

Morale

Each war problem in this country that I have attended (and particularly in the Louisiana maneuvers) I have observed evidence of high morale and a strong combative spirit among your soldiers—combative spirit translated into the ability to attack.

When your soldiers attack, they work with enthusiasm and exploit to a maximum their initiative and athletic qualities. They advance rapidly and resolutely, with confidence in themselves as individuals rather than in depending upon their leader. They advance resolutely because the order is to attack, which they understand because in all their American school games it is the offensive which is stressed and which succeeds. They advance rapidly because your people, both young and strong, have the ability to move and have the love of movement—the faster the better.

On the other hand in the defense your soldier usually looks for a good place to rest. His feeling for camouflage, for example, is often expressed by his ability to hide in a place of maximum comfort.

In other armies the defense is conducted far more realistically. This may partly be caused by the ever-

present threat of invasion among countries who are packed closely together. Threat always hovers just across the border. The people of those countries, and the soldiers, sense this and therefore take the defensive with more appreciative feeling. In some countries there still exists a frontier, where the people must defend themselves against predatory animals and still uncivilized natives—the forces of nature in the raw. This also tends to make a people appreciate the cold seriousness of defense. Though this condition once existed in America, the present generation knows nothing of it.

To sum up, I believe that the outstanding morale qualities of the American soldier are 1—great aptitude for the attack, 2—self-confidence, 3—initiative. Furthermore, I believe that your high command appreciates and is exploiting these qualities in evolving your doctrine of war.

Doctrine of War

My knowledge of your doctrine of war has been gained more through study of your books and military publications than through actual experience in your army. Through these means I have learned that your predominate goal is movement—rapid movement. It is speed—always speed in the attack—and the augmentation of this speed to the point where the factor of surprise results. You believe—and I agree—that this factor is all-important to victory.

In the defense you also believe in movement—in active defense. You believe in never sitting and waiting but always in searching, pursuing and destroying. Not for euphony have the names "antitank battalion" and "antitank squadron" been changed to "tank destroyer battalion" and "tank pursuit squadron."

This policy of rapid movement extends to your zone of the interior, to supply and evacuation. Your idea is to perform these functions at high speed. It extends also to production where your ideal is speed in the manufacturing of the materials of war. It is war against time—the principle of always exceeding the speed of the adversary.

Another of your goals seem to be flexibility of organization. This I have observed in the field, where I have seen units emerge with the greatest facility. You consider the situation, the terrain, the enemy. You form units according to these factors. This is in accord with the psychology of the American people who, in all their activities, are accustomed to solving problems rapidly and with originality. Furthermore, they are never satisfied with any solution, as are the people of other countries, but are continually searching to improve each method.

For example in France the people and the army acted upon the experience of the previous war. Their problems they thought would be solved for all time by the establishment of a system of fixed defenses, immensely strong. When this solution proved to be incorrect, they were lost. With the originality of the American people and their talent for improvising I believe this fatal error will never be committed here.

The Nazi army, on the other hand, believes in flexibility as its very essence and this flexibility it employs in its training. It is, however, a flexibility of preconceived plan more than of actual practice. When the preconceived plan blows up, as in Russia, the flexibility is lost because it is integrated with the plan and does not arise from the ability of the army to improvise and organize according to conditions. I believe that the American army will be able to maintain its flexibility of organization in the face of the unexpected, unlike the Nazi army.

Your ideal of flexibility of organization is, moreover, the most difficult to achieve. I believe that it can be carried out only by a command which possesses to the highest degree the qualities of competence and resourcefulness.

Small Units—Antitank

Among the small units I have seen employed in your maneuvers, one which impressed me most was the antitank. This unit has two outstanding characteristics; it is 1—an arm of grazing trajectory firing a projectile of great penetration, and 2—an arm of great mobility. The excellence of these characteristics of your antitank units give them maximum efficiency.

The 37-mm. gun is easy to operate, adaptable and simple to employ in the field. In its destructive action it acts in conjunction with the 75-mm. gun. Furthermore, there exists the possibility of some day evolving a gun with a calibre between the 37-mm. and the 75-mm. These armaments provide your antitank units with their first characteristic—grazing trajectory and a projectile of great penetration.

The second characteristic—great mobility—gives these units enormous possibilities. This characteristic is provided by your invention and development of the bantam, which has revolutionized the possibilities of these units, since they had previously been comparatively immobile and passive in their action.

The bantam has, in fact, resulted in incorporating in your antitank units the doctrine employed elsewhere—that of active, positive defense, in this case against tanks. These units can now overtake and overcome enemy tanks, loot them and pursue them to destruction instead of merely waiting for them. In effect they attack the attacker. To justify my admiration for these bantams, I relate the following incident which took place in the Louisiana maneuvers:

At midnight the 1st Cavalry Division was to cross the Red River, about 20 miles south of Bossier, with the aim of attacking and taking Shreveport, which lay in enemy territory. When most of the troops of the 1st Cavalry Division had crossed the river, word came that tanks of the 81st Reconnaissance Squadron of the 2nd Armored Division (enemy) were approaching to attack. The antitank squadron of the 1st Cavalry Division, commanded by Major Don E. Carleton, took the mission of stopping the action of the enemy tanks.

The terrain in this country is covered with thick but low vegetation. It was sufficient to penalize the action of the tanks and cover the action of the bantams. As the tanks came by, clanking like boiler factories and thus revealing their positions, the bantams, quiet and secretive in their action, surrounded and overcame them one or two at a time.

The umpires signaled that one or two bantams were lost in each action. But the tanks were numerically outnumbered and the action was repeated several times until in four hours the thirteen tanks, four half-tracks and several enemy bantams—in short the entire 81st Reconnaissance Squadron—was destroyed or captured.

Reconnaissance Squadrons

The reconnaissance squadron has great application in modern warfare. It has, however, among others these problems to solve: 1—it must be mobile; 2—it must have sufficient fire-power to enable it under certain circumstances to culminate its reconnaissance mission in combat; 3—it must be sufficiently independent in organization and administration to be able to operate alone and independently of the higher echelon.

Before the introduction of mechanization the horse reconnaissance squadron solved these requirements to perfection. It was very mobile. It carried sufficient fire-power to fulfill its mission of contacting and scouting the enemy. Moreover horse cavalry can live off the land.

In your actual reconnaissance squadron of the cavalry division, horse, you solve the first two problems of mobility and fire power to perfection. In fact you have greatly increased the mobility and fire-power. But in your present reconnaissance squadron you have more than 300 vehicles—all dependent upon contact with higher echelon for gas and oil. The third problem is, therefore, not solved, for you have lost the former complete independence of the horse squadron, whose fuel was grass.

The purpose of the reconnaissance of scout car troops is executed mediocrity because the scout car has too many dependencies—an opinion which I believe is shared by many officers and chiefs of the United States Army. My experience with your army has given me the opportunity of observing the operation of the bantam troop of your reconnaissance squadron, however. Its operation I believe to be excellent, for the bantam provides essentially mobile transport. This troop is, in fact, a mobile or portéed infantry. It combines mobility, elasticity and fire-power. I know nothing of larger units of this type but, if they exist, I expect to hear big things from them. It must be obvious from what I have said that it is the bantam which most impresses me of all the vehicles of the American army. It is one magnificent vehicle! And how could anyone say it is not magnificent when he has seen it wrapped up in a tarpaulin and floated across a river like a boat?

And one thing more about the bantam. This little car is just the right vehicle to make surprise attacks in gassing the enemy. In maneuvers I have seen this action completed successfully several times.

Life with Your Army

These characteristics and facts about your army have impressed me most. In conclusion I would like to say something about Fort Riley and life with the American army.

At Fort Riley there were fourteen Latin-American officers who took the basic course. Because of the language our study there was rather difficult. But the assistance and painstaking coöperation of the instructors and our fellow students made it possible for us to complete the course satisfactorily.

Our three months' stay at Fort Riley gave us the opportunity not only of appreciating the American military teaching methods, the study of American armaments, conduct of small units, etc., but, also, above all, to live in close contact with American officers. Furthermore, we had the double opportunity of becoming acquainted with them both professionally and socially. This acquaintance has resulted in greater confidence in your officers and, consequently, in the American army.

Furthermore, the American officers had the opportunity to become better acquainted with us and to observe us in our studies and our work. Thus we hope they formed a high opinion of us and, consequently, of our military institutions. As a direct result of this mutual understanding and confidence, I believe that the coöperation between our countries in the present conflict will be facilitated.

This effect should be greatly strengthened by the fact that while we were attending the Cavalry School there were about one hundred other Latin-American officers in the other service schools of the United States.

I believe I am speaking for all my fellow Latin-American Officers when I say we are happy and grateful to have had this opportunity to study and observe the methods of instruction in the service schools of the United States. We sincerely hope that in the future this interchange of officers, with its resultant improvement in mutual understanding, will be greatly increased.

★ ★ ★

The great questions of the day are not decided by speeches and majority votes, but by blood and iron. . . .
***(In a declaration to the Prussian house of delegates,* 1862.)**
—Bismarck.

BRAZIL ARMS

To meet "the heavy new duty of the army in the maintenance of public order and national defense," President Getulio Vargas signed a decree April 8th boosting Brazil's army from fewer than 100,000 to 1,200,000. Besides, with trained reserves, Brazil—which broke relations with the Axis last January—called for voluntary enlistments under the presidential decree.

NEW EDITOR

THIS issue of *The Cavalry Journal* represents the final one to appear under current editorship. Opportunity is here taken, therefore, to express deep appreciation to our contributors who have rendered such fine, sympathetic understanding and assistance; and to our readers, their kind indulgence of our efforts.

Deserved commendation is given to our staff: To Miss Christine Harbour, our capable office assistant, who for the past five years has given unstinted support and efficient, courteous and administrative effort in promoting the interests of The United States Cavalry Association; To Master Sergeant Amand J. Thissen, DEML, for his loyal, energetic, and painstaking handling of varied and sometimes exasperating duties connected with circulation during the past three years; To Garrett and Massie, Richmond, Virginia, for their patient cooperation and excellence in printing achievement.

Following the publication of this issue, Colonel Edwin Miles Sumner, Cavalry, assigned to the Requirements Division, Headquarters, Army Ground Forces, will succeed to the editorial chair of *The Cavalry Journal* and will serve as Secretary-Treasurer of The U. S. Cavalry Association.

Colonel Sumner is well known to all cavalrymen. Until recently he was Personnel Officer in the Office, Chief of Cavalry, and since has served in the Military Personnel Division of the Services of Supply. His diverse and balanced military background, marked by foreign service and considerable periods of administrative, command, and school duty, lend seasoned judgment to the selection and evaluation of material intended for presentation to readers of *The Cavalry Journal*.

The editorial pencil is hereby transferred to Colonel Sumner with best wishes and the conviction that under his guidance the aims and purpose of The Cavalry Association will be fostered.

General Herr Honored

On May 15th Major General John K. Herr, U.S.A. Retired—President of the U. S. Cavalry Association—was conferred an honorary degree of Doctor of Science by Lafayette College, Easton, Pennsylvania.

General Herr attended Lafayette College prior to entering the U. S. Military Academy.

The U. S. Cavalry Association

There seems to have been a slight confusion among several of our younger officers regarding Cavalry Association membership and liabilities thereto. This probably is due to the substance of Article IV, Section 4, of the Constitution of the U. S. Cavalry Association, which appears on our "Enrollment Blank" as follows:

> "Any member may withdraw from the Association at the end of any current year by tendering his resignation . . . but such withdrawal or lapse shall not operate to relieve such members from liabilities to, or as a member of the Association, incurred prior thereto."

Membership in the Association automatically includes subscription to The CAVALRY JOURNAL. According to the constitution, *active* membership (which includes the privilege of voting for election of officers at the annual meeting) is restricted to General officers and cavalry officers. This, in fact, is now largely a matter of form, the number of officers present at the meetings rarely exceeds a hundred, so the proxies are necessary to constitute a quorum. Associate membership has similarly been extended to all officers and enlisted men regardless of arm or service and to civilians.

The principal activities of the Association at present, other than the JOURNAL, are limited to the operation of a Book Department to help finance the overhead requirements and to promote certain "missionary" projects as may be desirable, for the benefit of cavalry and the service in general. All of the membership net dues is consumed in the publication of The CAVALRY JOURNAL; and, in turn, the JOURNAL obviously is dependent on the collection of dues.

The quotation of the constitution on the application card, therefore, is for our assistance in the collection of dues (or subscription fee), for in the past, some accounts were allowed to run for several years before being dropped as a dead loss. In other words, a "paid-up" member may resign at any time that he so desires and the necessary adjustment of his account can be made; for as long as the JOURNAL is mailed to him, the cost is approximately the same as the dues owed.

The CAVALRY JOURNAL is published in the same general manner as any commercial magazine, but without benefit of paid advertising. All that we expect—according to the constitution—is that members pay their dues ($3.00 annually) in advance and keep us informed as to correct rank and address so that The CAVALRY JOURNAL can reach its proper destination without delay.

We believe that The CAVALRY JOURNAL is worth its cost to our members, otherwise, it would be discontinued! The JOURNAL is a non-profit, self-supporting activity. The greater the membership (or circulation)

the better the JOURNAL. It seems only fair and right therefore that all cavalrymen should share the financial obligation of the ever-increasing cost of production of the JOURNAL and assist us by promptly paying their dues without the necessary added cost of repeated billing.

Side-Saddle and Sam Browne Belt

The side-saddle and the Sam Browne belt can be discussed jointly, as both developments are the result of infirmities—and are just about as useful.

In Europe, several hundred years ago, riding sidewise by women with feet enveloped in a voluminous skirt, was popularized solely because a French princess set the fashion to conceal her deformed spine. In England the side-saddle as well as many other styles and customs, was first introduced by Anne, daughter of the King of Bohemia, first queen of Richard II in 1388. Again, during the reign of Queen Elizabeth, the side-saddle was further popularized because a member of her royal household had a withered right limb, which was not noticeable when she rode sidewise wearing a full skirt. Thus, we find that the side-saddle was originated to camouflage infirmities rather than developed either to benefit women or to improve horsemanship.

The Sam Browne Belt, officially known as the *Officers Belt M-1921*, derives its name from General Sir Samuel Browne, an English officer who served in the early campaigns in India. Having lost an arm in battle, he devised the belt so that he might carry his saber despite his physical handicap. In Europe during World War I the Sam Browne Belt was generally accepted as an "officer's badge." Since that time, however, with no restriction on its use by the uniformed civilian miscellany, and now with its use or a cloth belt optional by officers, the original purpose of the Sam Browne Belt for us has become nullified.

It would seem, therefore, that the utilization of all leather at this time should be limited specifically to those necessary purposes that will materially further our war effort!

His Satanic Majesty

Adolf Schicklgruber Hitler in *Mein Kampf* wrote:

"At the bottom of their hearts the great masses of the people are more likely to be poisoned than to be consciously and deliberately bad. In the primitive simplicity of their minds they are more easily victimized by a large than by a small lie, since they sometimes tell petty lies themselves but would be ashamed to tell big ones.

"An untruth of that sort would never come into their heads, and they cannot believe that others would indulge in so vast an impudence as gross distortion. Even after being enlightened, they will long continue to doubt and waver, and will still believe there must be some truth behind it somewhere. For this reason some part of even the boldest lie is sure to stick—a fact which all the great liars and liars' societies in this world know only too well, and make base use of."

—Utterances of Hitler in 1933-4, as vouched for by Hermann Rauschning:

Hitler's Plan: "I have no scruples, and I will use whatever weapon I require. . . . We shall undermine the physical health of our enemies, as we shall break down their moral resistence."

War: "War is but cunning, deception, delusion, attack and surprise."

Chivalry: "Generals, in spite of the lessons of the war, want to behave like chivalrous knights. I have no use for knights."

German Empire: "Germany will be Germany only when it is Europe as well. Without power over Europe we must perish."

Mexico: "If we had that country we could solve all our problems. With the treasure of Mexican soil Germany could be rich and great."

Education: "Universal education is the most corroding and disintegrating poison. . . . There must be only one possible education for each class."

Christianity: "Fascists will not prevent me from tearing up Christianity root and branch and annihilating it in Germany. . . . One is either a German or a Christian: you cannot be both."

The U.S.A.: "This is the last disgusting death-rattle of a corrupt and outworn system which is a blot on the history of this country. . . . It is a mistake to assume that it was a danger to us in the last war. Compared with the British and the French, the Americans behaved like clumsy boys. The American is no soldier."

Death to Spies!

In recent press dispatches there have appeared accounts of the shooting and hanging of spies by the Axis powers; also, accounts of spies in America who have been found guilty and sentenced to light jail terms.

It is probable that a lenient policy in dealing with spies and saboteurs will encourage their activities. It is difficult, therefore, for our "rank and file" to understand why we should feed and protect these enemy termites, while our own troops are being exposed to sanguinary enemy action based on the information of their spies. Let us remember that *we are at war!* We legally should give *death to enemy spies*. Why not?

The following excerpt from Page 507, *Military Law and Defense Legislation*, by Schiller, is quoted:

JURISDICTION

(Digest of Opinion of the Judge Advocate General, Apr. 6, 1918.)

In time of war a spy, whether he is in the military service or not, and whether his offense is committed within or without a fort or camp or a 5-mile zone, is triable before a general court-martial. The war power

vested in Congress by the Constitution incidentally authorizes Congress to create military tribunals with the customary jurisdiction. In construing the Constitution it is possible and necessary to appeal to international law. In time of war, by international and military law, spies are within the jurisdiction of military tribunals. A. W. 12 provides that "General courts-martial shall have power to try . . . any other person who by the law of war is subject to trial by military tribunals." A. W. 82 provides that "any person who in time of war shall be found lurking or acting as a spy in or about any of the fortifications, posts, quarters, or encampments of any of the armies of the United States or elsewhere shall be tried by a general court-martial or by a military commission, and *shall, on conviction thereof, suffer death.*" The context and history of A. W. 12 and 82 show that the words "or elsewhere" do not restrict the jurisdiction to the immediate neighborhood of fortifications, posts, quarters, or encampments, but in modern conditions cover the entire area of the United States.

Ideal Leadership

"In our military history three men stand out as ideal types of leaders—George Washington, Winfield Scott, and Robert E. Lee. In analyzing the character of these men we find almost identical qualities. Considering the military side of each we find, first of all, that they were endowed with a sense of public duty that impelled them to sacrifice every personal consideration in behalf of their respective causes. They had everything to lose and practically nothing to gain by their sacrifices. For their day, each was a man of the highest professional attainments; each was a man of unquestionable moral and physical courage. They were intensely human; they were stern taskmasters, exacting the utmost of their followers; but not one of the three ever exacted more of his men than he did of himself.

Considering the personal or non-military side of their characters we find them to be men of the highest sense of honesty, justice and decency. They possessed many other attractive qualities calculated to distinguish them and aid them in their leadership; but the qualities just considered were those that compelled the respect, the confidence, the admiration, and loyalty of their followers."—*Officers' Manual by Moss.*

Change of Address

The publication of Special Orders is now Restricted. Orders showing change of station of our members, therefore, are no longer available to us. For this reason, it is requested that changes of address (or A.P.O.) and title be furnished us without delay upon any change of address. The CAVALRY JOURNAL will reach you wherever the United States mail is carried. Use the *change of address card* provided as an insert with this issue.

Far-East Time Variations

Japan is 14 hours ahead of Washington Standard Time, Hawaii, 5½ hours behind it. The international date-line runs between Midway and Wake islands, making Midway and all points west of it later than Eastern Standard Time, while Wake and all points west are ahead of Eastern Standard Time.

This table gives the time in the principal points involved in the war when it is noon in Washington, Eastern Standard Time. (1:00 PM Eastern War Time.)

Samoa	6:00 A.M. Same Day	Moscow	8:00 P.M. Same Day
Hawaii	6:30 A.M. Same Day	Bombay	10:30 P.M. Same Day
Berlin	7:00 P.M. Same Day	Dutch East Indies	12:30 A.M. Next Day
Singapore	Midnight Same Day		
Manila	1:00 A.M. Next Day	Tokyo	2:00 A.M. Next Day
Sydney	3:00 A.M. Next Day	Wellington, New Zealand	4:30 A.M. Next Day
London	6:00 P.M. Same Day		

American Soldier of Today Taller, Heavier Than in 1917

An increase in both weight and stature distinguish the modern American soldier from the average citizen-soldier who entered the Army in 1917, was revealed by the War Department following a study of medical records.

In 1917 the average man entering the Army was 67.49 inches in height, but the records show the present soldier is 68.19 inches tall. This constitutes an increase of .7 of an inch.

The average weight of the 1917 soldier was 141.5 pounds, whereas the man entering the Army today tips the scales at an average of 151.3 pounds, an increase of 9.8 pounds.

Erratum

In the March-April issue of The CAVALRY JOURNAL, bottom of Page 20, the Japanese word Shosha (Major) should be Shosa.

Mechanized Kitchens

Too much kitchen paraphernalia for a bivouac or even a temporary camp. A compact kitchen truck with the necessary built-in fixtures — all ready to move at a moment's notice — obviously would be preferable under all weather conditions and climate.

Wanted!

—a copy of The Cavalry Journal, July, 1923!

Recently, we have had several requests for copies of our July, 1923, issue, but regrettably, other than our bound file copy, none is available to us.

It will be appreciated if anyone having a spare copy will mail it to The Editor, The CAVALRY JOURNAL, 1719 K Street, N.W., Washington, D. C. Postage plus 50c will be refunded promptly!

Wanted

Major General Innis P. Swift, Fort Bliss, Texas, desires to purchase a copy of *Cavalry Outpost Duties*, by F. de Brack, published in 1893 and now out of print. Anyone having a copy for sale is requested to communicate direct with General Swift.

Army Initiates Program to Conserve Gasoline and Rubber

The War Department has announced that army units and posts have been instructed to operate motor vehicles on a minimum schedule necessary for the training of troops and the administration of installations in order to conserve rubber and gasoline.

All commanders have been instructed to take steps to reduce the operation of motor vehicles, conserve the expenditure of gasoline, and conserve rubber. Included in measures to conserve the expenditure of gasoline and consequent conservation of rubber are:

(a) Pooling the use of motor transportation.
(b) *Use of animal-drawn vehicles where available or obtainable.*
(c) Elimination of all unnecessary trips.
(d) Strict accountability for loading to the maximum usable pay-load.
(e) Maintenance of power plants properly tuned up, brakes properly adjusted, wheels properly aligned and tires, properly inflated.
(f) Prevention of idling motors while waiting for loads or passengers.
(g) Enforcement of the principle that army vehicles will not be used to transport military personnel to or from homes.

"The Locators"

Army wives by the thousands have settled down in towns, hamlets and cities all over the United States while their officer husbands serve overseas. Families from Hawaii, *the Philippines* and the Canal Zone have returned to the States to live and wait for the return of their menfolk.

At Fort Leavenworth, where Army officer wives are more fortunate in that their husbands have not yet left the country, Mrs. Charles R. Bathurst, wife of Lieutenant Colonel Charles R. Bathurst, an instructor at the Command and General Staff School, conceived the idea of keeping in touch with officer wives. She, and a number of other wives, started a volunteer group known as The Locators. This organization set up a filing system to keep tab on the addresses of all army officer wives. In due time the location of any officer's wife will be available to her friends. No lists will be released for commercial use.

Recently organized, The Locators already have an extensive list of addresses and have sent out mailing pieces urging all army officer wives to register their addresses with the organization. Inquiries for the addresses of wives are sent in with a self-addressed postal card and the information, if on file, is returned.

The Fort Leavenworth women are donating their time to the organization and the Officers' Club on the post has furnished free office space from which the organization operates.

Coincidence

Major General George S. Patton, Jr. commands the army's Desert Training Center—"Little Libya," where mechanized units are participating experimentally in maneuvers.

A noteworthy coincidence is the fact that General Patton's grandfather on horseback campaigned in the *Indian Wars* near the very spot where the base camp is located. General Patton, himself formerly a cavalryman, therefore, is thoroughly familiar with the extensive desert training area which extends into three states —and is doubtless aware that the *airplane-tank-horse* combination, under unified command and aggressive leadership, as demonstrated by Russia, is potentially the most redoubtable weapon in modern armies today!

Censorship

Everyone should be thoroughly cognizant of the provisions of Section III, War Department Circular No. 113, April 17, 1942—"Policy governing release of military information."

Notice

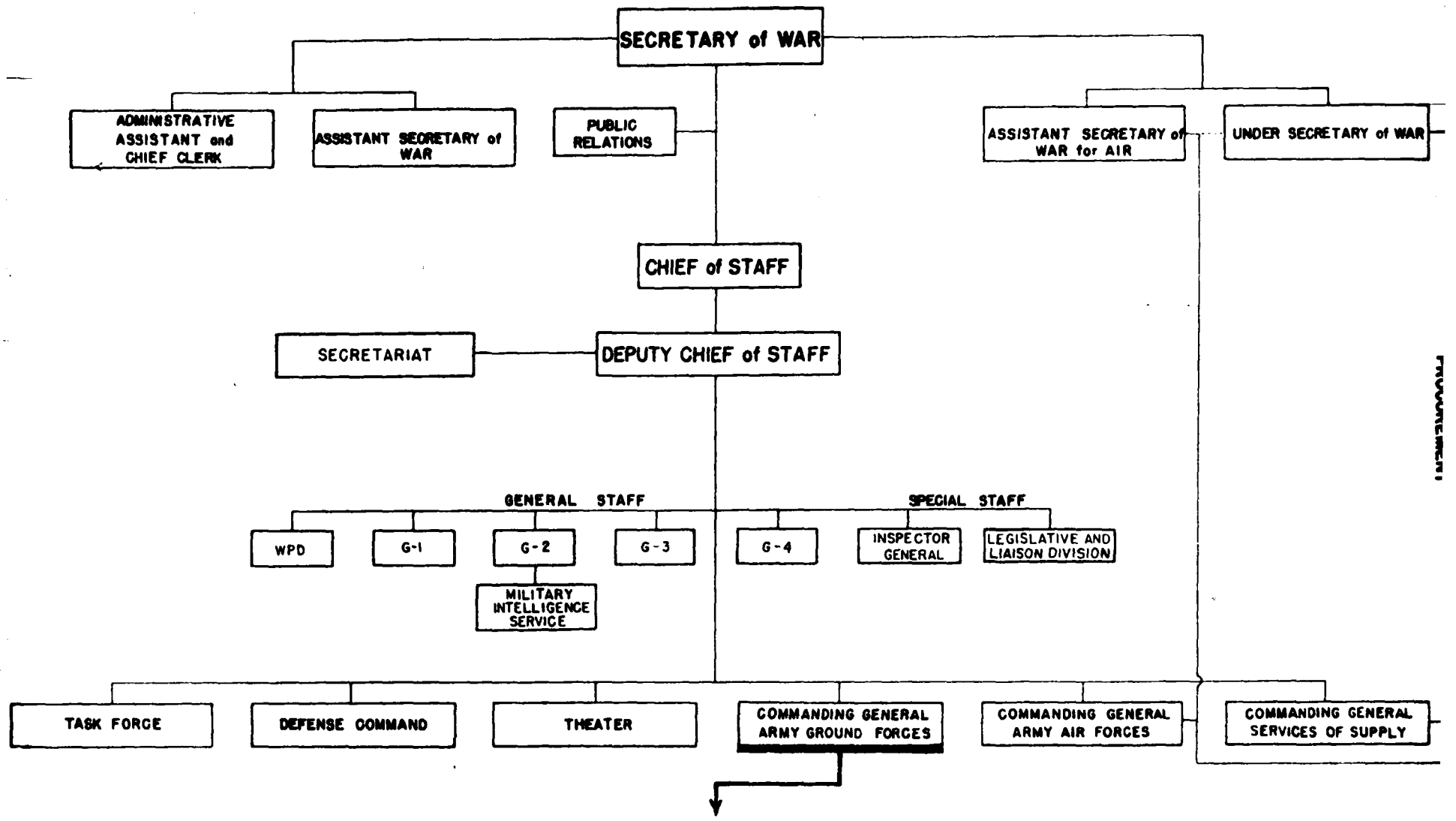
We recently have had several individual requests for "restricted" manuals. The correct procedure for securing *any* "restricted" documents is to make application through your commanding officer, and then only *if duty assignment is of such a character that it is necessary in the line of duty.* Application is then made by the commanding officer to the Publications Section of the Adjutant General's Office.

Save! !

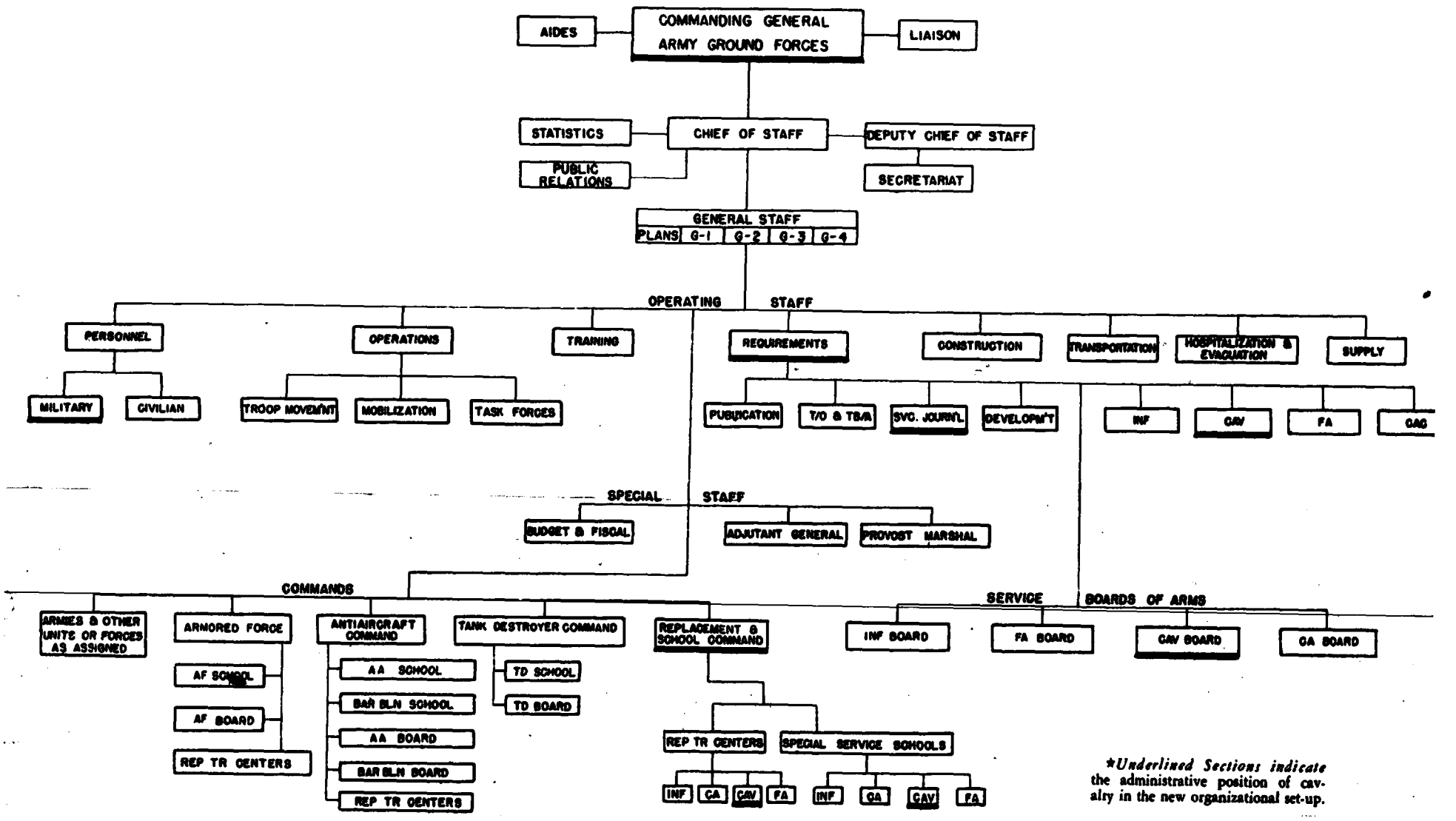
In previous issues we repeatedly have appealed to everyone to "Save before we have to—"

Well, now we *have to*—for *VICTORY!*

ORGANIZATION OF THE ARMY



ORGANIZATION OF THE GROUND FORCES*



*Underlined Sections indicate the administrative position of cavalry in the new organizational set-up.

THERE is a great deal that I would like to write in these Notes for The CAVALRY JOURNAL that the Censor would not allow. And rightly so. Questions of organization, equipment and tactics, for the purpose of fighting our enemies in this war, cannot now be published or openly discussed. Some comments, however, can be made on items that have already been published. It is well known that I believe firmly in the value of cavalry as a general proposition; but neither I nor anyone else should now publish any ideas as to when, where or how cavalry may be used in this war. The fact that we still have cavalry should convince any anxious cavalrymen that the War Department believes that we may have to use cavalry somewhere at sometime. Cavalrymen should rest on that fact!

In the March-April, 1942, issue of The CAVALRY JOURNAL an article from Australia appears entitled "They Ride Again." Apparently, they are going to have a considerable force of cavalry fighting in Australia if the enemy invades that land. The peculiar thing about Australian mounted troops is that they call themselves "mounted infantry." This was noted also in the Palestine Campaign in 1917. The Australian "mounted infantry" of that campaign was practically the same as our cavalry. That is to say, it was trained to fight both mounted and dismounted, and actually did so. That is the kind of cavalry we have always had. Why the Australians call it "mounted infantry" is hard to understand. Perhaps it is because the European cavalry was organized and trained to fight only mounted except for rare occasions when dismounted action was resorted to as an expedient. The European cavalry, however, had created a lot of "dragoons" by the time that the World War had commenced in 1914, and they did a great deal of dismounted fighting; but they were not well equipped or trained for it. European soldiers often called our cavalry "mounted infantry" because it *was* well armed and trained for dismounted action.

It has always seemed to us that the term "mounted infantry" was a misnomer, since there is no reason why horsemen should not be able to fight mounted or dismounted equally well. At any rate, we had the right to call such a force "cavalry" if we chose to do so. There would be no sense in having cavalry able to fight only mounted, and another mounted force able to fight only dismounted.

Another strange thing about this article, "They Ride Again," is that, in discussing the large number of horses available in Australia, the writer says that the horses are not up to standard for cavalry horses, but are ideal for mounted infantry. He says that they are not heavy enough for cavalry. It would certainly appear to us that any horses light enough to be saddle horses and heavy and strong enough to be good for mounted infantry should be suitable for the kind of cavalry we believe in.

The article also states that "in the event of invasion, a new form of guerrilla warfare with mounted troops is almost certain to develop." What he means is that the cavalry will engage in a type of warfare similar to guerrilla warfare. Guerrilla warfare, as understood up to this war, was a form of warfare conducted by partisans or civilian combatants who were usually without the uniforms of their country's army and were subject to hanging or execution by firing squads of the enemy if captured. The cavalry of an army, in proper uniform, could engage in very similar operations without being considered as beyond the protection of International Law if any were captured. We quite agree that modern cavalry operations may take on such a guerrilla form in a very useful way.

This goes again to emphasize what I have written before to the effect that in our cavalry the leaders of small units, from the squadron down, must be trained to a high state of initiative. I do not mean to say that cavalry will be confined exclusively to some form of guerrilla warfare, but in some countries and under some conditions this would be most effective.

In any case, we have many horses in America, and they should be utilized in our total war effort.

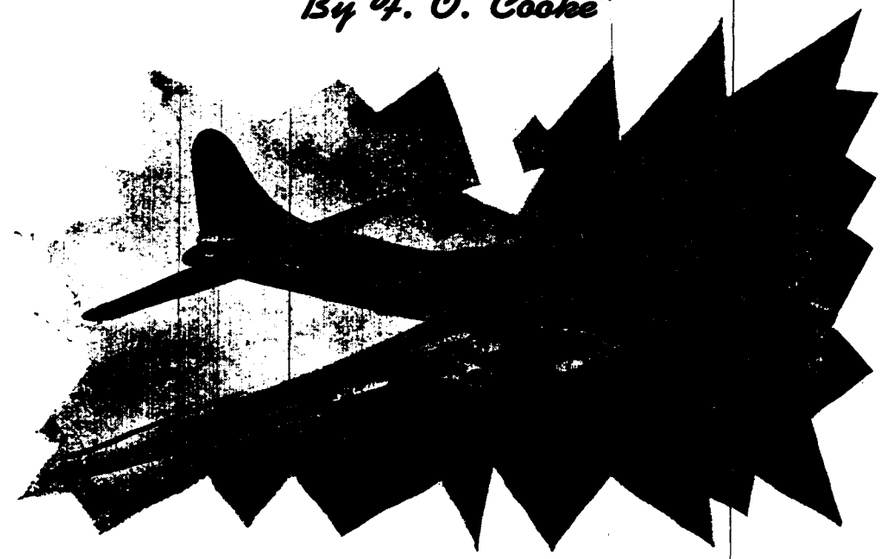
★ ★

FIGHT!

A nation is not worthy to be saved if, in the hour of its fate, it will not gather up all its jewels of manhood and life, and go into the conflict, however bloody and doubtful, resolved on measureless ruin or complete success.—*Garfield.*

Air Combat Power

*By F. O. Cooke**



FROM Hannibal's waddling elephants to Hitler's screaming Stukas, military history proves repeatedly that a powerful new offensive weapon is the surest short-cut to victory. In the long-engine long-range or heavy bomber, America possesses the strongest single striking force on world battlefronts today.

Equipped with the turbo-super-charger, the latest Flying Fortresses and Liberators operate at elevations over 35,000 feet, with a range of more than 3,000 miles and a bomb load of 4 tons, at 300 m.p.h. The Norden bomb sight enables them to blast ships, harbors, fortifications, industrial centers and troop concentrations in broad daylight, unseen and unheard at their terrific height, a thousand miles inside enemy territory.

Daylight bombing of the Axis naval base at Brest had immobilized for several months the German warships *Gneisenau, Scharnhorst*, and *Prinz Eugen* until soupy weather grounded the long rangers and gave the imprisoned ships a chance to escape. The Fortress was first used here in July, 1941, from altitudes so high that in midsummer the planes were covered with frost, and first warning of the attack was the scream of the bombs. Used against German or Japanese industrial centers, it would shatter both production and morale.

When the prototype of the Fortress, the Boeing 299, was first planned in 1932, and flown in 1935, most aeronautic experts scoffed at it as a fantastic waste of material. But in two years of war, American foresight and air engineering have been fully vindicated in their buildup of the heavy bomber. Consolidated's Catalinas and Coronados are the mainstay of the Atlantic patrol It was a Catalina which spotted the *Bismarck* and led the British fleet in for the kill. A Lockheed Hudson, converted for patrol bombing, recorded the first capture of a submarine by an airplane.

FORTRESSES VS. JAPS

Even more significant is the showing of the Flying Fortresses against the Japanese. The few heavy bombers available in the battle of the Pacific have taken almost a 10 to 1 toll of Jap fighter planes sent against them. They have bombed Bangkok, Jaluit, and Malaya, and blasted Jap fleet concentrations. The hard-pressed Dutch, asked what was most needed to save the Indies, answered, "Send us four-engine bombers. Send us destroyers and submarines if you can, but first of all, heavy bombers."

Even the early model B-17's, which European experts scornfully dubbed "Flying Targets," proved highly effective and not so vulnerable in the battles of Britain and Libya, where a lone Flying Fortress beat off nine ME 109's and returned safely home. Improvements based on observation of their performance on these fronts have caused five major changes in this model during the past five years, rendering old assembly lines and production units obsolete, and sharply limiting the supply of these complex weapons.

If American aviation facilities were stepped up today to the claims made on paper for 1943, a United victory

*Courtesy *The Leatherneck* Magazine.

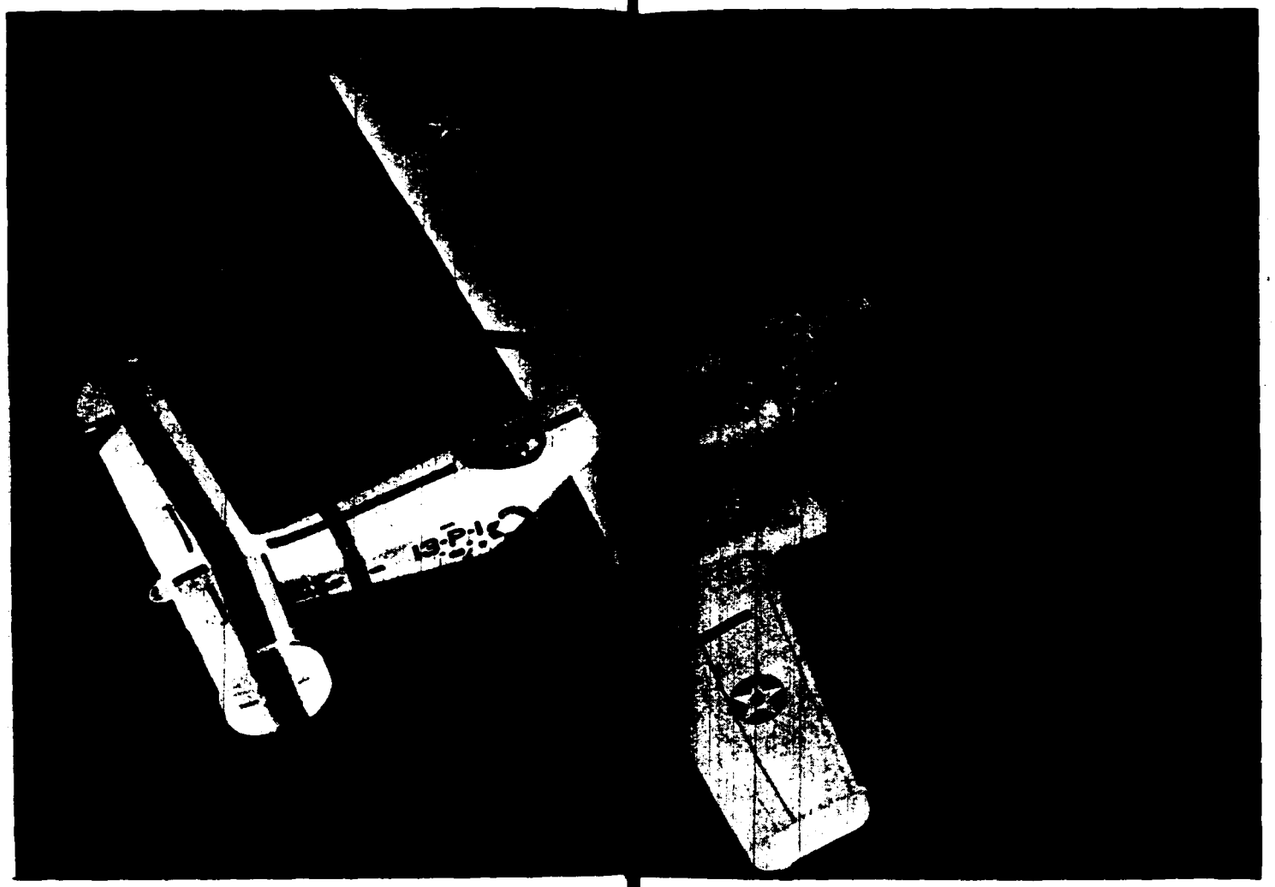
would be certain within the year. For flocks of these devastating death-birds, operating from bases in Greenland, Iceland or Ulster, flying high above ack-ack and fighter patrols, could lay waste in sustained daylight bombing the entire German industrial and communications nerve centers, coming and going unscathed, since the Axis has not yet developed pursuit planes which can operate successfully in the substratosphere. In the word of Winston Churchill: "Even if the Nazi legions stood triumphant on the Black Sea . . . even if Hitler were at the gates of India, it would profit him nothing if at the same time the entire economic and scientific apparatus of German war power lay shattered and pulverized at home."

But as the British have found, to be decisively effective not twenty or thirty (the number they had on hand late in 1941), or even the 2,000 Flying Fortresses a British Air Marshal once mentioned as the amount needed "to clean up the job in short order," would be enough. "Strategic" bombing is a long-time policy, to be maintained over many months and across endless miles of enemy territory. Great fleets of thousands of bombers are needed on all fronts, and needed now, before some method of counteracting their deadly fire can be devised.

The long-range bomber today doubles in brass for both land and sea artillery. A full bomb-load discharged at 10,000 feet equals the effect of a battery of howitzers at point blank range. Heavy bombers, unopposed, can outmaneuver heavy cruisers and battleships, although these planes are not at their best against ships at sea. Britain has found them a more than satisfactory substitute for French coastal artillery and the silenced guns of the Maginot Line. At this point in the history of strategy, the heavy bomber is supreme on land and sea.

But in the first months of 1942 no power in the world had sufficient long-rangers to launch an all-out offensive. The war has clearly developed into a production race. The late Sir Frederick Banting predicted: "Whichever power gets up to 40,000 feet first and can stay there longest with the heaviest guns (and the greatest number of planes) will win the war." In other words, the most efficient production line will win.

Heavy bombers are not easy to produce in quantities sufficient for more than mere guerrilla attacks on enemy bases. Each one costs around $300,000. There are 54 stations on Consolidated's 3,000-foot assembly line, with a six-hour stop at each station.



The Coronado by Consolidated is rated one of the most powerful patrol bombers in the world. Because patrol bombers must travel long distances unescorted, the Coronado has heavily armed power turrets in nose, tail and sides. Its range is 5,200 miles with seven tons of bombs.

Acres of strategically located and well protected floor space, tons of specially designed machines, stockpiles of raw materials (U. S. weakest link at present), and hundreds of thousands of skilled workers are needed. The number of drawings involved is about 17,000, the total number of parts almost 40,000, each small piece requiring meticulous design and tooling.

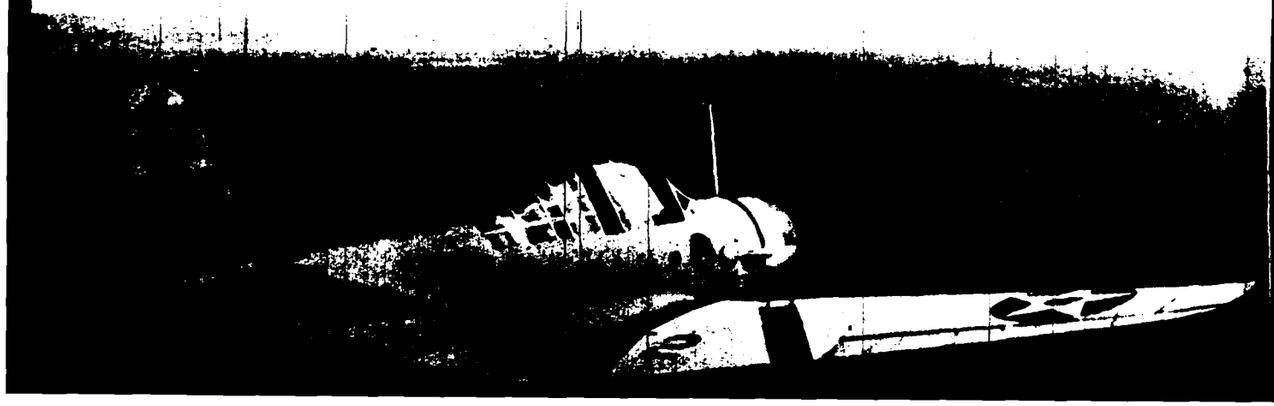
Not all nations can meet these exacting requirements. Japan lacks floorspace, raw materials, and skilled labor. Her system of farming out the manufacturing of machine parts to small independent companies makes assembly and tolerance of parts extremely difficult. Proof of her troubles is her inabilty to duplicate the giant Douglas DC-4, although a model plane was sold to her to break down for analysis, and Douglas even licensed the blue prints over to her. Japanese workers could not reproduce it.

Japs Lack Heavy Bombers

Forced by the ABCD economic blockade to strike before she was fully ready, Japan's failure to show much air strength in Luzon after the fall of Manila means that she hasn't enough planes to fight all-out on more than one front. If she could have followed up the assault on Pearl Harbor with hourly bombings by fleets of her Mitsubishi 92's, the war in the Pacific might have been over as soon as it started. But Japan just doesn't have the planes.

Germany too was unprepared for long-range bombing. Field Marshall Hermann Goering may have begun with a quixotic vision of a Luftwaffe of bemedalled knights of the air driving the muddled British from the skies. But over-boldened by her diplomatic success at Munich, Germany pushed herself into large-scale warfare two years before her air force was mechanically strong enough to blitz Britain into blightly. She could muster only enough strength for one blow at a time, as at Coventry. Unable to follow through with sustained blitz bombings she watched the RAF prove too tough in manpower and machine quality, and gain rapidly in quantity, thanks to American aid and increased production at home.

Then his yellow ally's rabbit-punch at Pearl Harbor convinced Hitler that the age of chivalry was over. Not Aryan racial or scientific superiority would win in the



"The Devastator," carrier based Douglas dive-bomber of the Navy. This ship is also used by the Army under the designation A-24.

Old Faithful of the Atlantic Patrol is the Consolidated "Catalina" patrol bomber. It was this type of ship that shadowed the ill-fated *Bismarck* and led British surface ships in for the kill. She has a range of 4,000 miles and the side blisters indicate she is well able to take care of herself.

air, but stark machine strength, firepower, and force of mechanized numbers. Heavy bombers, not speedy pursuit ships, were winning the world's air battles. This is doubtless the cause of his recent coolness toward Goering and the current lull in Nazi air activities over Europe. Hitler's engineers are working overtime to overcome their initial misplacement of emphasis on individual fighter planes and dive bombers. (Four prominent Nazi airmen recently died in crashes on experimental flights.)

Biggest dark horse in the field of aviation is Russia, whose air leaders planned and built giant bombers years before the U. S. Like so many USSR innovations—parachute troops, gliders, air-borne cannon—these were long regarded as Buck Rogers stunts until practical use by the Nazis made them all too real.

Exact status of the Red air force is strictly secret. There can be little doubt that even as far back as Lindbergh's visit in the early 30's, they showed only second-rate stuff to visiting firemen. Americans, they said, talk too much. They kept up the same pretense in the war against Finland, causing Hitler to underestimate their true strength.

But the USSR air force must be plenty good to have stopped even a tired Luftwaffe cold enough to permit the recent Russian land victories. The Soviets have long had the highest percentage of heavy bombers; more than one-fifth of total fighting aircraft. Their strategy demands 3,500 combat planes for every nine corps of troops.

Although they have shown few long-range bombers thus far, the Soviets doubtless have many more surprises up their sleeves like the "flying tanks" which mowed down German mechanized units before Moscow, and were so heavily armored that only direct cannon hits could damage them. Other Russian rarebits may be a six-engine long-ranger, and a transport biplane carrying troops between the wings.

Of all the warring nations the USSR alone has the resources in her immense industrial plants back of the Urals, to challenge America's production supremacy.

Britain's entry in the long-range sweep-stakes is as recent as last September, since RAF authorities even late in 1940 derided the usefulness of the giant bomber. Then the fall of France and the Lowlands took out of Allied hands the French bases England had planned on using, putting German planes at England's door, and German targets six times farther away from English bases than the British centers were from the new Nazi points of attack.

Thus to bomb Germany and Italy, and carry the crucial Libyan-Mediterranean campaign through successfully, planes were demanded having great cruising range and bombing power. The heavy bomber again had to take the place of both artillery and battleship.

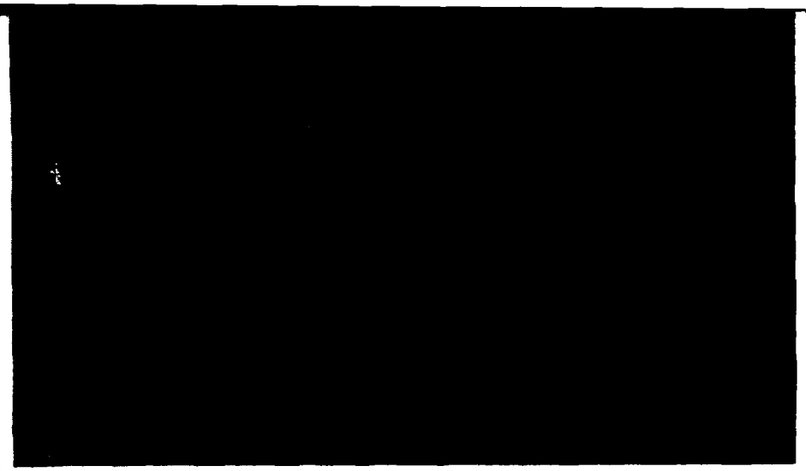
U. S. Aid Essential

Britain now puts out three bombers of this type: the Handley-Page Halifax, the Short Stirling, and the Avro Manchester. These have already made successful raids on Occupied France and Nazi troops in Libya. But Britain needs far more of them before she can carry the war to German centers and repay the Nazis for the razing of Coventry and London's "rain of fire." Her limited industrial potential makes U. S. aid essential if this is to be more than a paper victory. As soon as she begins putting out a new model plane as was the case with the Defiants which wreaked such havoc with Hitler's dive bombers at Dunkirk, the enemy seeks out the production unit and bombs it into uselessness. Like Australia and the Dutch Indies, England looks to America for the planes which will turn the tide of victory.

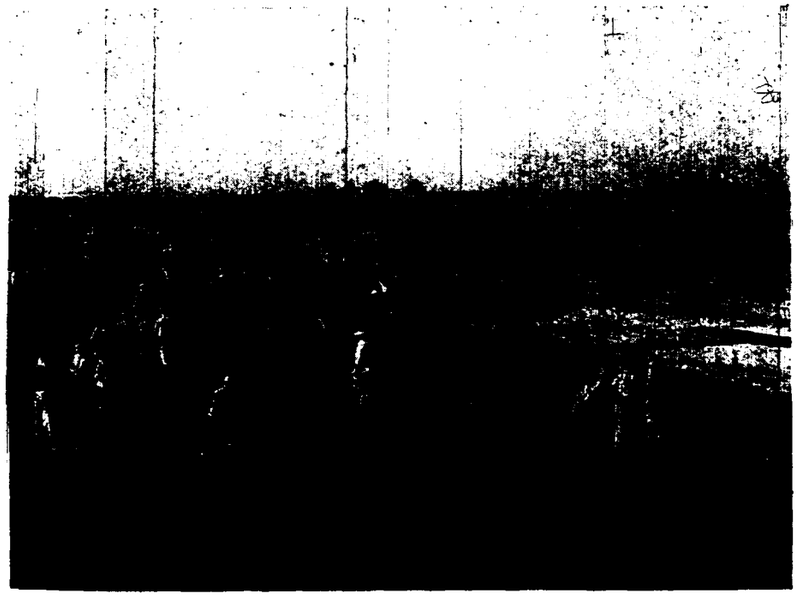
Axis engineers are planning feverishly to overcome our present advantage, by designing interceptors with a ceiling equal to that of the heavy bombers. For just as air power is proving the decisive factor in the war, so altitude, more than range or speed, is the decisive factor in air power today. What makes the Flying Fortress supreme is not its range, which is not as great as that of Nazi or Italian planes, or its speed, which can not match the latest fighters or attack-bombers. It is its ability, through the turbo-supercharger, to maneuver in the stratosphere, higher than any pur-

Top—Douglas two-motor attack bomber and *below* the famous Martin Baltimore.

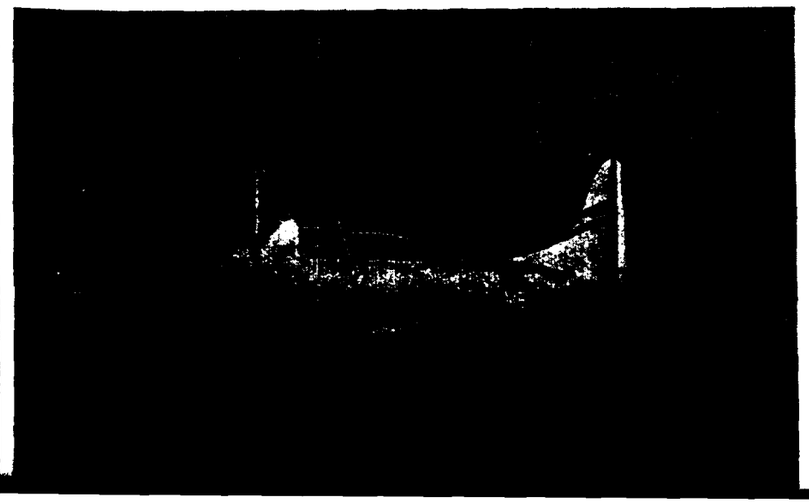
Below—North American's AB-25 medium bomber rates higher than most European planes of its class.



Above—Famous Vultee Vengeance dive bomber of the Navy and *below*—North American medium bombers on the line.



Below—Dauntless dive bomber of the Marine Corps is one of the most feared planes on the battlefronts.



suit plane can follow. The nation which can maintain altitude supremacy is the nation which will win the war in the air. The Germans are experimenting on a plane with a 50,000 foot ceiling.

Flying in the stratosphere is like floating through a haunted house. Breath comes short; air is cold (40 to 73 degrees below zero). Strange things happen to the motor without a supercharger: greased bearings freeze fast, instruments fail for lack of pressure, vapor locks develop. Stranger things happen to a pilot without a pressure cabin: nitrogen bubbles in his blood, an arm or leg may be suddenly paralyzed, or his eyes may see double. Rubber de-icing boots grow brittle and crack to pieces. Camouflage paint peels and flakes like dandruff on return to earth. Both men and machines must be of superior mold to survive the terrific strain.

Major R. W. Schroeder, once holder of the 38,180 foot altitude record, exhausted his oxygen at that height and plunged unconscious for five miles, but miraculously landed safely. The 67 degrees below zero temperature had frozen his eyeballs, but the motor functioned well enough. Men, not machinery, are likely to crack in stratosphere bombing.

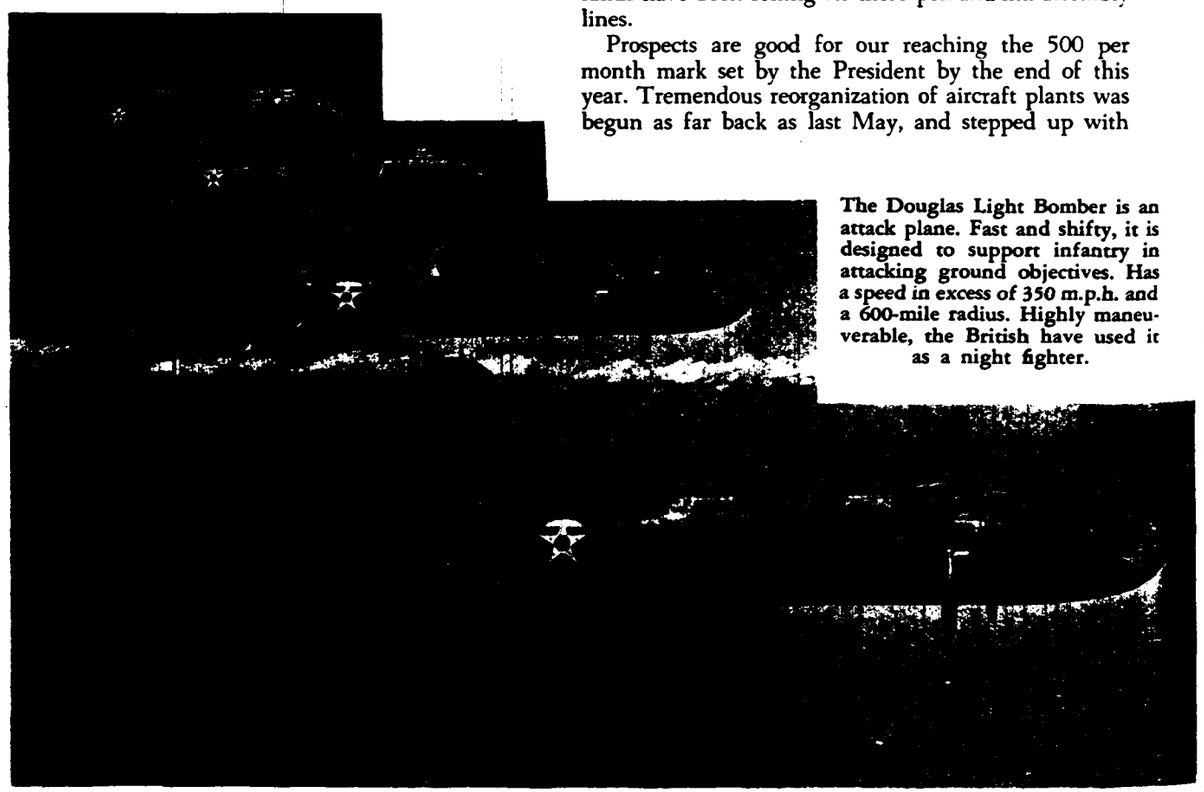
U. S. Leads Strato Field

Americans are peculiarly well equipped to hold the lead in the production of the stratosphere bomber. It is the logical weapon to have developed in a land of lofty mountains and vast distances. We have the raw materials (once existing bottlenecks are wiped out), the skilled labor, the floor space and proving grounds, the pilots in training. Test flights to meet stratosphere conditions are now being held by Boeing at a cost of $1,000 per hour, testing new plastics, insulations, substitutes for oil and grease, and pressure suits, as seen in the picture "Dive Bomber." No other nation, except possibly Russia, can come close to us in this field. Our problem now is to get the planes off the drawing boards and into the air fast enough to maintain our present lead.

This means freezing present designs, cutting down on variety of specialized types, and combining their best features into one or two models for mass production, the same process England went through in putting out enough Spitfires and Hurricanes to hold the Luftwaffe at bay. Experts say the world's finest planes are still on paper, some in U. S., many on Axis drawing boards. But to produce them means complete upheaval of existing facilities, another year or two of delay before planes roll off the lines. And we cannot afford to wait. The present lull in Axis air activities indicates an all-out industrial effort to match or better our new four-engine bombers, dive bombers, flying boats, and pursuit ships.

Even since the President's speech on January 6, plane production statistics have filled the air like news clippings in prop wash. Planes by hundreds and thousands have been rolling off these pen-and-ink assembly lines.

Prospects are good for our reaching the 500 per month mark set by the President by the end of this year. Tremendous reorganization of aircraft plants was begun as far back as last May, and stepped up with the government's recent recommissioning of automobile factories to manufacture plane parts and machine tools.



The Douglas Light Bomber is an attack plane. Fast and shifty, it is designed to support infantry in attacking ground objectives. Has a speed in excess of 350 m.p.h. and a 600-mile radius. Highly maneuverable, the British have used it as a night fighter.

Pooling Potentials

Holding the shotgun, since his appointment last May as Assistant Secretary of War for Air, is Robert A. Lovett, alumnus of the famous Yale Unit of flying volunteers. In devotion to air power as more decisive than troops or ships, he follows the late General Billy Mitchell, who was court-martialled during the lull in American defense. Now that the Nazis have proved Mitchell was right, Lovett is getting the job done by walking more softly, talking more persuasively. He is responsible not only for pooling of manufacturer's potentials, but for organization of the Army Air Forces into striking units. Lovett is by no means all talk and reorganization. In World War I, as a Navy bomber pilot, he won the rank of Lieutenant Commander and the Navy Cross, still flies his own plane when he has time.

Exactly what type of plane will emerge from the new production process is of course a closely guarded secret. But from specifications already released, a general idea of the various types of planes may be inferred.

For stratosphere bombing, at heights of 25,000 to 30,000 feet, we will have the B17-E or Flying Fortress, the B-24, Consair's Liberator, and the still experimental B-19's exhaust-driven turbo-supercharger, and power driven turrets, innovations which have held up assembly lines for months.

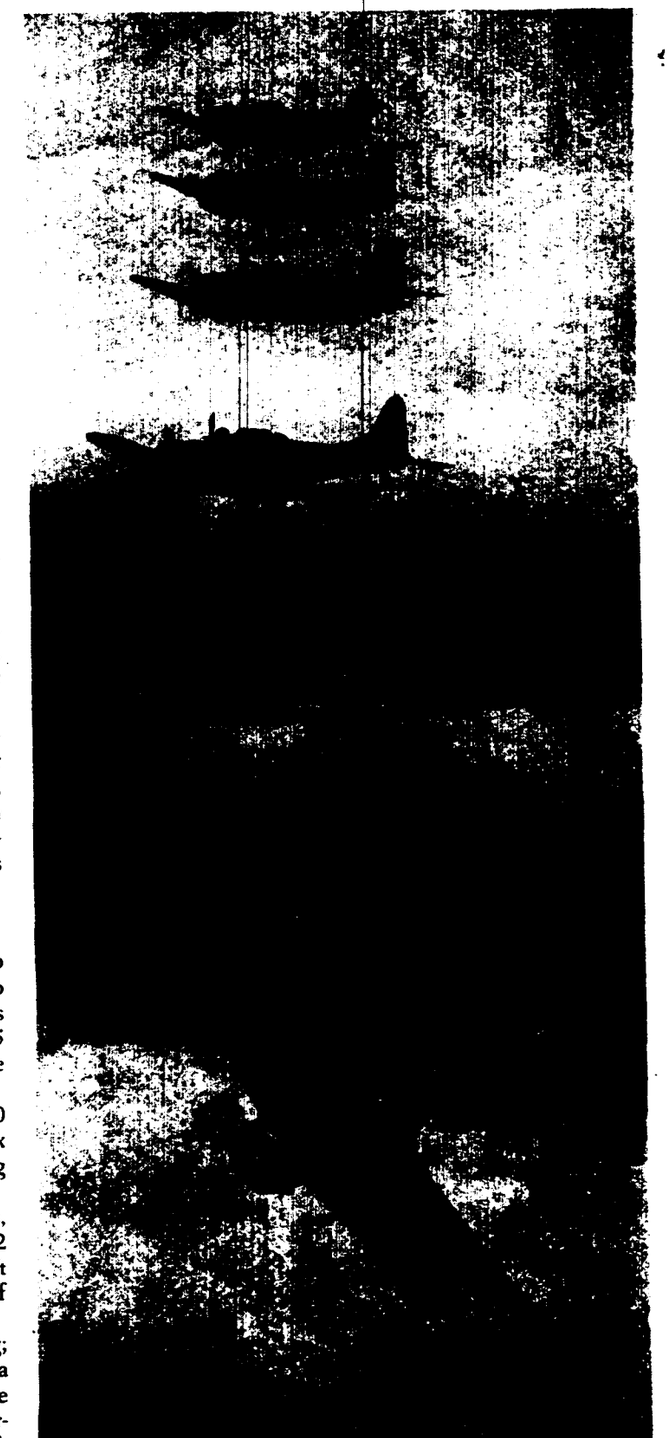
B-17E World's Highest

When completed, the B-17E will have a top speed of over 300 m.p.h., a radius of action (to target and return) of 1,700 miles (which means a total range of 3,600), bomb load of 4 to 5 tons, ceiling over 30,000 feet, highest in the world.

The B-24 is a bit smaller and faster: 1,500 mile radius, 26,000 ft. ceiling. Its unorthodox Davis-Caltech thin section wing permits low drag and easy handling.

The B-19, an 80-ton experiment by Douglas, is slow (200 m.p.h.), has a wing spread of 212 feet (almost twice the B-24), but can stay aloft two full days, cruise 7,500 miles with 8 tons of bombs.

The British have giant bombers almost as big; their latest, the Handley-Page Halifax, has a wing span of 99 feet, 4 liquid-cooled in-line Rolls-Royce Merlin motors (considered by airmen among the world's safest), greater bomb capacity than the Fortress, but less speed, range, altitude. The Short Stirling is similar in size and performance, also has 37mm cannon in power



Dauntless dive bombers of the Army Air Corps peel off to deliver a direct attack. These ships are reputed to be far superior to the famed German Stukas, although still not the top dive bomber in this country.

driven turrets, but has Hercules radial air-cooled engines, and maneuverability, after bombs are dropped, superior to the crack Nazi Me 109 pursuits, which the Stirling consistently out-fights.

Nazi bombers of the giant type include the Heinkel 177, reported to have a range of 7,000 miles with 1,000 lbs. of bombs. Chief Scourge of Atlantic convoys are the Focke-Wulf Kuriers, a 4-engine bomber version of the transoceanic Condors Germany used to run to South America. These carry either 30 armed soldiers or several tons of explosives, besides the standard bomber crew of six. Like the British Stirling and Halifax, they carry cannon in power turrets and bomb bulges. Their service ceiling is 28,850 ft., range 2,300 miles at 224 m.p.h. Both these giants as well as the big Junkers, Ju 96, can do better than 300 m.p.h. But the British claim that in spite of their speed and heavy armor, they have not worked too well for the Nazis. Also disappointing, and curtailed in production, is the new 4-engine Dornier DO-19, weak in horsepower, altitude, speed.

A new Nazi plane recently crashed by a balloon barrage in Britain had a range of 4,500 miles at 200 m.p.h., or a cruising speed of 294 m.p.h. at 19,000 feet. Powered by two fan-cooled 14 cylinder radial motors, it can carry either torpedoes or bombs, 4,000 pounds. A special brake in the tail makes it a dive bomber as well. A development of the Dornier "Flying Pencil," it could be a definite threat to all but our latest high level bombers.

Japan has only one 4-engine bomber type, but it is bigger than the Boeing B17-C. The Japs have jammed features copied from four foreign planes all into one. The Mistubishi 92 is a 144 ft. baby, hybrid offspring of the Wellington, the Douglas DC-3, the He 111 and the Junkers G39. Performance figures for this plane are not available, but lacking both supercharger and bomb sight, it cannot be used for stratosphere bombing.

The Italians hold the world's distance record with their Savoia-Marchetti 82, of which they have an estimated 100 in reserve. They are now testing the Piaggio P 108-C, a 4-motor bomber transport, as well as experimenting with a plane without propellers, driven by air jets sucked through the nose.

Likewise in the experimental stage is the Soviet V-760, a 6-engined giant with a wing span of 144 ft. equal to the Douglas B-19, but weak in horsepower, and hence lacking range and altitude. Like the Short Stirling, it has a tremendous bomb capacity. The Reds also have in their old model TB-6 a twin-engined bomber capable of carrying a 6,600 bomb load 310 m.p.h. at 26,240 ft. This is a high-level bomber, but not up to the Fortress or Liberator.

Bombing at 15,000 to 25,000 feet is less dependent on good weather, more accurate, still fairly free from A.A. fire. Greater bomb loads are possible than in stratosphere bombing. Targets can be more restricted: instead of a general district or town, definite docks and factories can be hit. But risk of interception and deflection from combat planes becomes greater as the bombing range is made more accurate, hence the need for heavy armor and high maneuverability in this class of plane.

In this field as well, U. S. Army planes may lead the world. The Martin B-26 (called the Marauder by the British), so new that complete performance figures are still secret, has two 1,850-h.p. engines, flies at more than 350 m.p.h., can carry 3 tons of bombs more than 2,000

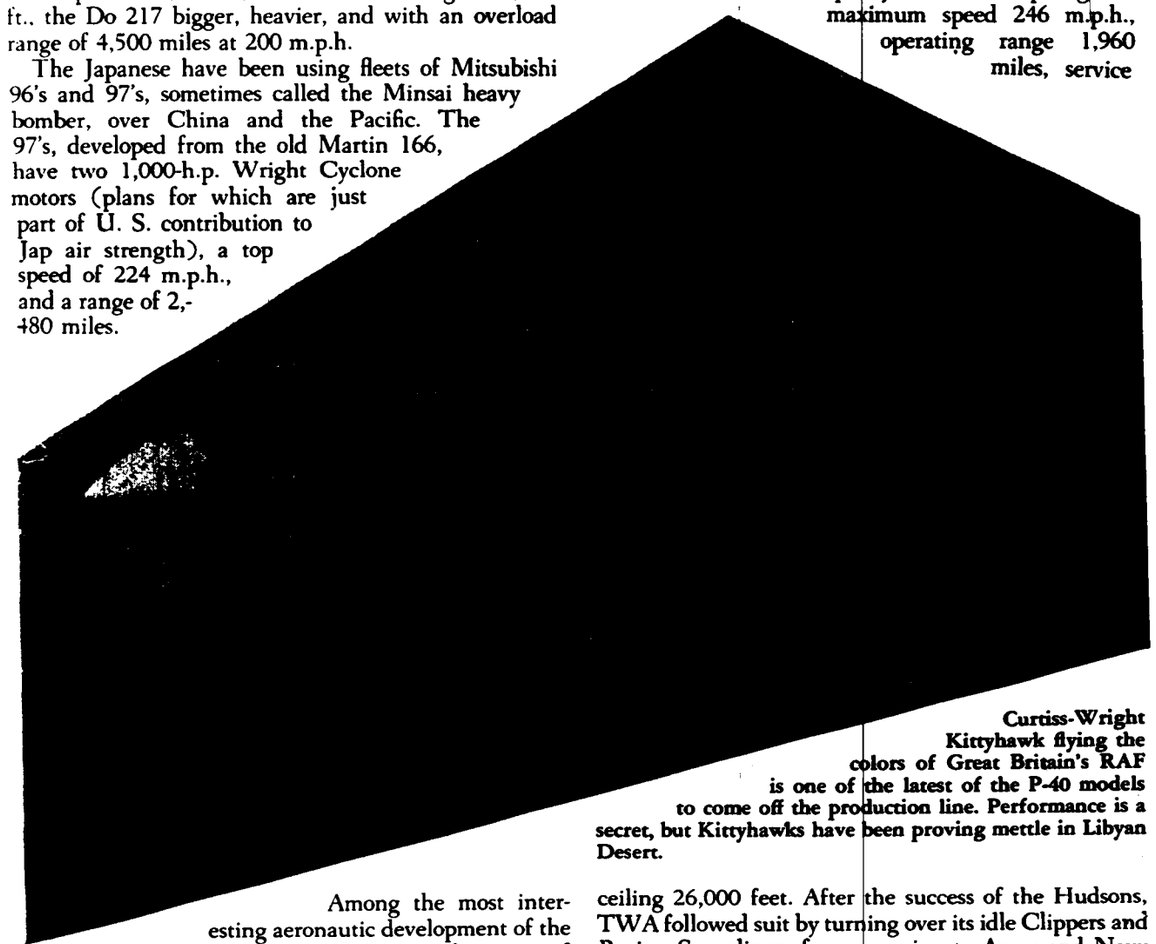
Barrel-Bodied Brewster Buffalo fighter has been called by British Far-East pilots "unbeatable for close quarter combat." The Buffaloes are prime favorites with the Dutch and have proven their superiority in many encounters with the Japs.

miles. It is thus an improvement over the Baltimores and Marylands which, with British Wellingtons, Whitleys, Manchesters and Hampdens, have been carrying on the bulk of RAF raids on Germany, Italy, Libya. United planes seem to have the edge on the Axis here too.

New Nazi Bombers

Latest German 2-engine bombers, said to be powered with 2,000-h.p. motors, include a new Henschel and the Heinkel He 119. Already in use are the Dornier Do 215 and 217, the former with a maximum speed of 311 m.p.h. at 16,400 ft., and a service ceiling of 29,600 ft., the Do 217 bigger, heavier, and with an overload range of 4,500 miles at 200 m.p.h.

The Japanese have been using fleets of Mitsubishi 96's and 97's, sometimes called the Minsai heavy bomber, over China and the Pacific. The 97's, developed from the old Martin 166, have two 1,000-h.p. Wright Cyclone motors (plans for which are just part of U. S. contribution to Jap air strength), a top speed of 224 m.p.h., and a range of 2,480 miles.



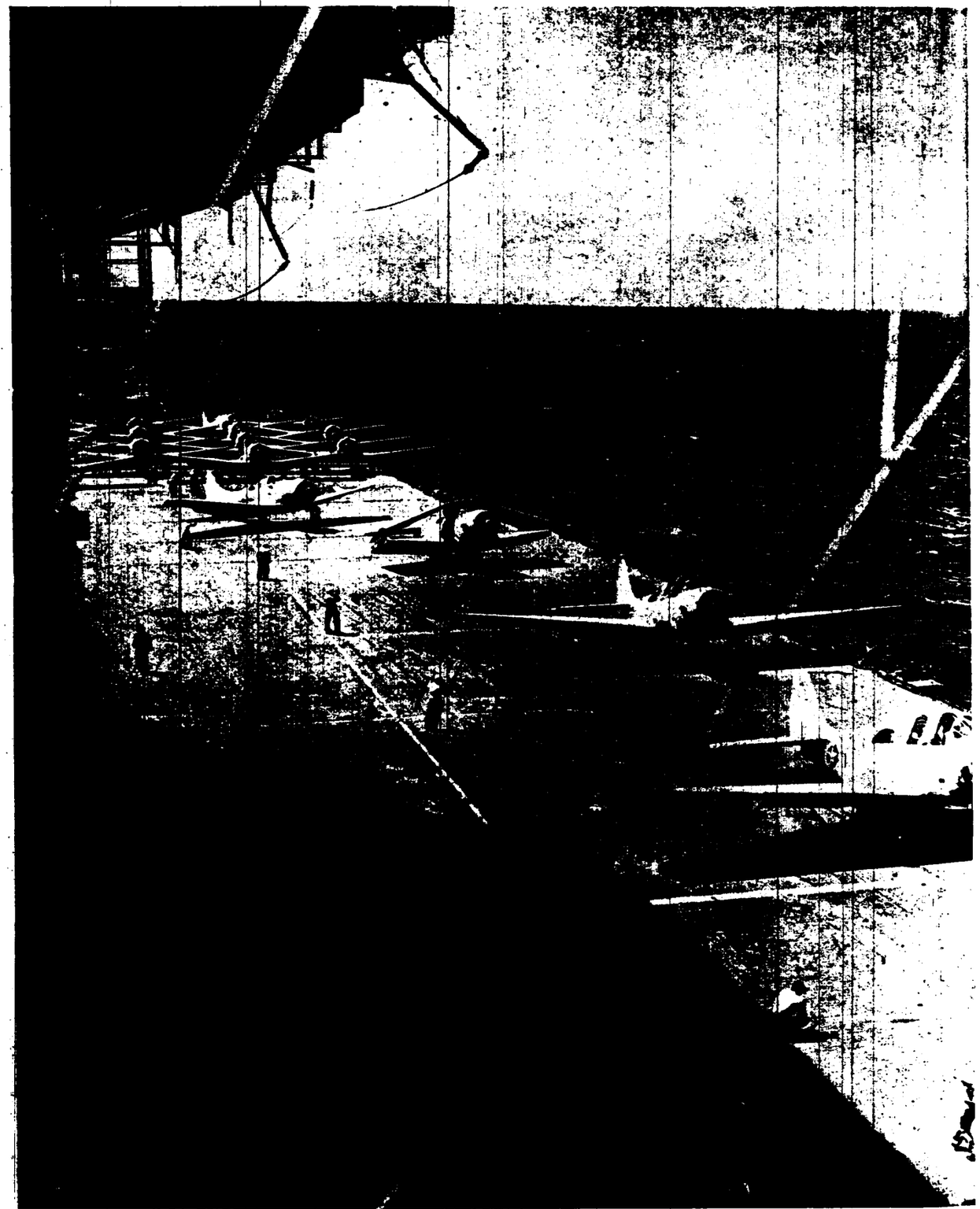
Curtiss-Wright Kittyhawk flying the colors of Great Britain's RAF is one of the latest of the P-40 models to come off the production line. Performance is a secret, but Kittyhawks have been proving mettle in Libyan Desert.

Among the most interesting aeronautic development of the war has been the conversion to military use of big commercial transport planes. First in this field was the Lockheed Hudson 14, commercially called the Lodestar. Originally turned over to the RAF as a long-range patrol and reconnaissance plane, it soon proved its all-round utility. The first American-made planes to see action in large numbers, they have been praised by pilots on all types of duty for their comfortable heated cabins, "auto-designed" instrument boards, ease in handling, reliable motor performance, and remarkable ruggedness. They came through the hell of Dunkirk with the upper skin of their wings wrinkled from dive bombing. New sets of wings were replaced in four hours. Out of more than 100 in action, each plane making from 6 to 8 trips ferrying officers and men back to England, only 7 planes were lost.

More of these successful transplants have been ferried across the stormy Atlantic than any other model. Leaving from secret landing fields in Newfoundland, they make the crossing in some 12 to 15 hours.

Performance figures for these Lockheeds are: two 900-h.p. Cyclone or Wasp engines, maximum speed 246 m.p.h., operating range 1,960 miles, service ceiling 26,000 feet. After the success of the Hudsons, TWA followed suit by turning over its idle Clippers and Boeing Stratoliners for conversion to Army and Navy use. Designed for substratosphere cruising, these have great wing span (107 ft.), ceiling (24,000 ft.), range (2,340 miles), carrying capacity and speed (250 m. p.h.). they should prove mighty welcome additions to the long-range fleet.

Other powers also use converted giant commercial liners. Germany has the Junkers Ju89 and Ju90, once holder of the world altitude record. The military version has four 1,100-h.p. Jumo in-line motors, wing



Torpedo bombers preparing to leave flight deck. Note wings beginning to unfold on third plane as bombers are waved forward by deck crew.

Republic Thunderbolt is the Army's new high-altitude fighter. Powered by a 2,000-h.p. air-cooled engine, the Thunderbolt, designated the P-47, is reported to have done well over 400 m.p.h.

span 114 ft., top speed 256 m.p.h., range 1,875 miles.

The 96 ft. Blohm & Voss 142 is almost as fast as the Junkers, covers a range of 2,730 miles. It was used to land troops in Norway and Crete.

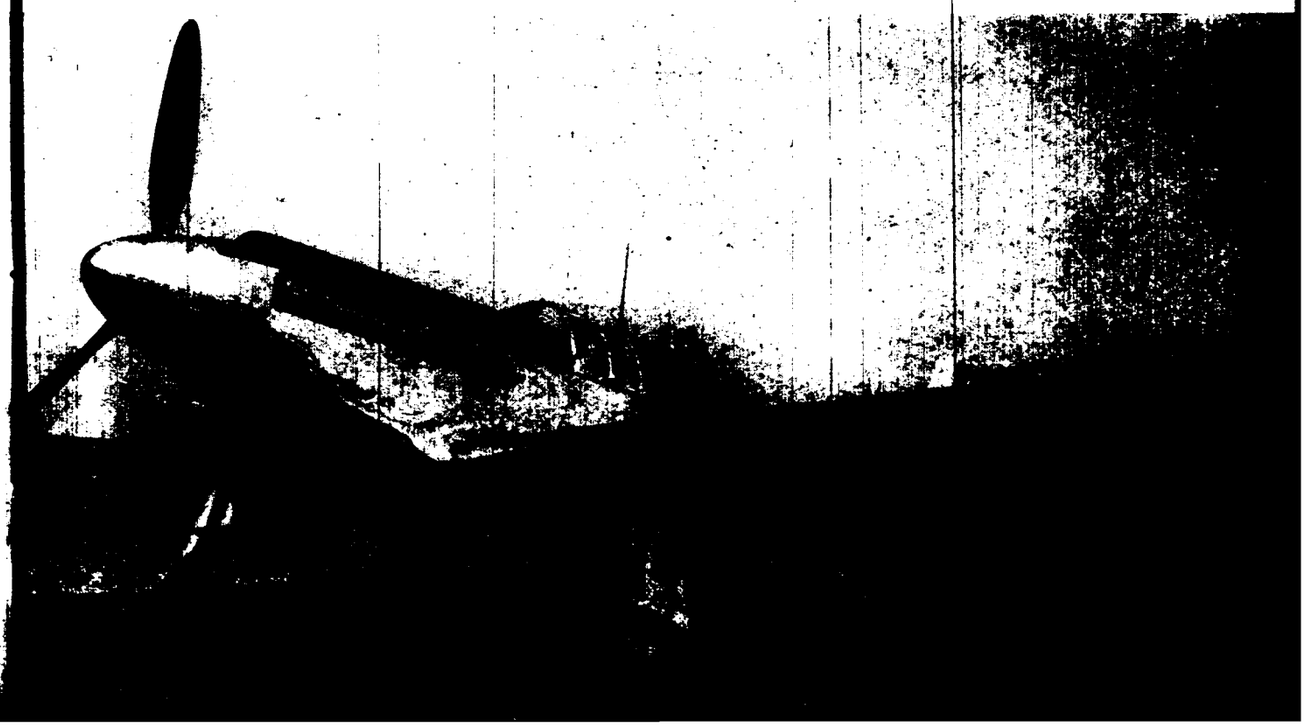
Japan, having concentrated on war planes while European and American commercial interests expanded has no model directly comparable to these converted peace planes.

On Naval Aviation

On the seven seas, where the crucial test of air forces may arise, with battle and communication lines already stretching across thousands of miles of water, the U. S. Navy also appears to have the Axis highcarded. In this field high speed and altitude are not so vital, since on both offense and defense low level cruising is essential to spot ships and subs. Danger of attack by interceptors or antiaircraft is much smaller, from carrier-borne aircraft having less speed than land-based craft.

Old Faithful of the Atlantic Patrol is Consolidated's 104 ft. 2-engined Catalina, the Navy's PBY-5, with a

Strikingly similar in design to the famed German Messerschmidts, the North American Mustang has proven a favorite with the hard-fighting pilots of the R.A.F.



Greatest number of Nazi flying boats are made by Dornier, in great number of models for varying duties: troop transport, mail and supplies, reconnaissance and patrol. Latest and best seems to be the Do 26K, having four 600-h.p. Jumo motors, a 23mm cannon in nose turret, and machine gun blisters aft of the wings. This 98 ft. sea eagle has a maximum speed of 208 m.p.h. (much faster than Catalinas or Sutherlands), a range of 5,100 miles at 140 m.p.h. It is still no match for the giant Liberators or fast Marauders.

Other Nazi seaplanes include the Do 24, one of the few 3-motor planes aloft today, with a range of 2,000 miles at 161 m.p.h. The Do 18K1 is slower, has range of 3,220 miles.

Faced with the task of covering nearly 3 million square miles of the Pacific, Japan has gone in heavily for big Navy seaplanes and patrol bombers. She has 2 twin engine types, one with 850-h.p. Wright-Cyclone motors capable of doing 178 m.p.h.

Three-motor types are made by Kawanishi, developed from plans furnished by the British firm of Short Bros., makers of Sutherlands and Stirlings. The 90-2 has a 98 ft. wing span and a range of 1,560 miles.

Latest and greatest punch of the Japs' naval air arm is the Hiro 97: 134 ft. wing span, four 720-h.p. Hispano-Suiza motors, a top speed 200 m.p.h. This could outfly all but very latest U. S. sea ships.

The Japanese seem to have devised some means of rapid building and deploying of aircraft carriers which could release clouds of smaller bombers and fighters at many points almost simultaneously. This was the strategy of their attack on December 7.

The Axis thus has the planes to bomb either coast of the United States. The Germans are said to have 150 Heinkel 177's which could cross the Atlantic from French bases, drop 1,000 pounds of bombs each on New York or Washington, and return to Europe without stopping. British report spotting mile-long runways in Norway from which these giants may be launched against Russia, England, or the U. S. There are rumors of huge rocket-propelled bombers on German proving grounds.

Could Refuel in Mid-air

The Italian Savoia-Marchettis could also make the trip. In addition, the Nazis have the Dornier 26, a catapult plane released from armed merchantmen to harass Atlantic coastal defenses and shipping. Any of these or shorter range bombers could be used to cross the ocean between dawn and dusk, refueling in midair from flying tankers to increase the cruising range, and strike at Caribbean or U. S. continental bases before returning home.

That such bombing will occur is the opinion of most experts. But sustained raids such as those in London, Manila, or Singapore are not possible, unless Axis drawing boards and production units can perform an industrial miracle. Air raids on American cities will be largely for sake of morale and propaganda value, rather than military achievement.

Far different is the situation in Singapore and the Netherlands East Indies. Dutch leaders, knowing that U. S. defenses, including Hawaii, are not subject to prolonged attack, complain bitterly of American "overcaution" in holding thousands of planes at home bases. Two thousand bombers, they say, would hold the South Pacific against anything Japan could show. Less than one-sixth of that number are now on hand.

Since Singapore was another fatal case in the epidemic of "too little and too late," America's air forces and production lines must put forth even greater effort to stamp out the "yellow lava" erupting in the Pacific. And the effort must be made now, while American-designed planes pack the world's strongest punch, while American industry can roll out its mightiest air armada.

Rolling off production lines at a faster rate than the much larger and more complex bombers, American fighter planes are now making their mark on the world's major battlefronts.

Over Far Eastern jungles they are proving more than a match for Japanese bombers and pursuits; over African desert, Russian steppes and the English Channel they have met and stood up to Germany's best.

At the start of the present conflict, America led the world in the quality of its bombers, but lagged far behind in the quality of pursuit and interceptor planes. Behind the surge to the fore is a tale of despair, bottlenecks, overtime, hard work, and American ingenuity. Our highest speed pursuits were laggards compared to the hurtling English Spitfires and German Messerschmidts; while our pea-shooter variety armament was woeful compared to the British Hawker Hurricanes, capable of chopping an adversary to bits in a matter of seconds.

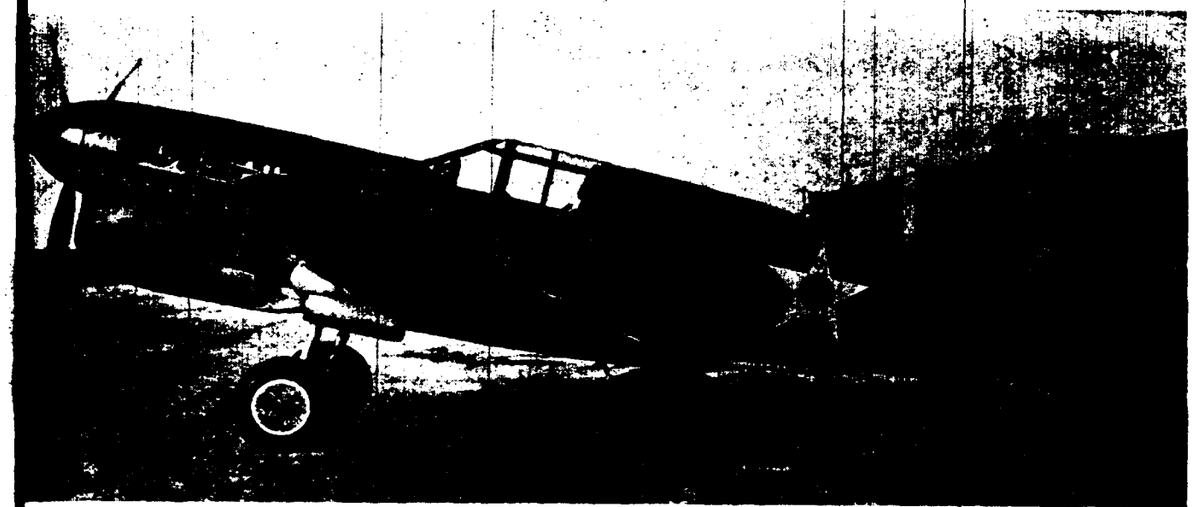
But out of the handicap of their lack of information on battlefront planes, American craftsmen have put forth, in the short space of a year, pursuits that have chewed their way through all types of opposition.

The feared 'Schmidts of the crack Luftwaffe have been shattered by sturdy Curtiss Tomahawk and Kittyhawk fighters of the British Libyan command while barrel-hands of the tough, skillful Dutch have been wreaking havoc among the planes of the Rising Sun.

In far off China and Burma American volunteers of the Flying Tigers' unit have completely battered down attacks on the vital Burma Road in old Curtiss P-40 fighter planes.

The Curtiss ships of the P-40 class and the Buffaloes have been the first of the American fighters to match snap-rools with the enemy, but more modern engines of destruction are straining to enter the fray.

A small force of P-40's has been a mainstay for General Douglas MacArthur's beleagured army in the Philippines; has knocked down 38 Japanese planes in the first seven weeks of the war, operating nearly always



Latest of the famous Curtiss-Wright pursuit line is the P-40F or Goshawk. Note unobstructed view pilot has forward.

against far superior forces. The P-40's on the fighting fronts have heavy machine guns, armor-plated cockpits, self-sealing fuel tanks. Powered with a stepped-up Allison liquid-cooled engine, these planes and their engines have stood the gaff of war operations under the worst flying conditions.

The P-39, the famous Bell Airacobra, nicknamed the Caribou by the British, is described by ranking United States officers as the finest middle-altitude fighter in the world. It is reputed to have downed highly rated Spitfires in mock combat in Britain. The Airacobra carries more than three-fourths of a ton of guns and ammunition. The 37mm cannon mounted in the nose can knock out the world's largest bombers, is a potent weapon against tanks.

Today's P-39's illustrate how improvements are made between the first few production models—frequently mistaken by critics as the end product—and the final model on which large-scale output is frozen. The original Airacobra came out in 1939. It was pared down in outline to cut 50 per cent off the "drag" and increase speed by 50 miles per hour. Four guns, 500 pounds of armor plate were added.

Probably the most hush-hush "job" on all the world's production lines is the Republic Thunderbolt, designated the P-47. This ultra-secret crate of dynamite is

Goshawk is latest fighter modification of all Curtiss-Wright P-40 series. Highly maneuverable, and heavily armed, entire P-40 series have proved exceptionally rugged in combat.

the army's newest, fastest fighter-interceptor. A tremendous package of power, the Thunderbolt boasts the world's most powerful engine on a pursuit ship—a 2,000 horsepower Pratt and Whitney radial air-cooled. Believed able to outfly and out-fight any other known ship, the P-47 carries enough guns to generate at top firing speed an impact equal to the force of a five-ton truck hitting a brick wall at 60 miles an hour.

The Thunderbolt is built to take rough treatment. Long and big-nosed, it weighs 13,500 pounds, measures 41 feet at the wing tips. It has done 680 miles an hour in a power-dive test, and has stood up under the strain of the pullout without a whimper.

Standing the burden of interceptor work until the Thunderbolt reaches the battlefront is the Lockheed P-38, christened the Lightning by our British allies. The Lightning is said to be the fastest military airplane in the world. Powered with two liquid-cooled engines, the Lockheed has clawed into English skies at unbelievable rates.

Confusing to the British upon its arrival because of its silhouette similarity to the famed Messerschmidts, the North American Mustang fighter has proved a highly maneuverable ship and extremely delicate to handle. It is another liquid-cooled engined-pursuit with the standard amount of firepower.

The P-66, or Vultee Vanguard, has proven a tough all-round fighter in the Far East where its top speed is superior to any of the Jap's known types.

Offensive planes for the Navy must be specially built for ship-board use. The United States Navy is generally considered to have the best-developed shipboard fighters of any in the world. None of the action in which our fleet has engaged in so far has tended to change this viewpoint.

Present outstanding Navy fighting plane is the fast Grumman high-altitude fighter. Named the Wildcat, it proved itself on the heroic stand of the Marines at Wake Island. Four Wildcats returned to the air again and again in the face of over-whelming odds, downed Japanese opponents and even carried bombs enough to sink Japanese warships. The British have used the Grumman, called by them the Martlet, all over the world.

Used by the Navy as a shipboard fighter, the F-2-A has achieved its greatest fame in the land version, the Buffalo. It was used to defend Singapore; has been used offensively in large quantities by the Dutch East Indies Air Force. Armed with .50 caliber machine guns, bullet-proof windshields, armor-plated cockpit and self-sealing gas tanks, the Buffalo is termed "unbeatable for close-quarter combat" by veteran English pilots in the Far East.

The Vought-Sikorsky F-4-U is the overwater fighting sister ship of the Army's Thunderbolt. It is the Navy's hardest-hitting, most powerful high-altitude interceptor. Designed especially for carrier operation, its top speed is more than 400 miles per hour. It is powered with a 2,000 horsepower air-cooled engine, is thirty feet long and has a wing span of 40 feet.

Up to December 7, the Army and Navy were dependent on reports from observers for judgment of their fighting planes. Now those planes are being fought by Americans. Their record so far indicates that this country can match and better the best the enemy has to offer.

The modern warplane is virtually a "flying gun platform" with cannon, machine guns, and armor.

In regards to superior equipment, the urgent demand for more firepower has been most frequently brought to the public attention. Firepower means as much to the tactical airplane as the size and the number of guns means to a battleship; and, in combat, can be more important than speed and performance. Actually, this word "firepower" may be applied to briefly describe an airplane's tactical qualifications.

Increased firepower is a direct outgrowth of the recent increases in speed, caused by the necessities of war—the faster the target, the more shots per second required.

In actual firepower, the machine guns form the mainstay around which supporting units are installed—those being bombs and cannon. The average machine-gun is capable of firing from 600 to 1,200 of ammunition per minute, depending upon the strength of the drive spring, caliber, ammunition, temperature, synchronizing system if used, and the design and location of accessory equipment, i.e., feed and ejection chutes, ammunition boxes, etc. However, rate of fire must not be misconstrued, as machine guns are rarely fired for a full minute.

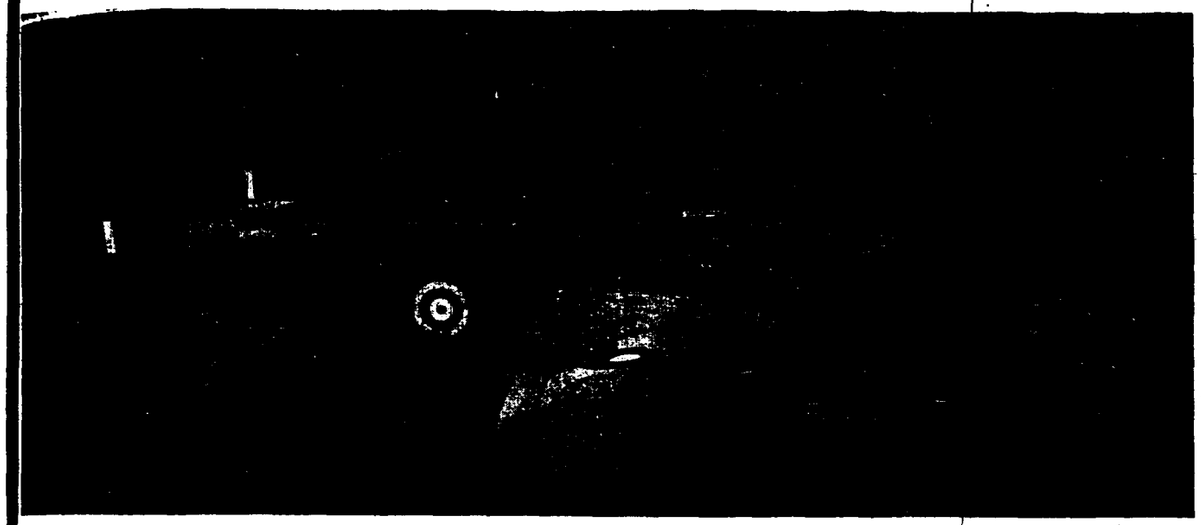
The advent of aircraft cannon is not new. As is commonly known, their use was tried during World War I, both as flexible mounted and stationary. In present aerial strategy the rapid-firing cannon is receiving wide acceptance, having rates of fire comparable to machine guns.

The aircraft cannon enables the airplane to cope lightly-armored tanks, and as larger calibered aircraft cannon are developed, "panzer" divisions will require heavier armor, consequently decreasing their speed and mobility. When used against hostile aircraft the cannon is far more destructive than the faster-firing machine-gun, as its explosive shells prove effective against self-sealing gas tanks.

Cannon Gives Edge to Fighters

At present the cannon gives the advantage of range to the pursuit and fighter type airplane, but a flexible mounted gun, now being installed on heavy bombers, will probably neutralize this temporary advantage.

The manufacture and use of protective armor is an industry in itself, with a history dating back to ancient Greece. In aircraft, armor plating was successfully used in the all-metal Junker planes during World War I and, after being slighted for about two decades, has now become of prime importance.



Consolidated Liberator four-engined bombers ready for flight to England. These huge craft carry a crew of nine and a load of four tons of bombs. Can cruise 3,000 miles at top speed of more than 300 m.p.h.

In general there are two types of armor plating, one consisting of two or more fused plates of different hardness; the other consisting of a single face-hardened plate. In all cases the harder surface is the one receiving the initial impact.

Given these superb American productions, Yankee flyers will quickly clear the skies for the unending streams of troops, transports and supplies so vitally needed now in the battle areas. Every 24 hours our air strength is growing. The Japs have found that even the Filipinos can fly. They are learning that the Dutch don't argue, and that Dutch flyers are more than a match for any Japanese. In the few details received by American air action in the Far East, it is evident that our men have displayed a superiority in handling their equipment and in outflying the enemy, although the Japs have had a vastly greater number of planes in the air.

Verification of Flying Fortress success stories in the Pacific is given in this eye-witness account of a bombing foray off Davao:

Feb. 12.—I saw the fleet of eight American Flying Fortresses take off from a jungle airport near Samarinda, on the east coast of Borneo, for their January 4 raid on Japanese warships in Davao Bay. Until today I was not permitted to tell the story of the raid in which a battleship or battle cruiser was hit, a destroyer was sunk and several other warships and troop transports were damaged.

I saw all the Flying Fortresses return without damage or casualties. They took the Japanese completely by surprise. Antiaircraft fire did not begin until the last two American planes were over the target and none of the five Japanese fighters which got into the air was within 10,000 feet of the attacking planes.

Four 720-pound Bombs

The model 17-D Fortresses arrived at the jungle airport at noon on January 3. Each of them took on 1,000 gallons of gasoline and four 720-pound bombs. Neither mechanical fuel pumps nor bomb trolleys were available at the field and the task of loading the bombers lasted until late at night and was finished under the light of torches.

The American crews of the bombers were remnants of a group of many airmen whose aircraft had been destroyed on the ground early in the war. They became a potent flying circus, covering prodigious distances from constantly changing bases. Their specialty was surprise raiding.

The jungle quivered as the fortresses took off in the fading moonlight. Each was manned by three officers and five men. The first of the fortresses returned nine and one-half hours later. The grimy, grinning, hungry crews scrambled out. They reported that at least 40 ships, including about 10 submarines and many transports were in Davao Bay. They decided to concentrate on the warships.

Some of the crews did not see their bombs strike because from a height of 25,000 feet a bomb takes 40 seconds to reach sea level. But fortresses following in the rear of the squadron reported a bomb hit on the stern and another near the funnel of the largest ship which men hove to. Another crew reported the sinking of the destroyer.

The five Jap fighters which got into the air apparently were catapulted from warships, but the fortresses were able to climb above the fighters' range.

The day after the raid the bombers moved on to

Photo by British Press Service

BIG FELLOWS — BUT NOT BOMBS

In the Middle East—Auxiliary petrol tanks used by Nazi aircraft, which were abandoned together with vast quantities of material captured at a Libyan landing ground.

another field for another attack to keep the Japanese guessing.

That the supply of heavy bombers is a matter of life or death to the United cause in the Pacific is plainly revealed in the desperate SOS delivered in Washington last month by the Indies Lieutenant Governor van Mook. First on his list of emergency priorities was planes: Flying Fortresses, Liberators, Marauders. 800 of these delivered at once, 200 to each of the four crucial points of Rangoon, Java, Sumatra, and Darwin, could shatter Jap convoys, as Makassar proved, hold back the yellow tide until the United nations were strong enough to launch an offensive of their own. To protect the vulnerable Achilles heel of these giants, their take-off and landing points, a thousand fighter planes are needed to hold a minimum number of vital airdromes and clear the skies of Jap interceptors.

Next in importance are antiaircraft regiments, one for each vital sector. The Pacific front could use all the antiaircraft guns the U. S. could produce, man, and ship for months to come.

Third on Dr. van Mook's list is naval craft: destroyers, light cruisers, submarines. Had these been available, the half-pint naval escort of the Japs would never have got troops to Amboina, most serious Dutch loss so far.

Of course the job would not be finished by one delivery even of this size. The Navy would have to keep convoying replacements, until Jap inability to keep pace with American production and supply units would leave her hopelessly outclassed, force her to fall back on bases inadequately weaponed, give her a lasting dose of the bitter pill of defeat which the Allies are now having to swallow.

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SUPER-TANKS*

Developments Leading to the New Heavy Weapon

*By Brigadier General G. M. Barnes***

EVERY day of battle in the current world war adds emphasis to the fundamental importance of tanks in modern warfare. The two prima donna weapons of the present European war have been the airplane and the tank; however, neither of these weapons has proved to be completely effective without the assistance of the other. The Germans in Poland, France, and elsewhere have won quick and decisive battles when these two weapons have been used in mutual support of each other. On the other hand, where the airplane has been forced to act alone, as in the battle for England, the results have not been decisive.

Under the *Blitzkrieg* method of employing airplanes and tanks, the former are first used to soften the enemy; then tanks follow up the advantage with mass attacks concentrated for a breakthrough. Being highly mobile, the tanks can attack the weakest part of a long defensive line. It is very difficult for an army on the defensive to stop a massed attack of tanks with antitank guns spread out to defend a long line. Pill boxes and other defensive strong points with antitank guns capable of penetrating a tank's armor usually are carefully avoided by tanks in such an attack. It is probably true that the best defense against a determined tank attack is an equally determined offensive with an equivalent or larger number of opposing tanks.

The layman, in endeavoring to make a comparison between foreign and American tanks, is often confused by the rather loose classification of tanks into light, medium, and heavy types. Under the classification of light tanks, European countries often include vehicles weighing from five to six tons as compared with the American standard light tank of fourteen tons which would be classified as a medium tank in some foreign countries. It is also well to remember that a large percentage of foreign tanks are now of obsolescent models while the tanks with which our armies are now being equipped are of the very latest patterns.

The design of a tank, like that of any other piece of machinery, is a question of making satisfactory compromises between the various conflicting characteristics of the vehicle and is necessarily based upon military requirements. The military characteristics which must be considered are: armament, armor protection, mobility (including trench-crossing ability, maneuverability, speed, and radius of action), weight, number of men in crew, and speed of production. All these basic characteristics, of course, are interdependent, one upon the other.

The problem of the military tank designer is to balance these conflicting characteristics. As the designer does not know the tactical situation under which the tank is to be employed, he strives to make a type of vehicle which will most nearly fit the probable situations which may be encountered in warfare.

The purpose of any tank is to carry safely the guns, ammunition, and personnel necessary for their operation to the desired point in the minimum of time in order that these weapons may be brought to bear effectively and decisively upon the enemy. Tanks must have armament capable of performing the following general missions: (1) The penetration of armor plate, which is best accomplished by high-velocity, low-trajectory weapons involving the use of high-quality armor-piercing ammunition; (2) High-explosive demolition, which is most effectively accomplished by a low-velocity thin-walled projectile; (3) Operation against personnel targets, which are most effectively overcome by small-caliber machine-gun fire; (4) Antiaircraft fire, which involves precision firing against the high-speed airplane moving in three dimensions through space.

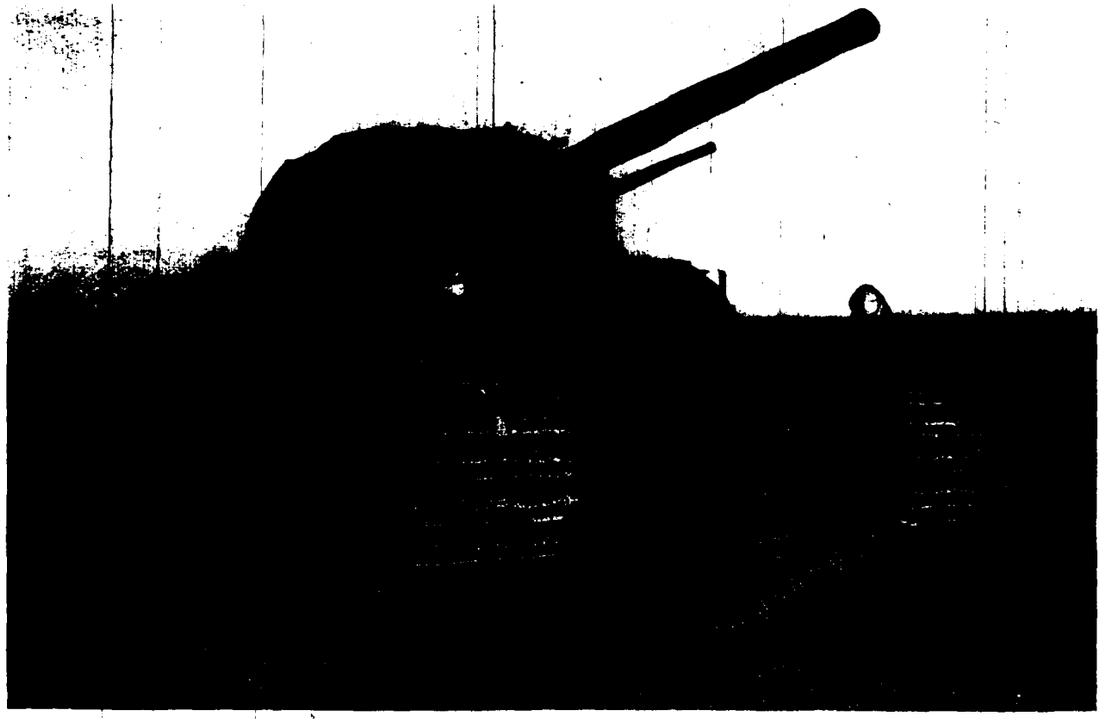
The desire of the tank designer to equip his tank with a large number of high-power weapons is quickly restricted by the number of men in the crew, the space available for guns and ammunition, and by the limitations of weight. To provide space to serve effectively the several types of weapons required may result in a vehicle which has a large silhouette and which is too heavy if the desired armor protection is maintained.

While this subject of armament is confidential as to detail, I am very happy to report that during the last year such rapid progress has been made toward solution of these problems that improvements in the accuracy of fire of our tank weapons of over 1,000 per cent has been possible.

The armor carried by the tank makes it possible for the vehicle to live on the battlefield. Naturally, the designer would like to equip his tank with armor of such thickness that it would be impossible for any type of projectile to penetrate it. It is always a great disappointment to the layman to learn that the armor of any tank can be penetrated, and perhaps this was one of

*Courtesy, *Army Ordnance* Magazine.

**Assistant Chief, Industrial Service, Engineering, Office of the Chief of Ordnance, Brigadier General, U. S. Army.



The new ordnance heavy tank has superior fire power and excellent mobility.

the factors which held back the universal acceptance of tanks for many years. It was always easy to reason that the tank was a very vulnerable vehicle and that its armor could be penetrated readily.

In these arguments against the tank as a fighting vehicle, the principle of employment *en masse* was too often overlooked. Armor provides protection and cover for the working mechanisms and personnel. It is of interest to note that, according to World War records, sixty per cent of battle casualties resulted from low-velocity fragments thrown from projectiles. It is, therefore, obvious that even thin armor provides a great degree of protection. Armor, unfortunately, is the greatest weight-producing factor in a tank and offers the greatest problems in machining and fabrication.

It is the present practice of the United States Army to use rolled face-hardened armor plate. This type of plate gives the greatest protection from small-caliber bullets up to caliber .50. However, it is not well suited to withstand the shock of larger-caliber projectiles. For lightly armored vehicles it is necessary to use face-hardened plate because this is the only type of thin plate which will keep out the bullets from high-powered machine guns.

Rolled homogeneous plate offers the best ballistic values against projectiles larger than machine-gun bullets. It furnishes protection against small-arms bullets which cannot penetrate so great a thickness and is also a superior type of plate for absorbing the shocks of heavier-caliber cannon projectiles. It can be welded and formed.

The use of cast armor in the United States is increasing. Up to the present time, cast armor has been made to give about ninety per cent of the ballistic value of rolled homogeneous plate. Cast armor has an important design advantage in that it can be contoured and sloped to any desired shape and thus achieve some advantage in ballistic values.

Tank plates may be riveted or welded together. While we completely welded a tank as early as 1933, and while we have made armor-plate castings at Watertown Arsenal over a long period of years, welding and casting have entered the field of design extensively only during the last year. The urge to weld or cast comes largely from the desire to eliminate riveted structures which are somewhat weak ballistically. The rapid development in welding armor during the past year insures that welding will be extensively used in tank manufacture in the future.

In regard to armor, it may be said that the trend of modern design is toward the use of thicker plates. Here the tank designer is confronted with a very difficult problem because, as the armor thickness is increased, the weight of the vehicle is increased, requiring greater horsepower—until the law of diminishing returns in tank design is encountered.

Mobility is likewise one of the fundamental tank characteristics in that it determines the facility with which the guns of a tank can be brought to the point of desired employment. The mobility naturally depends upon the weight of the vehicle, the power of the engine employed, the width of track, the length of the vehicle, and the corresponding pounds-per-square-inch pressure between the track and the ground. By "mobility" we mean not only speed but also maneuverability under different conditions of speed and terrain. Mobility is of vital importance because it affords additional protection to the crew.

The safety of the tank personnel is dependent not only on the thickness and quality of the tank armor, but also upon the tank speed and the type of terrain over which employed. Thus, if a tank can move at a high rate of speed, it will present itself as a target to the enemy for a limited time. The length of time will determine the number of shots the enemy tank gunners can fire which will determine the number of hits which can be made. Since any armored vehicle is capable of absorbing a certain number of penetrations before it is put out of action, this time factor is of great importance. The desire of the tank designer, therefore, is always to secure the greatest possible speed over all types of terrain.

Foreign tank designers have not given speed as high a value as we have. This probably has been due to the fact that only engines of relatively lower horsepower have been available. Regardless of the reason, it is a fact that most European tanks, including German, have about one-half the horsepower-to-weight ratio of the corresponding American vehicles. For this reason, it may be expected that American tanks will travel much faster than foreign vehicles and will be more difficult to put out of action.

The power train and the running gear give the tank mobility. The units must be light because the payload on this vehicle is crew, armor, guns, and ammunition. They must be readily accessible for quick adjustment, repair, or replacement, as these units have the greatest effect on mechanical reliability.

Prior to August, 1940, the Ordnance Department had not undertaken the design and manufacture of a heavy tank due to lack of funds; such a project would have consumed too large a proportion of the research moneys then available. In August, 1940, however, the Ordnance Department received its large appropriation from the Congress and was therefore able to afford the luxury of designing and manufacturing supertanks. It was in a position to undertake such a design since a large percentage of the tank components which had been under intensive development during the past twenty years by the Ordance Department could be utilized in the construction of a large supertank by strengthening and enlarging these components as required for use with a large and heavy vehicle.

A number of difficult engineering problems have arisen in connection with the design of this tank. One such problem has been the development of a suitable transmission which would be able to handle the powerful engine used in the vehicle. To this end, the engineering talent of the automotive industry was called into consultation and was asked to coöperate with us. As a result, three different types of transmissions were designed and placed under manufacture. The transmission found by test to be best suited for the strenuous and exacting requirements of the heavy tank will be selected for production.

While there are heavy and supertanks in existence in Europe, there is no vehicle known to exist which would approach the American 60-ton supertank in regard to power of weapons carried and horsepower of engine used to drive it at high speeds across country. The Ordnance Department has maintained in this vehicle the same high horsepower-weight ratio employed in the designs of its light and medium tanks so that the cross-country mobility of the vehicle should in every way duplicate that of the smaller vehicles developed previously.

The two major disadvantages of a super tank are its high cost and its heavy weight with the accompanying difficulty of crossing rivers on temporary bridges. The advantages accruing to the heavy tank are its superior gun power, its heavier armor which makes it invulnerable to all but the most powerful antitank guns, and its great crushing power. In some of the important tank battles of the present war, the Germans have used supertanks mainly from the Skoda arsenal at Czechoslovakia as a spearhead of the attack.

The trend of development in tanks at the present time is continuously toward the use of more heavily armored vehicles. As previously stated, there is a distinct limit to the armor plate which can be applied to a given design of tank chassis. It becomes necessary, therefore, if the armor is to be increased materially, to design new vehicles with sufficient horsepower which have all parts proportioned to carry the heavy loads imposed by the thicker armor plate. The supertank which has just been completed by the Ordnance Department is a forerunner of a new line of heavily armored tanks and represents, it is believed, the most powerful tank which has been built in the world up to this time.

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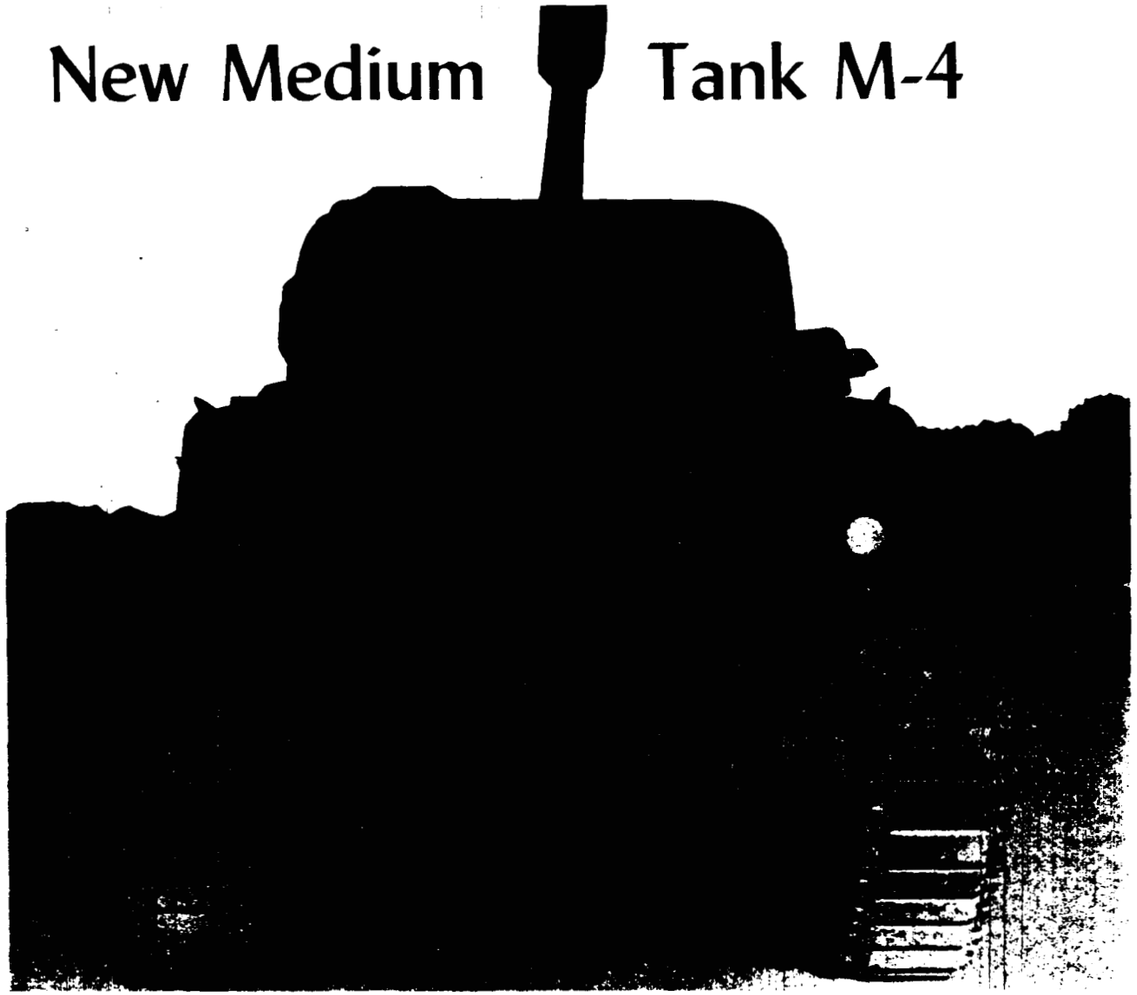
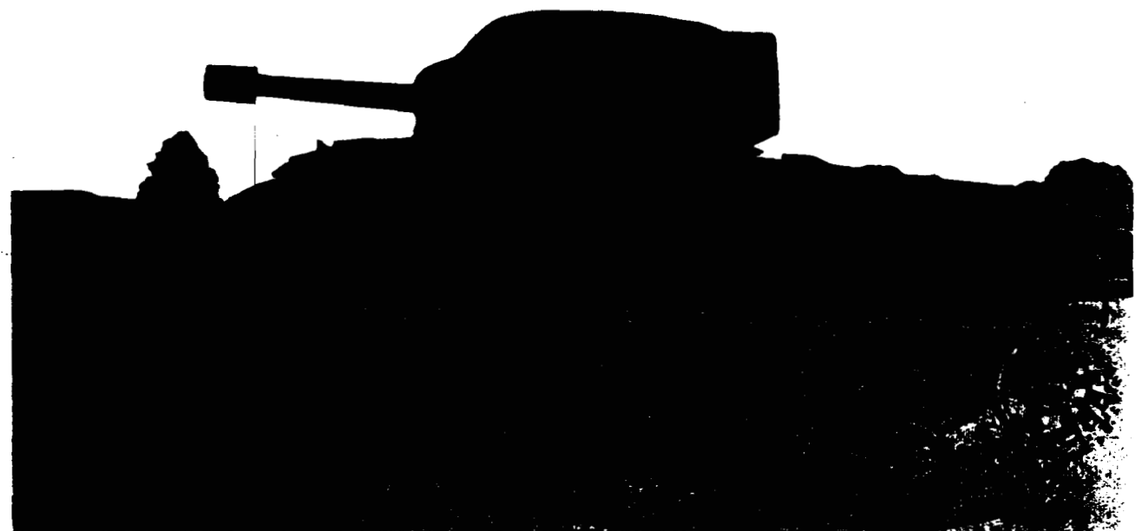
". . . better a faulty plan which shows boldness and decision than a perfect plan enmeshed in uncertainty."—*Truppenfuhrung.*

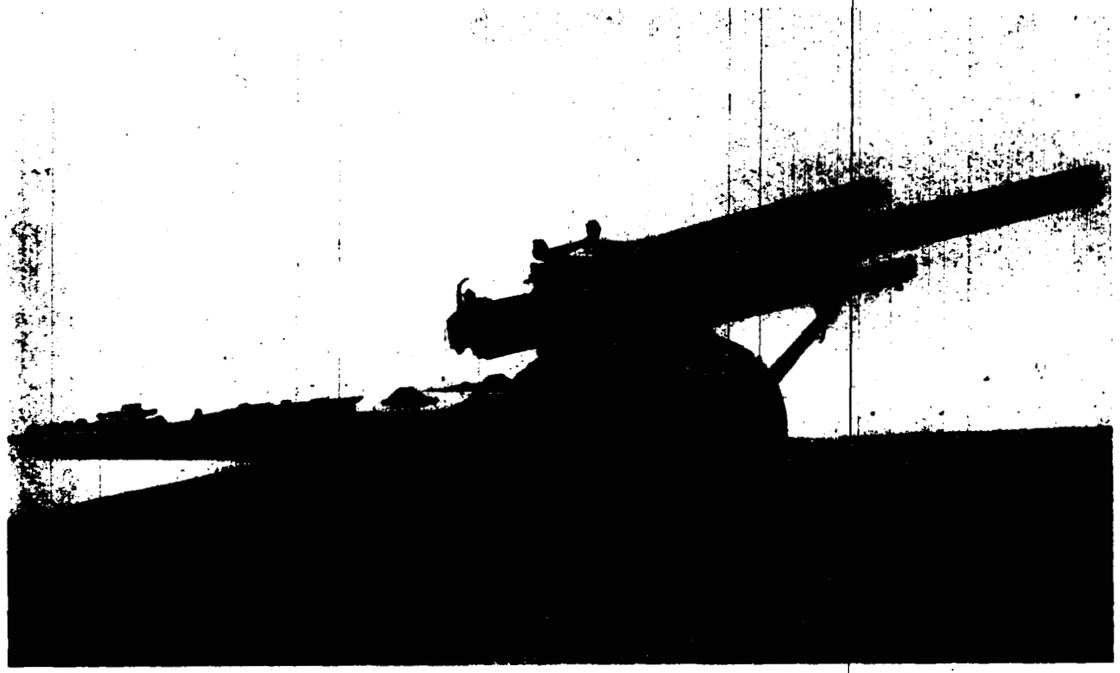
New Medium Tank M-4





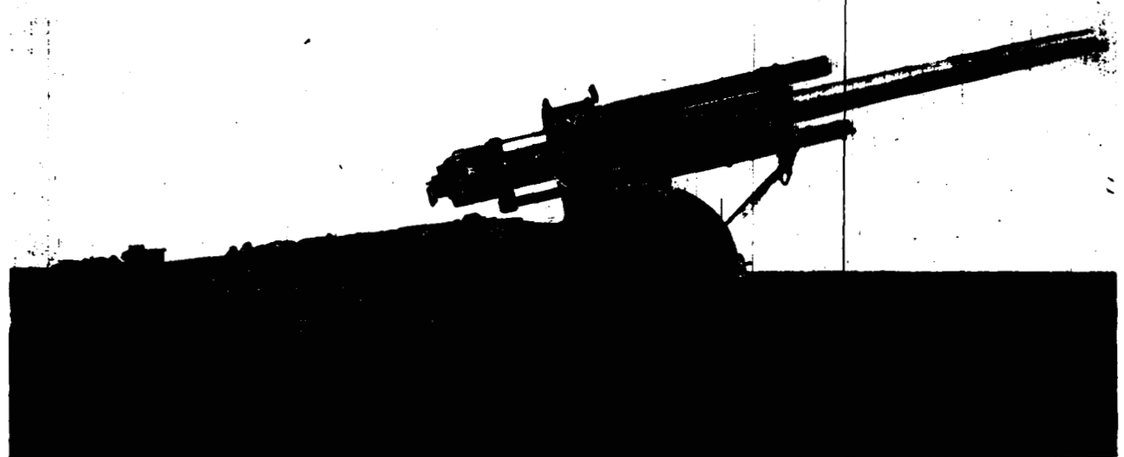
Completely streamlined and armed with a 75-mm. cannon and a battery of machine guns.

New Field Weapons

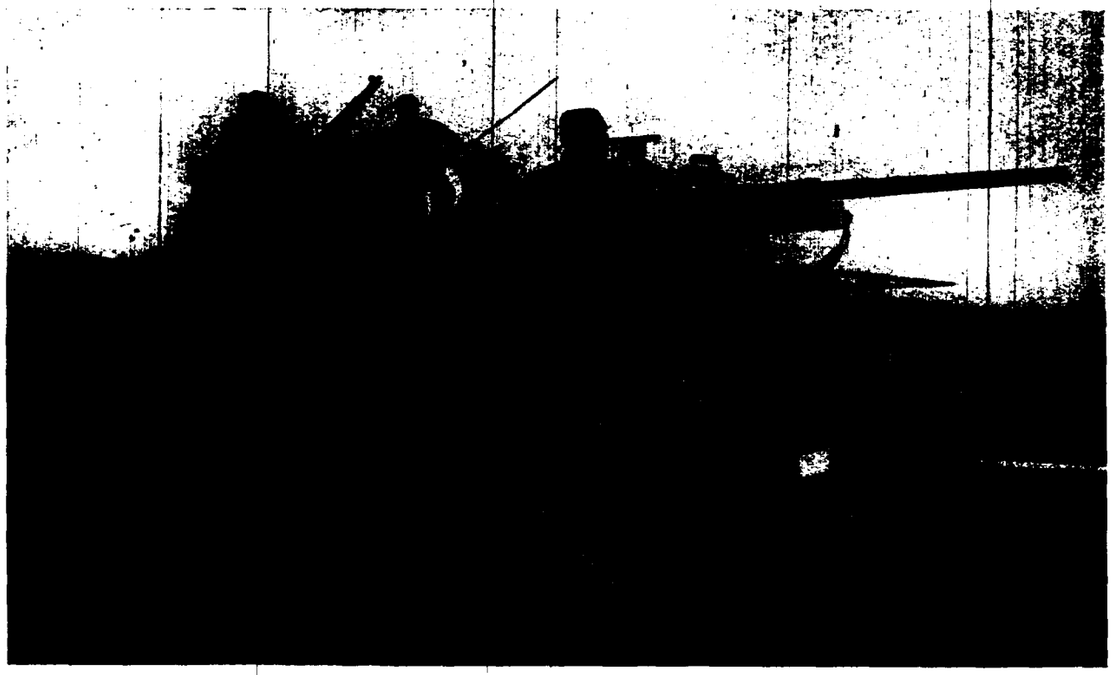


Two new field artillery weapons recently have been standardized. The improved 155-mm. howitzer, shown above in travel position, will eventually replace the French-type Schneider 155-mm. howitzer now in use. The 4.5-inch gun, shown below in travel position, is suitable for corps artillery and antitank missions. The same type carriage is used for gun and howitzer.

Courtesy, *Army Ordnance* Magazine.

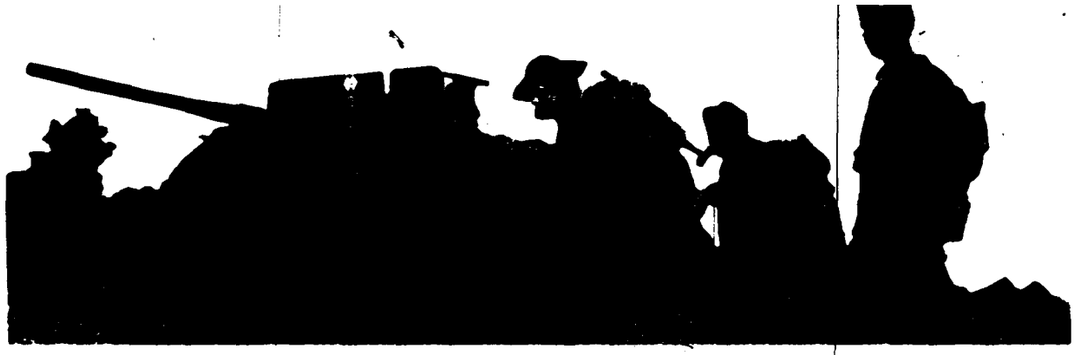


New Mobile Weapons



One of the Army's latest mechanized weapons, the "swamp buggy," above, mounting a 37-mm. gun has proved itself an effective antitank unit; its oversize tires enable it to navigate marshy terrain. Another new weapon is the 240-mm. howitzer which breaks into two loads for fast transport. The barrel is shown below being towed at high speed.

Courtesy, *Army Ordnance* Magazine.



Super-Machine Guns*

*By J. B. Nealey***

THE fact that new weapons are continually being devised necessitates the development of counter weapons if they are to be effectively resisted and overcome. Down through history this ever-recurring cycle is the warp and woof of the pattern of warfare. One of the latest figures in the pattern, woven since World War I, is made up of military planes and antiaircraft guns. All-important among these latter are light, fast-firing guns that fill the gap between the machine gun and the 75-mm. gun, typified by the famous 37- and 40-mm. guns—in reality super machine guns.

These two guns, which are so close together in caliber and mission, are entirely different in mechanical details, and were developed entirely independently of each other. As soon as the need for antiaircraft guns was indicated by the introduction of airplane warfare, the Ordnance Department of the United States Army started designing, building and testing. Using the Browning machine gun mechanism as a basis, the 37-mm. gun was finally created and adopted. The 40-mm. gun had its inception in Europe and was developed in Sweden, and later was adopted by Great Britain and many European powers. While the relative merits of the two guns are controversial, each has a distinct field of use.

In America the versatility of the 37-mm. gun soon demonstrated itself. Four types of mount were developed and four different missions were assigned to it. In addition to antiaircraft, it is used for aircraft, antitank and tank functions. Actually it is four different guns with the same bore. The 40-mm. gun has only one mission—antiaircraft, although in an emergency the muzzle can be lowered for antitank use.

With a sliding wedge or drop block type of breech-block, actuated by a trip on the recoil mechanism, the 37-mm. gun has been made fully automatic. A slight change only is necessary to convert it into a semi-automatic gun. As an automatic machine gun, its rate of fire is 120 to 140 rounds per minute. Ammunition is fed in 10-round clips and as high as 40 rounds can be fired continuously before cooling with water circulated through the bore.

Monobloc Gun Tube

The gun tube is of the monobloc type, that is, cast in a single piece with neither hoops nor jackets. Centrifugal casting, a method by which small and medium caliber cannon are cast, together with cold working and stronger alloy steels, are United States Ordnance developments of a most revolutionary character. Through these three developments alone the United States today leads the world, not only in the science of gun making but in the mass production methods of gun manufacture. In addition to increased strength due to better

*—Courtesy, *American Rifleman*.

**Advisory Specialist, Ordnance Department, U. S. A.

Firing from clips of ten shells each, this 37-mm. antiaircraft gun can send a stream of projectiles aloft at a rate of 120 per minute. It is used against planes or tanks.

steel alloys and centrifugal casting, cold working so raises the elastic limit of the steel in the gun tube as to almost double its strength.

All this obsoletes the time-honored built-up section of separately forged jackets and hoops shrunk onto the gun tubes, and obsoletes the replaceable liner with its rifling grooves. In its place is this new, light, one-piece tube—the monobloc gun with the rifling cut directly into it. Replacing barrels is faster than relining old ones; therefore, the 37-mm. gun is lighter, stronger, has a higher rate of fire, greater mobility, and will hurl a heavier projectile to greater distances than any other gun of its caliber.

The tube is screwed into the breech-ring which contains a recess for the operation of the breech block. A hydro-spring type of recoil system is employed and the recoil piston rod is attached to the breech ring. The recoil system includes the recoil mechanism, the recuperator or counter-recoil mechanism and the buffer mechanism. The tube itself is machined to provide bearings for attachment and alignment on the sleigh.

The gun, which weighs only 6,100 pounds, carriage and all, will throw a 1.34-pound high explosive shell for a horizontal range of 9,300 yards or vertically as far as 6,400 yards. The shells are provided with a very sensitive detonating nose and will explode on contact with the lightest airplane fabric where former shells would pass harmlessly through a wing, fuselage or non-vital part. This new shell, detonating as it does on contact, is very destructive at any point. Furthermore, the detonation is delayed for a fractional part of a second so that the shell will pass into the wing or plane before the actual detonation takes place. The shell will penetrate any armor plate protection the plane may carry. Interspersed with the high explosive are tracer shells so that the gunners can follow the trajectory and ascertain the closeness of their fire by eye. The shell has a separate time fuse which explodes and destroys it in the air after so many seconds flight and after it has passed its effective range. This prevents it from exerting its destructive force on friendly troops or civilians when it drops to earth.

37-mm. Antiaircraft Carriage

The Ordnance Department also developed an entirely new carriage which gives this antiaircraft all-round traverse and a high angle of elevation. Equilibrators were added to counterweight the throwing of the center of gravity forward to permit of high elevation. The research section of the Ordnance Department has also developed improved methods of welding that have made possible the substitution of light welded members for the heavy cast parts of the carriage. This makes the carriages much lighter and more stable. With rubber tires and ball bearings these guns can be towed at high speed. Counter-balancing springs permit the lowering of the carriage to the ground, from the traveling position to firing position, in a quarter of a minute.

The gun is laid by two independent mechanisms, one for traversing and the other for elevating, operated by two gunners. They sit in light seats suspended from the gun so that their position in relation to the gun and two telescope sights remain unchanged regardless of the movements of the gun itself during firing. A battery of these guns can also be laid and fired automatically by the mechanical computer and the firing data transmission system.

Left: **Another view of the Army's fast-firing 37-mm. antiaircraft gun. Towed by truck, it can be moved into position and operated with minimum time loss.**

Below: **One of the first of the new Bofors to come off assembly lines. This 40-mm. gun, developed first in Sweden, is now standard in British, United States armies.**

Anticipating a distant airplane traveling at 3, 4 or 5 miles per minute and getting explosive shell up there to meet it is the function of the mechanical computer, a metal box with a couple of hand wheels and telescopes for following the plane in flight. It solves the various firing problems that the battery commander and his detail once solved laboriously by mathematics and slowly phoned to the guns. It solves them instantly and continuously with the element of time added, so that the projectiles arrive at a predetermined point simultaneously with the arrival of the plane.

The Bofors 40-mm. Gun

The 40-mm. gun was given the acid test by the United States Ordnance Department, adopted and put into production last year. While its carriage functions quite like that of the American 37-mm. gun, its construction details are entirely different. Aircraft can be tracked with reflecting sights for "point blank" fire or the director can be used.

The 40-mm. gun has approximately the same rate of fire as the 37-mm. It throws a 2.205-pound high explosive shell. Gun and carriage weigh but 4,300 pounds when traveling. A prominent feature of this gun is the bell mouth flash hider on the barrel. The tracer shell, the chief projectile used with this gun, contains a bursting charge, tracer compound, nose fuse and base fuse. Firing the gun lights the base fuse, which ignites the tracer composition about 55 yards from the muzzle. This traces the trajectory as a red point and a burst of several shells gives the trajectory the appearance of a red beam. Thus the gunners can see exactly where the shells are going. The bursting charge is detonated when the super-sensitive nose fuse hits the plane, or, if it misses the target it is detonated when the tracer composition burns out.

37-mm. Aircraft Gun

As an aircraft weapon the 37-mm. gun is located in the airplane on a "fixed" mount. To aim it the pilot points his plane at the enemy craft and fires it by remote control. This type is fully automatic. Ammunition is fed in clips loaded into a link belt which is folded into a magazine. There is also a feeder for 5-round clips that fits into the ammunition tray. High explosive shells with a super-sensitive detonating nose and self destructive powers are used.

37-mm. Antitank Gun

As an antitank gun the 37-mm. weapon has a much lighter carriage than the antiaircraft gun, since high elevation and wide traverse are not necessary for this mission. Pneumatic tires, split trail, frictionless bearings and light welded structure are its most obvious features. The gun weight, carriage and all, is less than 1,000 pounds and one man can operate it although its normal crew is six. This is a mobile infantry weapon of great firepower and with a projectile weighing almost 2 pounds, it has a range of around 12,000 yards and a mechanical rate of fire of approximately 25 rounds per minute. The breach mechanism is manually operated. It is normally drawn by a half-ton truck.

As high explosive shell will not penetrate thick armor plate, armor-piercing shell is used. While an interior shell burst might accomplish more destruction, the ricocheting of an armor-piercing shell around the inside of a tank is quite adequate.

Main armament of Uncle Sam's light tanks is the 37-mm. gun visible in the turrets of these "iron horses." Each tank carries also five .30 caliber machine guns, one suitable for antiaircraft, and a Thompson sub-machine gun.

Armored Reconnaissance

By Lieutenant Colonel H. H. D. Heiberg, 1st Armored Division

THE Reconnaissance Battalion of an Armored Division is the division commander's independent ground reconnaissance unit. In the performance of its mission, the battalion operates much as do other similar units, namely the reconnaissance squadron of the Cavalry division, and the scout car squadrons of the Corps Reconnaissance Regiments.

From the recent extended maneuvers in which this command participated I have selected a typical example of one type of reconnaissance performed by the Armored Reconnaissance Battalion and will discuss it briefly.

First Army vs. I Corps Reinforced by 1st Armored Division

November 3-6, inclusive, 1941

On 3 November 1941 the Blue First Army was known to be concentrating in the general area CHERAW, S. C.—ABERDENE, N. C.—MT. GILEAD, N. C., east of the PEE DEE RIVER.

The 1st Armored Division, recently arrived by rail and marching from the LOUISIANA maneuver area, was bivouacked to the south of ROCK HILL. The Red I Corps, to which the division was attached, was concentrated in the WAXHAW-LANCASTER area.

It was expected that hostilities would commence early 4 November. The Red mission was to hold the Blue force east of the CATAWBA RIVER. The Red Commander planned to advance his I Corps rapidly upon the outbreak of hostilities and seize the commanding ground, MONROE-PAGELAND, holding the Armored Division centrally until the situation developed sufficiently to offer an opportunity for the employment of its offensive strength.

During the evening of 3 November the division moved into concealed bivouacs just west of the CATAWBA. As radio silence was in effect it was necessary to report our new location by messenger. Having a hunch that the 81st Reconnaissance Battalion would be in for a little action before the division became involved, I set out for the Division Command Post to report our location. Sure enough, General Magruder wanted to see me. The battalion was to be released when hostilities opened in the morning. We were to move out on either flank of the I Corps, continuing reconnaissance beyond their advance as far as the PEE DEE RIVER; to gain and maintain contact with the Blue forces west of the PEE DEE RIVER reporting strength, composition, and movement. We were to locate suitable assembly areas on both flanks from which the Division might attack. In addition, with our organic tanks (only ten, newly issued in Louisiana) we were to represent large numbers of tanks on both flanks, confusing the enemy as to the location and intentions of the Armored Division. Initially the 12th Observation Squadron of the 1st Armored Division was to work directly with the reconnaissance battalion. For final conformation and instructions I had to go to I Corps Headquarters which added sixty miles to my wanderings. There I found that we could not move until ordered, that the time of movement was not yet known but probably would not be prior to daylight.

Returning to the Battalion Command Post at about 2:30 AM, 4 November, I had the company commanders routed out of their warm beds for orders. The assignment of areas for reconnaissance was as shown on Map A (omitted). A platoon of three (3) tanks was attached to "A" Company, which was to operate on the north flank of the I Corps. As it was expected that this company would be out of physical contact with the battalion, ration and extra fuel trucks were given it. The rest of the tank company, ration and fuel trucks moved initially with battalion headquarters.

Word came to move out at 6:00 AM, 4 November and by 6:30 the reconnaissance companies had cleared bivouac, battalion headquarters following at 6:40 AM.

The companies moved rapidly over routes indicated to their areas before fanning out to perform reconnaissance.

At 9:50 AM "D" Company, Captain LeMoyne commanding, reported first contact with Blue troops near McBee. Company "B," Captain Surles commanding, next reported two battalions of 71st Infantry moving on PAGELAND via HIGHWAY 9 at 10:32, and ten minutes later "A" Company, Captain Quirk commanding, radioed that 101st Cavalry scout cars were operating around MARSHVILLE. All three reconnaissance companies had gained contact . . . but the tough part of the job was still ahead.

To continue their movement in the direction of the enemy, the platoons must now resort to "side slipping," that is, using little known dirt roads and trails, and occasionally ducking cross country, but always keeping close enough to the main highways to observe enemy movements there. This was found to be the most effective way of avoiding antitank guns throughout the maneuvers since heavy artillery vehicles seldom seemed to use poor roads, and even truck loads of infantry usually pick fairly good routes to follow.

By the use of aerial photos, a reconnaissance platoon can often find a route good enough for scout cars that does not appear on the largest scale maps. In this way the reconnaissance platoon may at times advance many

miles into enemy lines without its presence being disclosed.

Company headquarters moved well into their areas using back roads and trails and by early afternoon had established their Command Posts in concealment; "A" Company near MARSHVILLE, "B" Company near CHESTERFIELD, and "D" Company near PATRICK.

Patrols of scout cars, bantams and motorcycles worked their way throughout the area seeking cover at the first contact, and from concealment, observing troops in bivouac and on the move. From these patrols throughout the day came a steady stream of radio reports which were relayed by the companies to battalion headquarters.

The 12th Observation Squadron was working directly with the reconnaissance companies in reporting movements across and in the vicinity of the PEE DEE RIVER as the following two messages received by battalion headquarters illustrate.

No. 19—"75 trucks with 26 AT guns 37 and 75-mm. moving N 20 MPH on Hy 52 head of column 8 mi N SOCIETY HILL 10:15 A 20 trucks moving W 5 MPH on Hy 77 4 mi E CHERAW. Air report 10:40 A 8 S/C 4 trucks 1 large trailer all Blue in Bivouac 5 mi N.E. McBEE 11:08 A. 'D' Company 11:15 A."

No. 25—"From observation plane quote: Large column of enemy vehicles est 5 mi long crossing PEE DEE RIVER on Hy 74 mostly trucks some scout cars est 8 AT guns have just crossed river also enemy column est at 50 vehicles consisting of trucks and few scout cars moving SW from LILESVILLE 11:10 A 'A' Co. 11:38 A."

Other typical messages:

No. 29—"One company 174th Inf knocked out 2 mi SW PAGELAND. Continuing mission. 'B' Co. 12:15 P."

No. 30—"Large blue force strength undetermined concentrated 8 miles NE WINGATE. Destroyed enemy scout car 101st Cav vicinity FAIRVIEW on Hy 151—'A' Co. 12:51 P."

No. 38—"Blue 104th Engr. 71st Inf and artillery Div near PAGELAND. 'B' Co. 1:56 P."

No. 39—"182d Inf at FOUNTAIN HILL. Hy 74 clear to MARSHVILLE. 'A' Co. 2:12 P."

No. 43—"1 Co 115th Inf at RUBY 1:00 P. Blue troops numerous between CHESTERFIELD AND MERVEN at 2:40 P. 'B' Co. 2:50 P."

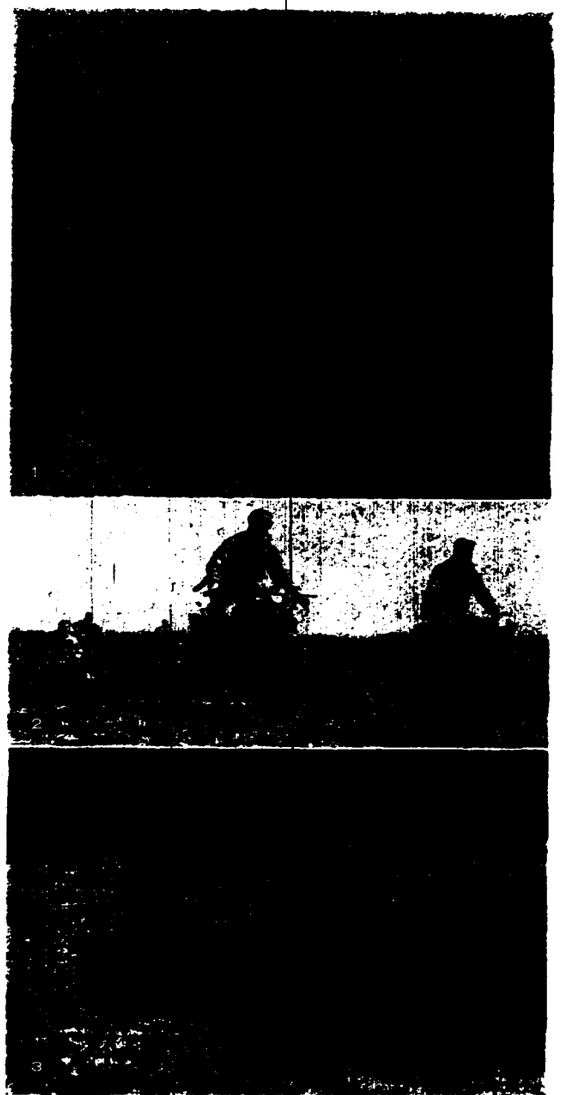
No. 45—"Third platoon wiped out except peep and mortar at CR 151 and 27. 101 Cav. Rcn. active vicinity MIDLAND. 'A' Co. 3:16 P."

No. 47—"104 Blue Cav. bivouacked on Hy 85 one mi N Hy 1 x x x 'D' Co. 2:53 P."

No. 56—"110th Inf Mq. 3 mi S MARSHVILLE also elements of 156 FA x x x 'B' Co. 5:30 P."

No. 62—"Area south and east of McBEE suitable for assembly area. 'D' Co. 7:35 P."

No. 74—"CP unchanged. Blue forces holding bridge two mi W PEACHLAND on Hy 74. Bn Blue Inf in bivouac S CR HAMILTON. 'A' Co. 10:10 P."



1—Lieutenant Colonel H. H. D. Heiberg, commander of the 81st Reconnaissance Battalion, 1st Armored Division. 2—Dashing and daring as the horse-mounted cavalryman, the cyclist is one of the most envied and important of all the individual armored division soldiers. 3—Regardless of terrain and weather the vehicles and men of an armored reconnaissance battalion perform their missions.

These messages are typical of the character of information that was coming in. Numbers are the battalion message centers numbers assigned incoming messages over the battalion command net alone. There were nearly 100 such messages. Enemy information was sent

in clear and information on friendly troops was generally sent separately in a single code.

The larger units were identified. Reports continued to come in through the night and the next morning until by Noon 5 November every major combat unit of the Blue army had been identified.

Battalion headquarters with its ponderous tail, crossed the LYNCHES RIVER about half an hour behind "B" Company, bound for PAGELAND which seemed a likely place to establish a Command Post. "B" Company's report that the 71st Infantry was approaching PAGELAND drove us to cover about half a mile west of the village. Motorcycle intelligence scouts sent forward to watch these troops reported that they had deployed astride the road and were moving in one direction. Having no desire to become involved in a fight at this time, battalion headquarters and trains, sandwiched between the two remaining tank platoons, began doing a little sideslipping on their own. Using air photos we worked our way over obscure trails into the heavily wooded, rough country between PAGELAND-JAMESTOWN and the LYNCHES RIVER. Feeling reasonably secure for the time being we began coiling our long column into a thick patch of woods when an excited lieutenant came up from the tail of the column in a bantam and told us the rear guard was being fired upon by antitank guns and the tail of the column was under artillery fire. Moving east again we ran into strong opposition on Highway 151 and lost a half-track. With the rear guard holding off the pursuing tank destroyer element we doubled back and then moved cross country into thick woods on the side of a hill. This position we quickly outposted with concealed tanks and machine guns while the rear guard, consisting of a maintenance half-track and two tanks, diverted the enemy over another route and rejoined after eluding him.

A troop of the Horse Squadron of the 102nd Cavalry gave us a start shortly after this when it suddenly appeared moving west from Hy 151 with the leading

Of all units of the fast-moving armored division, the reconnaissance battalion covers the roughest, newest terrain.

platoon deployed astride the road adjacent to one position. Intent on the terrain to their front they missed our outposts by yards. Seeing that they were friendly troops, I stopped a nearby squad leader, found that they were withdrawing across the LYNCHES, told him what we knew of the situation in the vicinity and he galloped off to report.

A fusillade of shots a few minutes later indicated that our friends the enemy were still in the vicinity, but the firing soon subsided and the cavalry disappeared.

It was now late afternoon and our perigrinations had interfered considerably with our reporting to division the mass of information that was coming in from the reconnaissance companies. We were having difficulty in communicating by radio with the division so on advice from a nearby farmer that the nearest telephone was about a mile down Highway 151, the S-2 made a perilous cross country trip in a bantam to a nearby patch of woods and sneaked across the highway on foot between hostile detachments and got our report in to division by telephone.

At dark "B" and "D" Companies were instructed to send in guides for fuel and ration trucks. "B" Company's guide, Lieutenant Karcher in a bantam, arrived about 8:30 PM with a hair-raising tale of his exploits of eluding enemy capture, including joining and moving with a hostile blacked-out column for part of the way. "D" Company's guide never arrived.

Based on information gathered by the battalion, the division moved under cover of darkness to the south flank preparatory to an attack from the line PATRICK-McBEE on PAGELAND-MT. CORGHAN the morning of 5 November.

The 81st Reconnaissance Battalion, less "A" and "B" Companies which were to remain in contact, was ordered to withdraw across the LYNCHES RIVER to the vicinity of KERSHAW prepared for further action.

Moving south on Highway 151, blacked-out, in the rain, battalion reached the vicinity of the BETHUNE BRIDGE, west of McBEE (previously reported destroyed by enemy) at dawn 5 November, where we went into concealed bivouac awaiting further orders. We had been unable to cross the LYNCHES further north because all crossings had been destroyed by friendly infantry shortly after dark 4 November.

"D" Company in withdrawing from PAGELAND had encountered antitank dispositions of the 104 Cavalry and 176 Field Artillery in the vicinity of McBEE and reported on these locations while working around to join battalion headquarters.

While the battalion was still moving into concealment, the 6th Infantry (Armored) started advancing on McBEE, crossing the LYNCHES on the BETHUNE BRIDGE which had been repaired by the 16th Engineers (Armored) during the night.

The leading battalion commander of the 6th Infantry was contacted and informed of the situation at McBEE as we knew it. Next a reconnaissance officer of the 27th Field Artillery (Armored) was flagged down and told of the McBEE dispositions. And so as the 6th Infantry moved in to secure the assembly position each unit commander was contacted and given the latest information.

"A" and "B" Companies continued their reconnaissance activities to the north reporting movements in their assigned areas. In addition "A" Company began operating their attached tank platoon with the object of creating the impression of a large tank force on that flank. So successful was Captain Quirk in this deception that he had the enemy thinking there was a tank regiment there. I quote from an umpire report:

"I must commend Captain Quirk on his ability to maneuver his unit, causing the enemy to become confused as to the size of the force opposing. With 2 tanks he had the enemy believing there was a whole regiment. The enemy did not know our strength until 4:30 PM. The enemy umpire had the captain move his column through their lines to give their men a chance to see what had been holding them. Units delayed: 104th Infantry, 182d Infantry, 181st Infantry, 102nd Field Artillery."

This force consisted of "A" Company Headquarters and 4th Platoon, a squad of the reconnaissance platoon of the 16th Engineers and two tanks from "C" Company.

"D" Company, which had been filtering back during the day, was charged with the close in security of Division Headquarters (which set up on the east bank of the LYNCHES near the BETHUNE BRIDGE) because activity of horse patrols of the 104th Cavalry along the river had made this protection necessary. However, we eventually got them fed and serviced by vehicle, squad or platoon.

The movement of the division to the south had been so delayed by friendly demolitions on the south flank that the assembly for the attack was not completed until late the afternoon of 5 November. Reports from "A" and "B" Companies indicated that hostile units were beginning to move southward to meet the mechanized threat building up on that flank.

Having lost the element of surprise, General Magruder decided to reverse his field under cover of darkness and launch his division from the north flank the morning of 6 November.

For deception the 6th Infantry was left in position on the south flank with the remains of our tank company, 6 tanks, to run around through the assembly area all night making a noise like two light and one medium tank regiments.

At dark we again moved out, blacked-out, in the rain, this time to the north on the west bank of the LYNCHES RIVER.

"D" Company, followed by Battalion Headquarters covering the advance of the division.

Dripping wet, we reached the new assembly area before dawn where the long column of the Division

began to coil. The movement had been made without contact or discovery. The Division was ready to strike by 8:30 AM 6 November. And so the problem terminated.

The 81st Reconnaissance Battalion had existed for two days surrounded by hostile troops and sustained vehicle losses of about twenty-five per cent. By harassing action it had inflicted greater losses upon the enemy. There is no doubt that our losses could have been reduced materially had the various patrol leaders resisted the temptation of attacking isolated and unsuspecting hostile troops, particularly on 4 November where no deception or diversion was desired. This is a problem that confronts most reconnaissance commanders. It is believed, however, that in actual combat these leaders will not be so eager to engage forces many times their size.

Despite these heavy losses the battalion was able to continue its reconnaissance and maintain a steady flow of information throughout the period. It was this exercise that earned for the 81st the title of "Phantom Battalion."

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Tank Destroyer Command

THE War Department has announced the organization of a new Army combat force—the *Tank Destroyer Command*—with Headquarters at Camp Hood, near Killeen, Texas. This command is part of the Army Ground Forces under Lieutenant General Lesley J. McNair. Camp Hood will be commanded by Brigadier General Andrew D. Bruce who will coördinate the instruction of tank destroyer units, test weapons and tactical doctrine, and develope technique.

The Tank Destroyer Command received its initial impulse from old Antitank Battalions and an experimental Tank Destroyer Battalion, last August. The second step in its development came in December when a Tactical and Firing Center was set up temporarily at Fort George G. Meade, Maryland. A number of Tank Destroyer Battalions are now completely organized . . . and they are ready to: *"Find 'em, Fight 'em and Finish 'em!"*

Photographic Unit*

WHEN the 2d Cavalry Division moves into the field, it will be fully equipped in terms of modern warfare, even to a complete photographic unit. A unit of the 162d Signal Corps Photographic Company, temporarily attached for experimental purposes during Louisiana maneuvers, has been permanently attached to the division since November, 1941 and has now attained the ability to function efficiently as a fully rounded Signal Corps outfit.

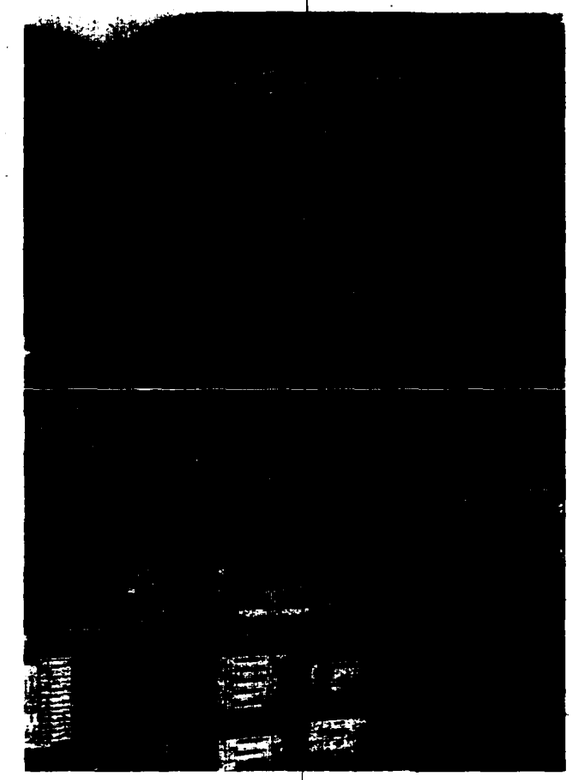
The 162d unit is an amazing example of determined self-sufficiency. Having comparatively little precedent in the way of field experience to guide it, this new Signal Corps outfit—one of several first organized in June, 1941—weathered the war games like a veteran, literally pulling itself up by the bootstraps to a permanent niche in cavalry operations. Living up to cavalry requirements of swift mobility in the field is not easy for other troops. When delicate laboratory equipment is involved, the problem assumes special proportions.

The difficulties pertaining to field operations were met with a will that inspires admiration. Map problems and rigorous field training taught photographic personnel that "shooting" for the cavalry entails work equalling the average day of a rifle troop, with long hours stretching far into the night as well. However, operating with delicate equipment under a variety of difficulties has now become an accustomed part of the day's work. When maneuvers were over, the unit's experimental period as such was ended. Nevertheless even more intensive work was ahead before the cameramen could enjoy a breathing spell—work which has repeatedly justified the outfit's existence.

The 162d Photographic unit, its apprenticeship with the 2d Cavalry Division completed, arrived at Camp Funston, November 5, 1941 with two truckloads of assorted equipment and a determination to "make good." On November 6th they were shooting pictures. Their first darkroom was a black-out tent set up in an office at Division Headquarters where negatives could be developed. The makeshift arrangement was not suitable for printing, however, and this was done in the Cavalry School darkroom at night until better facilities were arranged at Division Headquarters.

A couple of weeks passed in this manner until they were assigned a building vacated by the Division Finance Office which had moved to other quarters. Then the work really started. The building was not equipped for a studio in any sense of the word. Undaunted, the camera unit, which is composed of a former cavalry lieutenant, a sergeant and five PFC's, set to work. Out came excess fixtures and partitions. In went two darkrooms for developing and printing, a storage room, an office, and a portrait studio. Shelves, cupboards, developer sink and every stick of furniture were made by hand. Some of it could hardly be called a joy to the eye—but it serves the purpose. In this self-made workshop, the unit carries on, poised and ready for instant action when the Division moves into the field. Of course it hasn't been so easy as all that. "Poised and ready for instant action" in the cavalry means exactly what the words imply.

A made-to-order mobile darkroom similar to those used by the Air Corps had been promised the Unit. Time passed and none materialized. The handicap of operating from a field base where all laboratory darkroom work must be done had proved a crippling waste



Top: **Everything needed for speed and efficiency in the field is to be found aboard the photographer's mobile laboratory, including the contents of this auxiliary supply closet. Note the "blacked-out" door windows.**

Bottom: **Compactness is the keynote of this portable darkroom built into a 1½-ton panel truck. Entry is from the driver's seat. The partition separates laboratory from auxiliary supply closet in rear. Compartment appears roomy enough but work must be done in sitting position.**

*By G-2 Section, 2d Cavalry Division.

Poised for action: Personnel of the 2d Cavalry Division's 162d Photographic Company unit takes its own picture. Obviously "shooting" is not all done with a camera. Thompson sub-machine guns and .45 revolvers share honors with Speed Graphic cameras as the 162d lines up in front of its darkroom-on-wheels.

of time and material during maneuvers. If the photo unit, expected to hold its own in a cavalry division, something had to be done. And it *was* done.

The ingenuity of this outfit in furnishing its portable laboratory was further demonstrated by a fourteen gallon gasoline tank salvaged from the motor pool and fitted snugly under a darkroom table to serve the purpose of a water storage tank. Since the water should be hot for some needs, the lieutenant in charge contrived a "heater" with the help of an old kerosene lantern whose missing chimney was replaced by an empty developer can. When lighted and placed under the tank, it serves its purpose with surprising efficiency. As the lieutenant put it, "It's a crazy looking thing. But, dammit—it works!"

An enlarger, contact printer, developing tanks and processing trays can be fitted compactly into the mobile darkroom along with chemicals, film and paper supplies. The cavalry photographers are equipped with three Speed Graphic (4" x 5") cameras. One standard type of non-curling film is used to assure ease of use and processing.

On the back side of a neatly constructed partition is additional space accessible from the truck's rear doors. In here are found shelves for flash bulbs, additional film, auxiliary gasoline supply and pioneer tools.

When the unit moves into the field it is prepared to carry with it a 12 volt gasoline motor which generates the power necessary to supply illumination for developing and printing. Three outlets, wired to carry 110 volts of current for safe-lights, are provided in the darkroom. If for some reason power is not available, ordinarily contact prints can be made with sunlight. Enlargements, however, cannot be printed without the aid of electrical illumination by the present set-up.

The photographic unit works in close harmony with the Public Relations section while in garrison. But picture shooting activity is not confined to publicity shots alone. Recently the cameramen were of great assistance in supplementing a medical report which called for pictures of dispenseries, medical supplies and equipment. The outfit is often augmented by a moving picture crew which is equipped with sound recording apparatus. While in the field countless pictures are taken which are invaluable as records—identification of prisoners, examples of demolition activities, occupation procedure and often actual combat. The photographer may be called on at any time to shoot pictures for any one of the cavalry's many departments.

Color pictures as well as black and white are frequently used. With the aid of a "color-blind" assistant, they are especially useful in spotting enemy fortifications protected by camouflage. The telescopic lens also comes into play here. A novel and expensive device which is now past the experimental stage is the "black-out" flash bulb. Using an infra-red filter and film, the photographer can take very satisfactory close-up shots after dark with the aid of an infra-red flash bulb whose explosion can barely be detected by the human eye. A special infra-red paint and filament give the bulb its invisibility.

The activities of the photographic units are limited to ground work. They move with the troops. However, when additional copies of aerial photographs are needed —as they often are—the photo unit is always there and can do the job. Its skilled men and its record file are available when the occasion arises. Four contact prints of each negative are always made for record, in addition to numerous enlargements which serve the needs of a fighting force. A complete record file of pictures and negatives is kept by the unit clerk.

During field operations the 162d Photographic unit will be attached to Division Headquarters as a part of G-2 section. In addition to the portable darkroom truck, it will employ a seven passenger carry-all which carries the personal equipment of the unit and all personnel not transported by the truck.

Photographers will no doubt be called upon to get pictures behind enemy lines. This calls for constant training in scouting and patrol work. Each man is armed with a .45 revolver and has been trained to operate a Thompson sub-machine gun—one to each truck of the unit. *He is first a soldier—then a photographer.* He must be able to follow troops closely in an attack, making use of his own fire power when necessary to secure needed photographs. Working as a part of the Intelligence section, his duties are clearly defined—to worm his way ahead of the division, get needed information, record it and return safely—a scout with a camera. All this is in addition of course to routine behind-the-lines work as recorder and publicity cameraman.

In a recent C. P. problem the cavalry photographers demonstrated not only speed of movement, but unusual celerity in producing finished prints for immediate use by division staff officers to verify and augment operations with maps. To test the possibilities of the unit as an additional agent to a reconnaissance mission, the photographers were placed in the forward echelon, while the dark room remained in the rear echelon. With the aid of motorcycle messengers it was found possible to take, develop, print and have pictures at the spot needed in 45 minutes.

Exposed negatives were rushed from the front lines to the rear echelon dark room, a distance of six miles, where double strength solutions of developer and acid hypo-fixing bath aided in rapid development and fixing, then rushed back to the front. The enlarged prints thus made were good for three days, at the end of which time they began to stain and fade because the negatives were not washed until after the finished prints were made. However, the negatives, immediately after the first printing, were washed in a small creek chosen for that purpose beforehand.

In the meantime the "rush" prints had served their purpose and permanent enlargements had been made for possible further needs. A complete reconnaissance photographic report was then in the files and no extensive written report was necessary. All the work was done with illumination furnished from a six-volt storage battery, doing away with the immediate necessity of a power line or gasoline driven power generator.

At present the photographic personnel is undergoing rigorous physical training to keep them in trim for front line duty. Long hikes each week, combined with field training in chemical warfare defense measures, machine gun and pistol work, and coverage from aircraft attack is adding to their qualifications as soldiers. They have to be tough. A cameraman can get caught in a jam as easily as the next fellow, and with valuable photographic information on his person it is of special importance that he know how to get himself out of it.

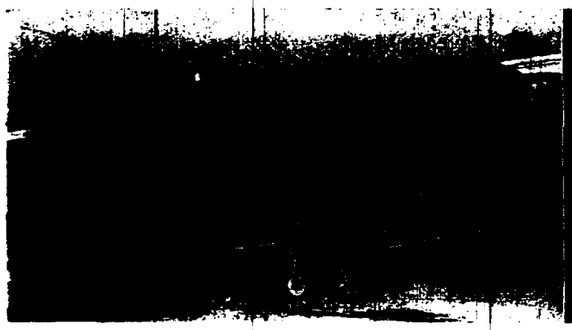
During the C. P. problem mentioned the camerman worked with the regular burden of full field equipment in addition to photographic paraphernalia at all times. The art of camouflage was given special attention, with grass and dead leaves serving to blend vehicles into the early spring terrain. The photographer has learned to adapt himself quickly and efficiently to the particular requirements of individual Division units—at any time, in any place. He has taken a delicate and highly progressive art and learned to apply its many possibilities to the problems of a modern army. The artist-photographer, through necessity and the desire to serve ably wherever he may be needed, has become the soldier-photographer. The results of his work may be seen in the country's newspapers and magazines, on the newsreel screens, and—by the selected personnel who are actively engaged in directing the efforts of the armed forces—on the field desks at the front. There he has spied out the enemy, recorded his position and his strength, his pattern and change of strategy, and furnished the staff officers with a clear picture of operations in a fast and efficient manner. The camera makes no errors.

Spontaneous enthusiasm of the men for their work has been of great help in building the 2d Cavalry Division's photographic unit into an efficient and self-reliant outfit. When equipment is lacking, they build it. If they need paint, they "borrow" it. Serviceable tools are contrived from strange discarded gadgets. The portable darkroom was furnished from packing crates plus odds and ends picked up from the salvage yard, motor pool, and constructing quartermaster.

There's something about photography which inspires its devotees to unusual effort—something which borders on the scientist's thirst for knowledge, his hope of discovering new secrets which will be of service to his fellow man. The 2d Cavalry Division's new photographic unit possesses that something. Such an aura of inspirational effort lends initiative and pride in the individual's routine work. It gets things done. It has earned the cavalry photographer *his spurs!*

Trailers Solve Many Problems

*By J. Edward Schipper, M.S.A.E.**



Upper left: **Van-type of trailer for general heavy-duty cargo work. Drop-frame construction with differential dual tandem wheels.** ***Upper right:*** **Special 7-ton carryall unit with walking-beam tandem axle used for transporting Caterpiller trailers with cranes.** ***Lower right:*** **"Dolly" with fifth wheel for converting semi-trailers to full trailers; trains can be made from two or more semi-trailers thus equipped.**

THE tremendous versatility of the trailer for military purposes is clearly illustrated in the wide variety of such units now employed and projected for future development. The January-February issue of The CAVALRY JOURNAL carried a comprehensive story on army trailers and illustrated a number of different types. On this page are shown additional units which are particularly adapted for heavy-duty use.

By the use of drop-frame construction and by the employment of tandem axles, it is possible to get tremendous carrying capacity combined with a low center of gravity. Illustrated here is a van-type trailer. This unit is suitable for general cargo work. It weighs five tons and has a capacity of 14 tons. In other words, the gross vehicle weight is 19 tons. It is equipped not only with the tandem axle, as shown, but with differential dual wheels. These provide independent rotation for each of the duals thereby avoiding the scuffing of the tires, which necessarily results from the use of the rigid duals with wide centers between adjacent tires. This van-type trailer is 26 feet in length.

For the transportation of matériel, an entirely different type of trailer design is required. Here again the drop-frame type of construction is extremely valuable in lowering the center of gravity, contributing therefore to the stability of the vehicle. On this type unit, tandem axles may be employed, as shown here, or in the case of extremely heavy equipment multiple wheels are often employed.

Another interesting development in army trailers is the "dolly" which is employed to convert a semi-trailer into a full trailer unit. This is an adaptation of a highly efficient hauling unit very successfully employed in commercial work.

At this time a great deal of attention is being given to the ability to transport artillery of much heavier capacity than that which has formerly been considered as field or mobile units. Cavalry as well as infantry and artillery must contend with the need for both increased fire power and mobility. The load that can be carried on a self-propelling unit is limited by many factors which do not prevail in the case of trailers. In this type of work as in other forms of transportation, the value of the "shuttle" system cannot be overstressed.

Bigger loads, greater maneuverability, greater range on a tank load of fuel, more versatility and less manpower per ton-mile are all essential and valuable attributes of this form of transportation.

*Advertising Counsel, Fruehauf Trailer Company. (Member, Society of Automotive Engineers.)

Cadres and Training

EDITOR'S NOTE: *This valuable training memorandum eminated from Headquarters of the Second Army —commanded by Lieutenant General Ben Lear.*

THE Army is being called upon to furnish officers and enlisted men as cadres for the training of new units soon to be formed. . . . *"FIT TO FIGHT."*

TRAINING

Among the considerations to be impressed upon the training personnel is the chief lesson we have to learn from the events of the war since December 7, 1941—which is no more or less than emphatic affirmation of training and character, principles that are familiar in our military teachings but that have been given insufficient practical demonstration:

Reconnaissance: Intensive and unrelenting, expert and indefatigable, a test of the professional capacity of officers and men.

Disciplined Dispersion: The skilful dispersion of potential targets—planes, trucks, stores, troop elements—making the most of concealment as well, wherever that is attainable. This also requires expert planning and prompt disciplined action, so that dispersion does not lessen effective control at any time.

Physical Ruggedness: The development of the power of stamina, so that the ultimate resources of human character may be drawn upon by bodies enured to hardship and prolonged endeavor against obstacles. This cannot be acquired by any royal road to attainment. Soldiers cannot march over broken terrain 15 to 20 miles a day, over roads 25 to 30 miles a day, with full equipment, day after day, and still be physically and spiritually equipped to do hard battle unless they have developed that stamina by such marches and are prepared to meet tests of that character on call. There is only one way to build legs and hearts—and that is to build them in training, so that when they are called into action no unusual, unaccustomed strain is put upon the soldiers in addition to the other unavoidable strains to which they are subjected under battle conditions.

Our infantry soldiers think too much in terms of gasoline transportation. They must be prepared for situations where long marches day after day or night after night will have to be made on their own power, either because the terrain denies truck movements, or because gasoline supply shortages will most certainly exist in many instances, or because enemy air operations may make the overloading of roads fatally impractical. . . .

Over-emphasis on Equipment: There is a tendency in the press, in civilian opinion, and among too many of our personnel, to believe that equipment is the chief answer to the soldiers' problems. That is a grave error of emphasis. Equipment does not fight. It is an instrument of men. Equipment is not a substitute for character, esprit, dogged determination, élan, development of tactical skill, and ***the will to close with the enemy and destroy him.*** There will be times when our enemies may have superior equipment, and the American soldier shall have to hold his ground or take ground in the face of that partial and limited superiority in instruments of warfare. That will always be true somewhere. That is where spirit, character, training, and the will to win come into play. It is a false premise, psychologically enervating and injurious to morale, to place an emphasis on equipment doing the work of men. This is also true in relation to air power. We cannot conceivably have air superiority at all times and in all places. But we can have superiority of determination and moral and physical ruggedness. Without that we are not "fit to fight."

We have much to learn, it is true; and there are and will be new things to learn. But we must first prove that we have thoroughly established the fundamentals upon which success in defense and victory in offense depend in every battle against a determined enemy. Let us never make the mistake of underestimating our foes or overestimating our tools. Men are the essence of fighting; the hearts, the courage and the blood of soldiers win wars. It must be fixed in the mind of every individual officer and man in the Army that *man*—the American Soldier—is the master machine in war.

ESPRIT DE CORPS, AND MORALE

The training and spirit of the soldier reflects the zeal, the pride, the loyalty and the professional ability of the officers and noncommissioned officers entrusted with his training. The development of *esprit de corps* is a responsibility of leadership and must, therefore, be exemplified in the personality of the leader. He sets the note, and his pride of accomplishment evokes pride and will to learn on the part of the soldier. The exchange of loyalty—the unstinted capacity to give of one's self—between the officer and the soldier cannot be too complete. The never-failing loyalty and service of the officer to his men should be outstanding, an example of devotion to duty, of understanding of human nature, of generous willingness to endure every hardship.

SIMPLIFIED TRAINING

Training must be reduced to its simplest possible form. If we can train each individual officer and man in the Second Army to *obey*, to *march*, to *shoot*, and to *be imbued with the irresistible will to victory*, we can point with pride to such an accomplishment. The above tasks require time, effort, intelligence, reflective and creative thinking, and inspired leadership. There is no exertion that provides a greater reward to the soldier than the conscientious preparation of his comrades at arms for success in battle.

LEADERSHIP

By Lieutenant Colonel J. J. LaPpage, (Cavalry), A.G.D.

A TENDENCY to accept without question the old axiom, "A leader is born and not made" has developed recently despite ever present emphasis on the development of leadership in all echelons of command. Consequently, many young officers have received a "brush off" when they have attempted to secure definite knowledge of that mysterious and nebulous quality "leadership" that they must develop and exemplify. It is granted without question that "a born leader" may go farther than a "made leader" but since so many leaders are needed and so few are born, definite efforts must be made to make or develop leaders. There are many methods of developing leadership, but the two considered most applicable are: guidance and assistance by superior officers and endeavor by the leader himself.

Many reams have been written on leadership and it is not the intent of this article to discuss at length the general term. Presented in diagram form, for ready reference, are the qualities considered most essential in a leader. (These qualities are not entirely personal ideas as they have been crystallized from discussions occuring during interviews with hundreds of Reserve Officers competing for appointments in the Regular Army.) If superior officers will observe younger officers for these qualities and assist in their development and, if the younger officers will constantly strive to exhibit these qualities, leaders will be developed whom men will willingly follow. Remember that it is necessary at all times to think like a leader, act like a leader, and be a good example for others to follow.

Many young officers will easily understand the diagram and the dictionary meaning of the words employed, but naturally their principal interest is "how may I exhibit the qualities listed?" For that purpose a brief explanation of the "every day" manifestations of those qualities which are not self-explanatory follows together with the most common pitfalls that must be avoided.

Integrity. Morality. Select your companions, and means and places of amusement with extreme care. The easiest way to lose the respect of your men is to be seen in a place of low repute. Watch your alcoholic consumption and don't be seen with too much aboard. Don't appear near your troops with the faintest trace of alcohol on your breath. A beer at lunch will leave lingering traces that will cost you the respect and trust of your men.

Justness. Impartial. Non-commissioned officers should be considered as a group and apart from the other enlisted men. Avoid special favors to any particular NCO because of his duties, but, on the other hand, don't forget the special relationship between a first sergeant and the company commander. Don't ride certain men because they may be slower than others, and don't push outstanding men. Give each man the opportunity to earn his niche by his demonstrated ability.

Loyalty. Subordinates. Always be willing to assist a man in personal or military difficulties. Make every practicable effort to improve the mess and living conditions of your men, limited only by means available. Ascertain that equitable distribution of fatigue and other unpleasant duties is made. Always see that your men are fed and are as comfortable as practicable before thinking of your personal comfort. Support a subordinate even when he has exhibited faulty judgment. Don't correct or call to his attention the errors of a subordinate where men under him can hear the conversation.

Superiors. Support and carry out orders and policies at all times. Avoid criticism of your superiors for by indulging in such you lose the respect and trust of those hearing your remarks.

Knowledge. Ability to Impart. Prepare your lectures and demonstrations so that they will be interesting as well as instructive. A little acting ability will be of great assistance. Avoid mannerisms that will distract the attention of your class.

Initiative. Be on the alert to detect and correct errors. LOOK FOR THINGS TO BE DONE. Don't wait for your commander to point out tasks to be accomplished. As long as the execution of your initiative is within the boundaries of outlined policies, you will be commended, but avoid innovations without first discussing them with your commander. Remember that poorly directed initiative is worse than none at all.

Bearing. You will be judged by your appearance and bearing. Always appear as neat, clean, well shaven and as well shined and polished as is practicable. A sloven appearance and poor bearing will create a definite doubt of your efficiency. Never appear with buttons missing or outer clothing unbuttoned. Your uniform should be worn with pride. Select it with care and have it tailored to fit.

LEADERSHIP

INTEGRITY	Honesty	Deed and Act	Trustworthy Honorable
		Truthful	Avoid Prevarication Avoid Exaggeration Avoid Omission of Fact
	Morality	Clean Living	Self Companions
		Clean Thinking	
		Clean Acting	Self-Restraint Surroundings
JUSTNESS	Justice	Reward	Promotion Commendation
		Punishment	Prompt Equitable to offense
	Impartial	Fairness Consideration	
LOYALTY	Self	Family Religion	
	Subordinates	Officers Enlisted Men	
	Superiors	Chain of Command Country	
KNOWLEDGE	Technical	Thorough and Detailed	Present Future developments
		Ability to Apply	
	Ability to impart	Instructing ability	Voice Manner Gestures
		Demonstration	
INITIATIVE	Thought	Reasoning Concise, Clear	
	Action	Alert Considered Logical	
BEARING	Physique	Innate Developed	
	Personal Appearance	Beard Hair Fingernails	
	Uniforms	Clean, Well pressed Repair Properly fitted	
EMOTIONAL STABILITY		Poised Level Headed Not excitable	
JUDGMENT	Sound	Considered Weighting factors	
	Accuracy	Correct Proper application	
	Inspiration	Soundness inspires others Personal confidence	
COÖPERATION	Superiors	Full support despite conflict of ideas	
	Equals	Helping hand Open mind	
	Subordinates	Assistance Guidance	
DEPENDABILITY		Reliable Trustworthy Loyal	

The Cavalry, R.O.T.C.

Massachusetts State College

*By Colonel Donald A. Young, Cavalry**

MASSACHUSETTS STATE COLLEGE, located in Amherst, Massachusetts, overlooking one of the most picturesque sections of the Connecticut Valley, has had military training as part of its curriculum since its foundation in 1863. Its first military classes were in operation in 1867, and military science has been taught at the college since that date.

The purpose of the College in including military science in its curriculum was made clear in the very beginning. This instruction was intended not only to train officers but also to strengthen the defenses of the country by diffusing some knowledge of military principles among educated men. That purpose was well realized when more than thirteen hundred former students of Massachusetts State College saw service in the first World War, and of that number four hundred and forty-six were commissioned officers. How well their knowledge served the nation in that emergency is indicated by these figures and the records of the men; it is a record of which the College is justly proud. The requirement that all able-bodied male students receive basic military training has continued to the present time. Since the establishment of the Cavalry R.O.T.C. Unit in 1920 a total of about 8,500 students have been given military training. Of these over 400 have been commissioned in the Cavalry Reserve. As we confront another crisis in our history, the value to the nation of compulsory military training at Massachusetts State College is again revealed.

The R.O.T.C. in its present form of a Cavalry Unit was established in 1920. The selection of Massachusetts State College by the War Department for one of the few Cavalry R.O.T.C. units in the nation was a happy one. The Connecticut Valley has always been a horse country. No section of the country, except perhaps Virginia, Kentucky, and the Southwest, has known more interest in horses and equestrian sports, and the only change through the years has been an evolution from trotting to saddle horses. With its long-standing background of military training, and located in the heart of fertile horse country, Massachusetts State College was a *natural* for a Cavalry Unit.

The Massachusetts State College is run on the University plan and has a total enrollment of about 1800. That total is broken down into about 1300 in the four-year College, including 400 co-eds, the agriculture section (Stockbridge School) of about 400, and the Graduate School of about 100.

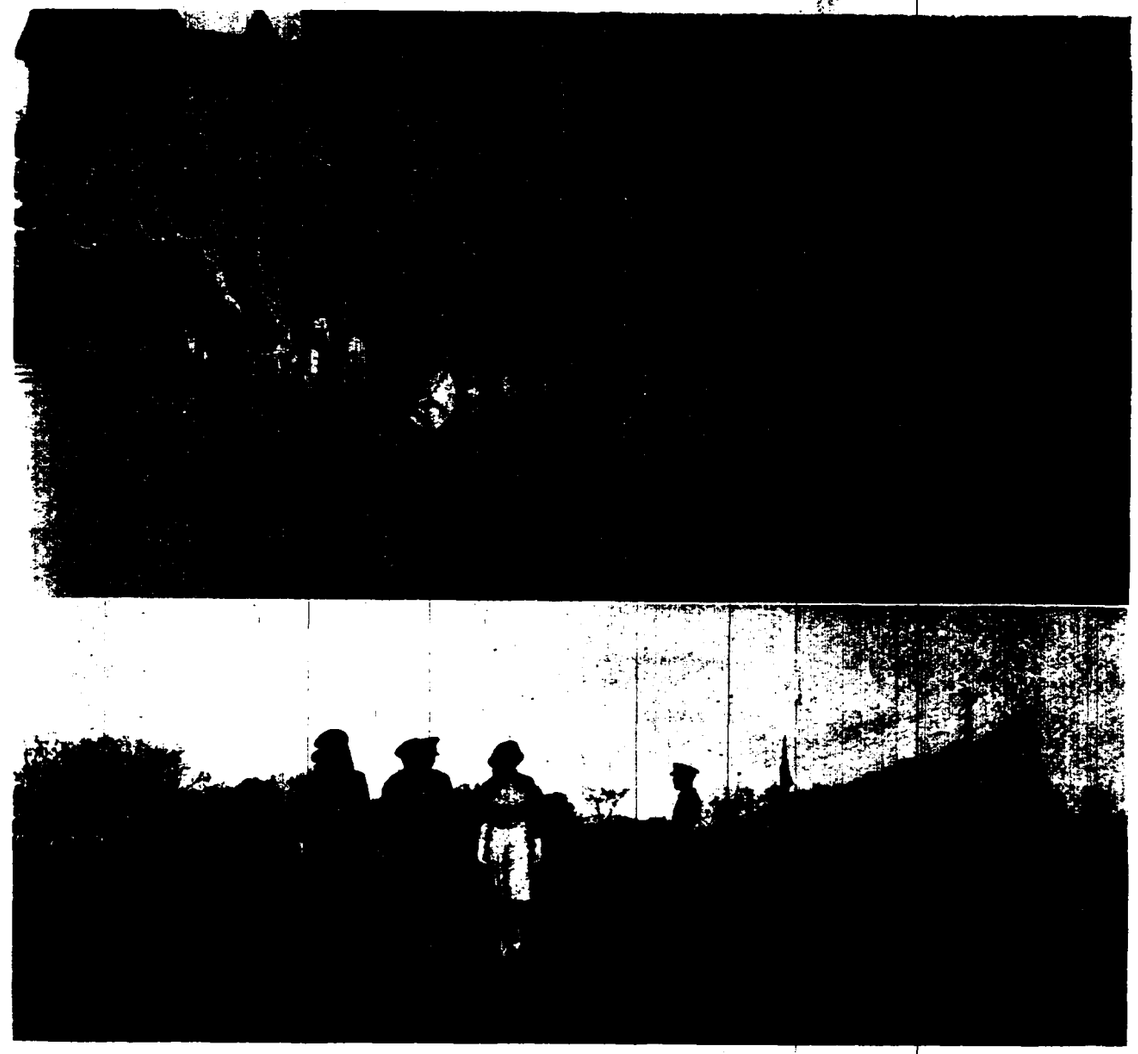
The College is fortunate in having a very large acreage of campus and adjacent farming and experimental areas, crisscrossed by dirt roads and fences. Many of these fences have been paneled to provide access to mounted troops. In addition, the College has a large Forestry Reservation on Mt. Toby, ten miles north of the campus. This reservation, with its varied terrain of trails, mountains, streams, and ponds, is available for R.O.T.C. training. It has proved invaluable for overnight and week-end camps, marches, mounted and dismounted problems.

The R.O.T.C. instructional staff at Massachusetts State College consists of four officers and seventeen selected enlisted men of the regular army. The Cadet Officers (Seniors) are rotated as assistant instructors for the first-year basic instruction as a means of further developing leadership, initiative, and self reliance. The Cadet Officers (Seniors) and N.C.O.'s (Juniors) are given full responsibility for their respective units, and competitive drills and exercises develop a high type of troop unity and *esprit*.

The Massachusetts State College R.O.T.C., an all-Cavalry unit, is conducted in accordance with the standard plan promulgated by the War Department. The climatic conditions obtaining in New England require for the most effective progress in military training that the R.O.T.C. program be divided into fall, winter, and spring periods. The fall period devoted to outdoor practical training, the winter period to indoor theoretical training, and the spring period to more outdoor and practical work. Hours of instruction are staggered throughout the week, and the classes broken down into sections for effective training. All students are required

Machine-gun instruction and firing.

*P. M. S. & T., Massachusetts State College.



Top: Major General James A. Woodruff, Corps Area Commander, inspecting the Corps of Cadets. *Bottom:* The P. M. S. and T. and honorary colonel inspecting the regiment.

to take the basic R.O.T.C. course, which is a requisite for graduation. The Cadet Corps has a strength of about 500 and is organized as a Regiment of five troops of two squadrons.

The stables located adjacent to the campus have a complement of seventy horses, and are the center of activities during the spring and fall periods. To say that the college is horse-minded is, as the horses can well testify, stating the matter mildly. The extensive mounted-drill field adjacent to the stables contains a large horse-show ring, paddock, bull-pens, jumping-chute, and other cavalry equipment. It recognizes no holidays; and the occasional falls, spills, and "bawls" are taken as a matter of course.

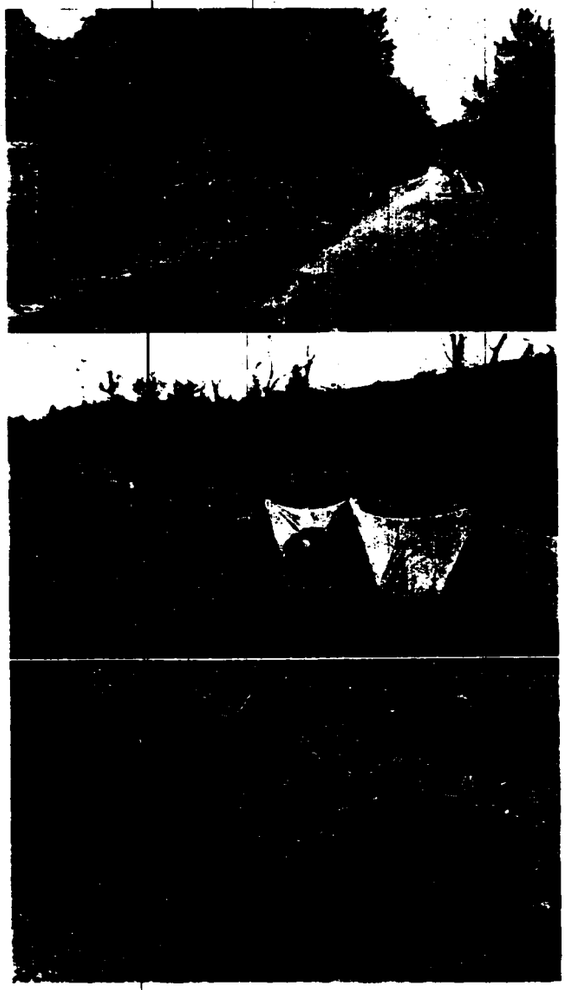
The advanced military classes are kept abreast of the rapid changes in military organization and operations by means of a private reading room in the military building. Here are kept such current periodicals as the *Cavalry Journal, Army and Navy Journal, Leavenworth Military Review*, and many others; here, too, are books of military interest. Articles which have timely bearing on topics being studied are required reading. In addition, the various materials distributed by the Cavalry School are made available and constitute an important part of of the program of instruction. All seniors are required to do extensive reading in the customs of the service and the problems which confront the young officer.

As for marksmanship, the record speaks for itself.

The indoor small-bore rifle gallery has been improved and the marksmanship program expanded to insure adequate training for all students. The College has held the National Championship more than once in the intercollegiate indoor matches held under the supervision of the National Rifle Association. The present student body is maintaining a high record. A strong rifle team is now engaged in firing matches with many competitors scattered throughout the nation.

The summer training* given to the first-year advanced cadets is the highlight of their college military training. The six weeks in the field are filled with intensive and practical instruction; during this time a march of over four hundred miles to Fort Ethan Allen and return is conducted. At the Fort the cadets qualify on the range with the service rifle and pistol, and receive training with machine guns and other weapons. They also combine with the Norwich Unit in tactical problems and exercises. During the march to the Fort and return, the officers in charge take full advantage of the rough terrain and back country roads of Massachusetts and Vermont to teach and practice, with problems and exercises, the principles and technique of reconnaissance, night marches, concealed bivouac, river crossings, outposts. All this formal training is supplemented, of course, by the more personal things which the cadets as embryo cavalrymen must learn in the field. At the end of six weeks of intensive field work, living with their horses and sleeping in pup tents, the cadets return bronzed, hard as nails, filled with confidence in themselves and their horses, wise in the ways of horses and men; and another group of real cavalrymen is born.

*Editor's Note: Since this article was set in type, R.O.T.C. Summer Camps have been suspended for the duration of the war in favor of the basic training course at appropriate special service school.



Top: On the march to week-end camp. *Center:* Cadets bivouac. *Bottom:* Ready for the return march.

In the present emergency the course of instruction has naturally been extended and intensified. Not only are more class hours devoted to military training in the college schedule, but also much of the college program has been modified to meet defense requirements. This change helps the R.O.T.C. both directly and indirectly. For example, the facilities of the Physical Education Department have been used to insure that all students get a thorough training in first aid and military sanitation and hygiene.

The standard for selection for Advanced Course training and commission is high at the Massachusetts State College. Selection is determined by competition, and once accepted the cadet has to prove himself in every way during the two years of basic training. The competition is keen and hard; the men selected are the fittest of the fit. Limitation of allotment this last year precluded many fine men from selection to the advanced course R.O.T.C. The Marine Corps and the Navy are, however, selecting many of these men for commission.

The administration, the faculty, and the co-eds are solidly behind the R.O.T.C.—a fact evidenced by the support rendered and the hours allotted for military training, which exceed the War Department requirements by one hour per week. The co-eds, by their intense interest in the Corps of Cadets, are an important encouragement to the R.O.T.C. Many of the cadets owe their stripes and bars to the energetic backing of their campus girl friends, who are not adverse to telling them to go out and make good as military men, or else! A co-ed honorary Cadet Colonel is chosen each year by the Advanced Course Cadets at a formal military ball; she is the envy of the female college population.

As part of the College Commencement week exercises, each year the Cadet Officers under the supervision of the Military Instructors sponsor and conduct a horse show which is one of the leading events of the Connecticut Valley.

The declaration of War brought a new and more serious realization to the R.O.T.C. Cadet of the value of military training. It was at once realized by the Corps of Cadets that their military training was now an extremely grave and serious matter and the reaction to the increased demands was immediate. A new note of earnestness and appreciation towards their training was at once evident. The College put into effect under supervision of the Physical Education Department an intensive body building program of bodily contact and hardening exercises. This was taken in stride by the Cadets even though it cut into their little free time and set their dinner hour back. The indoor range increased in popularity; spontaneous individual and squad competitions in marksmanship developed. There were not enough daylight hours available so voluntary evening sessions were organized. There were more demands for privilege riding. Even the horses appeared to feel that something was developing when their work hours and oats increased. Freshmen eyed the Cadet Officers with greater respect and polished their belts with a bit more care. The first year Advanced Course Cadets were bitterly disappointed when the War Department announced the necessary suspension of the summer field training. The class to a man volunteered for a week of field training at their own time and expense immediately following Commencement. The spirit had always been present, but a new urge had been added.

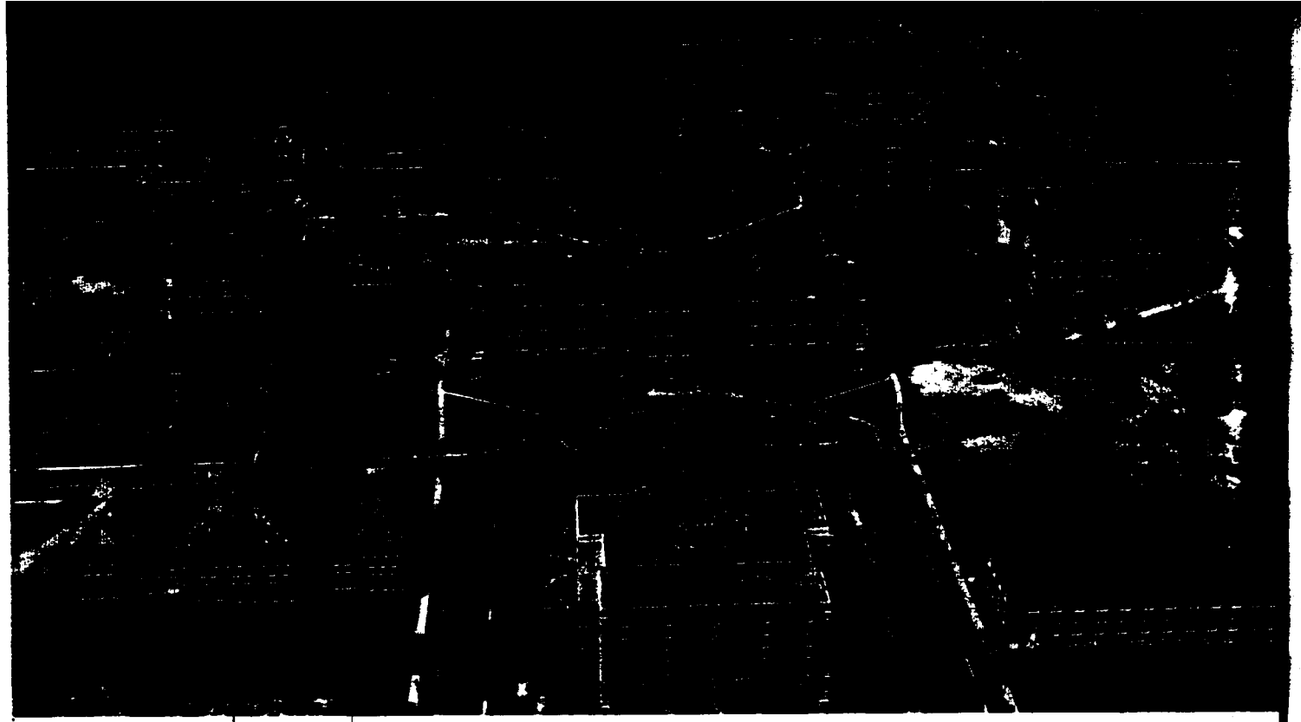
On the other hand the declaration of war imposed greater and more definite tasks on the P.M.S.&T. and the military instructors. No longer do the newly commissioned Second Lieutenants O.R.C. go out into professions and industry, to attend short training camps and carry on theoretical training through extension courses. They now must be prepared to go directly to the field or to service schools for specialized training immediately following graduation and take their place in a unit of the growing Army of the United States.

Every effort is being made at Massachusetts State College to increase the practical training of the Advanced Course Cadets. More time is being devoted to training in the technique of weapons; to leadership of small units; to development of mental alertness, initiative and resourcefulness. Much of this is being accomplished by voluntary week-end camps during the fall and spring seasons which the College indorses and supports. It is felt by the College that it is time well spent by a student. Should a cadet cut Saturday morning academic classes to mount-up and march over the road to a camp of military instruction its a College contribution to the war effort. The Cadet will be in class the following Monday clear eyed and confident.

The State of Massachusetts is proud of its Cavalry R.O.T.C. Unit and in turn the Reserve Officer graduates are proud of their training received at Massachusetts State College. In the current appointments to permanent commission as 2d Lieutenants, Regular Army, by competitive examination of Reserve and National Guard Officers on extended active duty, announced by the War Department in February, six of the fifteen appointments in the Cavalry branch were won by Massachusetts State College graduates. Massachusetts State men are making good in the Army of the United States.

★ ★ ★

Cadets training remounts.



Law and Puryear Hall, Cavalry Barracks (see arrow upper center).

Cavalry R.O.T.C. at Texas A. and M.

By Lieutenant A. P. Utterback, Jr., Cavalry

IN our rapidly expanding army, the rôle played by the Reserve Officer is becoming increasingly important. So, it is only natural for an officer to want to know what kind of training the R.O.T.C. Cadets are receiving, and what he might expect of these soon to be commissioned officers who will be under his command in the near future.

Texas A. & M. boasts nine units and now has in the service well over six thousand Reserve Officers. Although the Cavalry Unit is not the largest on the campus (about 500), approximately fifty officers are commissioned annually.

The Cavalry Unit here is set up, for training and administrative purposes, as a regiment of two squadrons of two troops each. In addition, a Headquarters and Service Troop, and a Machine Gun Troop are attached to the squadrons. These two troops are auxiliary troops in name only, and actually perform as rifle troops. The Organization is as nearly as possible the same as a regular regiment, from the Regimental Headquarters down through the squad. The unit has two barracks, two men living in each room. Under the supervision of the instructors and tactical officers, responsibility is placed on the Regimental, Squadron, Troop and Platoon Commanders, for training, discipline, police of the barracks, as well as administrative duties. Morning Reports, Sick Books, Duty Rosters, and a system of Troop funds are kept by all troops, the troop commander rotating the administrative duties so that each Junior and Senior cadet has practice as Administrative Officer. All records are as authentic as possible, and are checked daily by the instructors.

The service uniform is worn at all times. The uniform for students enrolled in the basic course is Government Issue, and that of the advanced course students is purchased from a uniform allowance furnished by the Government. This is advantageous to the cadets as the uniforms are virtually the same as the Regular Army uniform, and so give the graduate a start on the equipment he will need after being called to active duty.

Recently the College has been setting up its machinery for a change from a four- to a three-year plan, which shortens the time of graduation to three years, the school operating the entire calendar year. This plan becomes effective in June, at which time the new school year will begin, and although this schedule shortens the time of training, it does not compress the scope of instruction. Along with this change came a two-hour in-

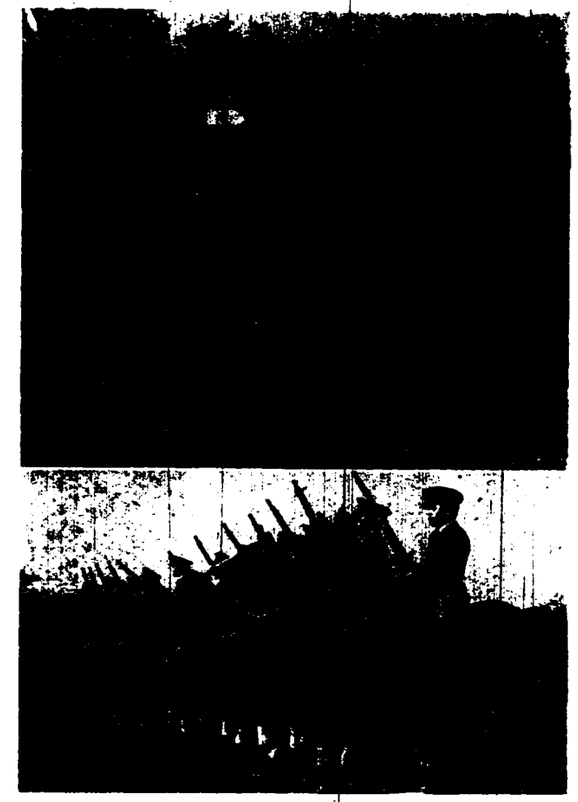
[1] Cavalry, Coast Artillery, Field Artillery, Chemical Warfare Service, Engineers, Signal Corps, Infantry, Ordnance and Quartermaster Units

crease in the present practical instructional period, which now allows all cadets four hours of practical drill per week. Another recent change was the inauguration of 7:15 (War Time) Reveille and calisthenics. The drill is conducted by Squadrons by the cadet officers. After calisthenics, rooms and barracks are cleaned. All cadets march to the mess hall for all meals. The summer camp which was attended by all advanced course contract cadets during the summer between the Junior and Senior year, will be deferred until immediately after graduation.

All Freshmen and Sophomore students are required to take the basic course, which consists of one theoretical and four practical hours per week. The basic course includes sixty-four theoretical (classroom) hours of military fundamentals, including Military Discipline, Courtesies and Customs of the Service, National Defense Act, Military History and Policy, Sanitation and First Aid, Organization of the Army and Cavalry, Map Reading, Cavalry Marches and Camps, Scouting and Patrolling, Weapons, Musketry and Technique of Fire. The practical (drill) course consists of two hundred fifty-six (256) hours of Rifle Marksmanship, Mounted and Dismounted Drill, Equitation, Principles of Scouting and Patrolling, Weapons, and Combat Principles of Rifle and Light Machine Gun Squad and Platoon. The Corporals are chosen from the Sophomore class and all other basic students are privates.

The advanced course is more intensive and is taken by selected Junior and Senior students. This course is seven hours per week, three theoretical and four practical. The advanced course includes Aerial Photograph Reading, Troop Administration, Care of Animals and Stable Management, Principles of Leadership, Instructional Methods, Horsemanship, Weapons, Combat Principles of Small Units, Defense Against Chemical Warfare, Military Law, Property, Emergency Procurement and Funds, Tactics and Technique of Mechanized and Armored Units, and Combat Intelligence. The Sergeants are chosen from the Junior Class and the cadet officers from the Senior Class. The Juniors and particularly the Seniors receive a great deal of time on instructional methods and leadership, since the Seniors are charged with a large amount of the training. For example—all drill, mounted and dismounted, weapons, rifle and pistol marksmanship, and some equitation and tactics are taught by the cadet officers, assisted by the cadet noncommissioned officers.

With the recent increase of time allotted to practical drills the Cavalry, as well as the other units at the college, has "taken to the field" in an effort to apply practically the principles taught in the classroom. Problems in Scouting and Patrolling, Security, to include Advance Guards, Flanks and Rear Guards, Covering Detachments and Outposts, Offense, Defense and Delay, take up the entire second semesters' practical work. The college is blessed with a rather ample supply of rolling wooded terrain near the campus, which is now being constantly used for tactical problems. The school schedule is arranged so that two troops drill each Tuesday, Wednesday, and Thursday afternoon from 2:00 to 6:00 PM. Although we have only enough horses to mount one troop at a time, this schedule allows each troop to be mounted every other week, or else half the drill period each week.



Top: Troop B en route to training area. *Bottom:* At review.

On March 28th, the Nineteenth Annual Horse Show was held at the College, and sponsored by the Cavalry Unit. This show was open to all cadets of the College, regardless of branch, and such events as jumping, charger classes, hunt teams, various polo classes and other events were featured. The horse show is a part of the locally renowned Cavalry Week, which includes the Annual Cavalry Ball.

After four years of military training here at A. & M., with experience as private, noncom, and officer, these new officers receive a broad outlook with which to start their active military careers. There is, of course, no substitute for actual duty with troops, but the graduates here leave with a sound background and the determination to quickly become capable officers in order to take their places beside their "Ex-Aggie" predecessors.

R. O. T. C., University of Illinois

By Colonel Murray H. Ellis, Cavalry

THE Military Department of the University of Illinois is one of the largest R.O.T.C. establishments in the country. The total enrollment averages close to four thousand. The instruction staff consists of thirty-one officers and fifty-six enlisted men. Colonel Leonard C. Sparks, FA, heads the department as Professor of Military Science and Tactics. The University and state authorities give the Military Department excellent support and have provided exceptionally fine facilities for instruction.

This University is a Land Grant school. All male students, except those few who are excused for physical disability or like causes, are required to complete successfully the two years Basic R.O.T.C. course in order to be graduated from the University. The Advanced Course enrollment is limited by appropriations to six hundred. The number of applicants always has greatly exceeded the number who could be accepted.

Units are maintained by six branches of the service, Cavalry, Infantry, Coast Artillery, Engineers, Signal Corps and Field Artillery. The Field Artillery Unit is the largest and is divided into Horse drawn and Motorized divisions. The size of the various units is controlled by quotas set up by the Professor of Military Science and Tactics. Within the limits of these quotas, students may select the branch in which to be trained.

Most of the activities of the Military Department are housed in the large Armory which contains a drill floor 220 feet by 400 feet, a gallery range with a hundred firing points, and ample class room, office and storage space. There are two drill fields, one of which is used for dismounted drill and polo and the other for mounted drill.

The Cavalry Unit has an average enrollment of about 625, about 100 of whom are advanced course students. The Cavalry is popular with the students and the unit would be much larger if it were not limited to a quota.

The Cavalry instruction staff consists of six officers, one Lieutenant Colonel, regular army and five assistants, reserve officers on extended active duty. Lieutenant Colonel John D. Hood, Cavalry, is the unit director and is assisted by Captain Olaf A. Watne, Captain Roy E. Etnyre, First Lieutenant Howard P. Schaudt, First Lieutenant Bruce W. Benedict and First Lieutenant Phillip R. F. Danley. All of these officers except Colonel Hood are graduates of the University. One sergeant and one private first class assist in the practical instruction and the clerical work, these in addition to the stable crew.

The Cavalry and Field Artillery units together are allowed 150 horses which are pooled and used by both Units. The stables and storage facilities for forage are excellent. The stable crew numbers a total of twenty-five enlisted men.

The Cavalry is organized into eight troops for drill and other practical instruction. Each troop has one two-hour drill period a week. The seniors are the Cadet Officers and instruct the freshmen and sophomores under the supervision of the officer instructors. The Juniors have most of their practical work separately from the rest of the classes and a good proportion of their drill time is devoted to equitation, animal management, and other horse subjects, in order to prepare them to act as instructors to the freshmen and sophomores the following year.

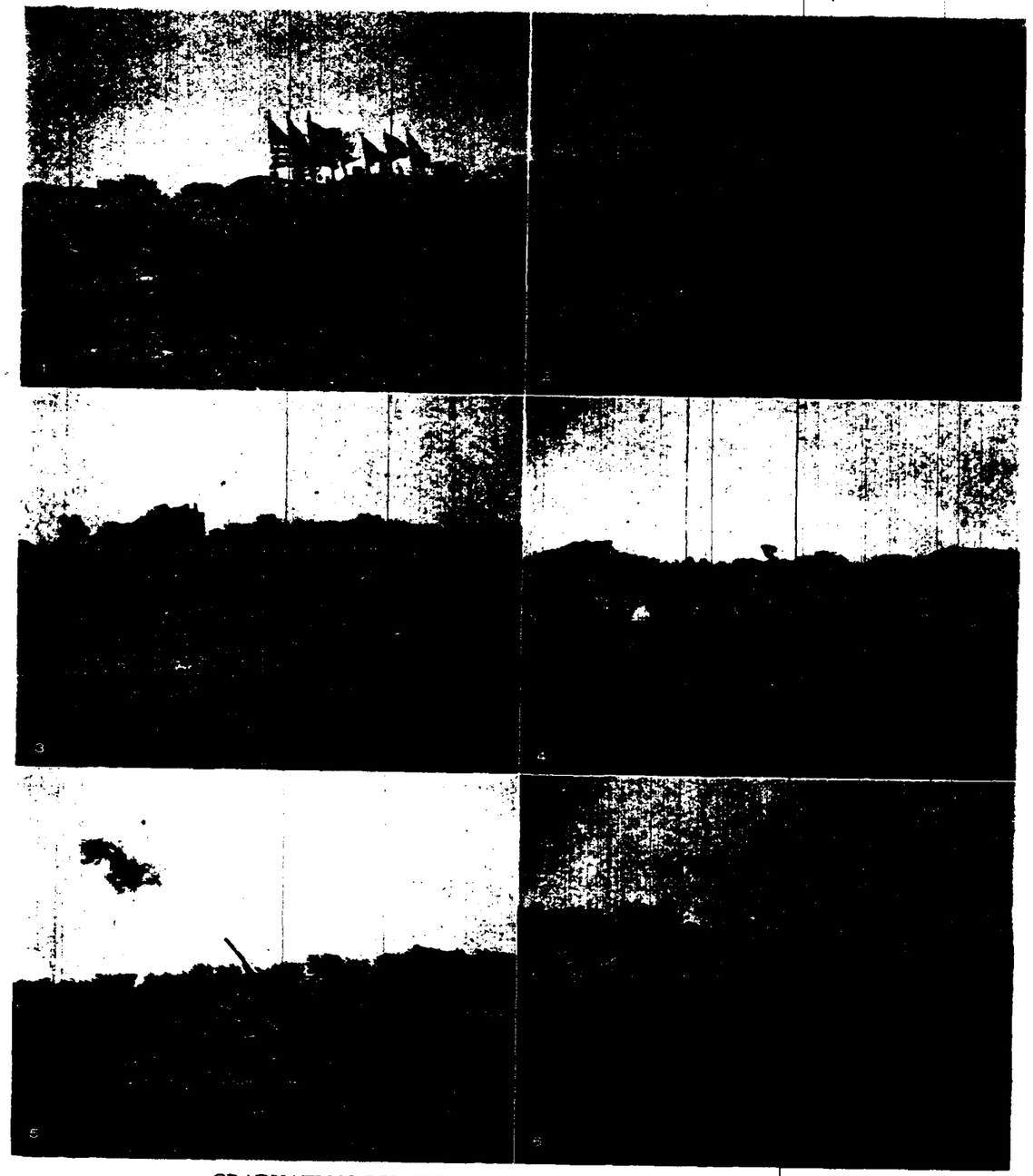
Although the University is located in the heart of a great farming country, the great majority of students know little or nothing of horses or horsemanship. Accordingly, one of the first and most important tasks is to teach them the rudiments of horsemanship and horsemastership. There is no indoor riding hall large enough to accommodate a troop. This necessitates holding all mounted work outdoors, with the attendant interference from weather conditions. However, by concentrating the mounted work in the fall and spring and scheduling the dismounted work largely during the winter months it is possible to meet this problem fairly satisfactorily.

It has not yet been possible to obtain any mechanized equipment or the new cavalry weapons, due to more urgent demands elsewhere. This necessitates that the instruction in these subjects be entirely theoretical. This is unfortunate, as many of our graduates when ordered on active duty go to the Armored Force or to Mechanized elements of the Cavalry.

For a number of years past the advance course students attended a summer camp, normally between the Junior and Senior years. These camps have been held at Fort Custer, Michigan. In recent years, there has been no Cavalry at Fort Custer to assist in the R.O.T.C. instruction. Last summer the 5th Rcn. Troop was present part of the time and rendered great assistance by making available its men and equipment for the instruction of the Cavalry Cadets and by putting on problems and demonstrations in which the students participated. *The War Department has recently announced the discontinuance of summer camps for the duration of the war. Hereafter, students will be required to complete the basic course at the Cavalry School before being commissioned.*

In addition to the regular required work at the University, a number of extra-curricular horse activities are conducted. Many of the students get more horsemanship instruction in connection with these activities than in the regular classes. Among these activities are an honor troop called the Black Hawk Troop, semi-annual student horse shows, and the polo team.

The Black Hawk Troop is composed of Cavalry

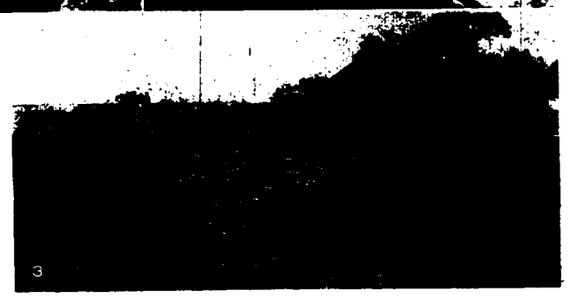


GRADUATION REVIEW, R.O.T.C. UNIVERSITY OF ILLINOIS

1—Massed colors. 2—Infantry. 3—Newly-commissioned second lieutenants taking the oath of office. 4—Horse-drawn artillery. 5—AA artillery demonstration. 6—The Black Hawk Troop.

Sophomores who are candidates for admission to the Advanced Course. Juniors and Seniors act as officers and instructors. The troop receives additional equitation instruction and cavalry drill. Special drills are put on for the annual Military Day and other like occasions.

The student horse shows are held twice yearly,



1—Cadet Norman Key, newly-elected president of Cavalry Club, about to be baptized in the horse trough, a traditional ceremony. 2—Zowie! 3—University military stable. 4—Show-down inspection in bivouac at Gull Lake, Mich. 5—Cadets starting on a field exercise with the 5th Remount Troop.

usually in December and April. They are organized and sponsored alternately by the Field Artillery and Cavalry Cadet Officers' Clubs. There is strong competition between the riders of the two branches and many hours, on Saturdays and evenings, are put in in training and preparation.

Polo is a varsity sport at Illinois. Letters are awarded to the varsity players and numerals to the most promising freshmen. The University does not furnish financial support, which necessitates the payment of a ten dollar dues per semester by each member of the squad in order to meet the expense of the purchase of playing equipment and to finance trips. All members of the association are assigned to the A squad, the B squad or the C squad. Beginners are placed in the C squad where they are given a great deal of equitation and care of animals. Equitation classes are conducted four afternoons a week and Saturday mornings.

Since a large percentage of the officers now on duty with the Army received their commission's through the R.O.T.C., this activity has been, and will continue to be, of vital importance to the war effort. This University will continue to produce about three hundred officers per year, fifty of whom are cavalry officers, to help fill the pressing need for officers for our expanding army.

★ ★ ★

University of Georgia Cavalry Unit

By Lieutenant Colonel O. C. Newell, Cavalry

THE Cavalry unit of the Reserve Officers' Training Corps, University of Georgia was established in 1920. It comprises the First and Second Basic course and the First and Second Advanced course. As the student progresses he is given more instruction in Horsemanship and Horsemastership and allowed more privileges in riding.

From the Second Basic class are chosen those students who have demonstrated their ability to continue with the Advanced course. The interest and self-improvement shown in extra curricular and voluntary work is of great assistance to the instructor in selecting those students who are to be allowed to enroll in the Advanced course.

The University of Georgia owns a large acreage of varied terrain which the First and Second Advanced students may use in cross country work. The cavalry stables have at present seventy-four public animals, cared for by a detachment of enlisted men. Near the stables is a sand ring and jumping pen in which the Basic students are given preliminary work. The Advanced students have access to a large jumping and hunting course including the normal obstacles one would meet in a cross country ride.

A practice mounted pistol course is conveniently located for advanced course students.

Saturday afternoon and Sunday mornings are open for typical small unit cavalry training and cross country rides by advanced students.

A "paper chase" is scheduled monthly followed by a hunt-breakfast. These events are attended by eighty to ninety per cent of those eligible.

Cavalry clubs have been organized by the First and Second Advanced students. They meet one evening each month at which time some interesting subject or motion picture on cavalry weapons or tactics is presented.

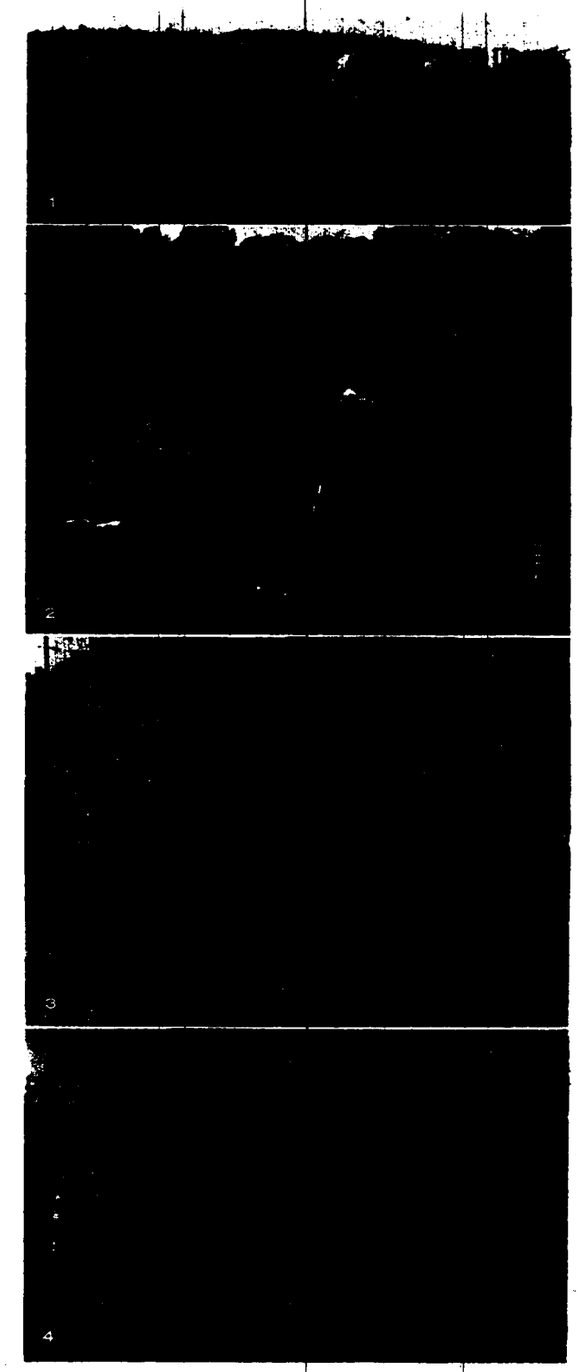
The Senior Club sponsors the annual Horse Show given at the University in the Spring Quarter.

The course of instruction as prescribed by the War Department for each class is as follows:

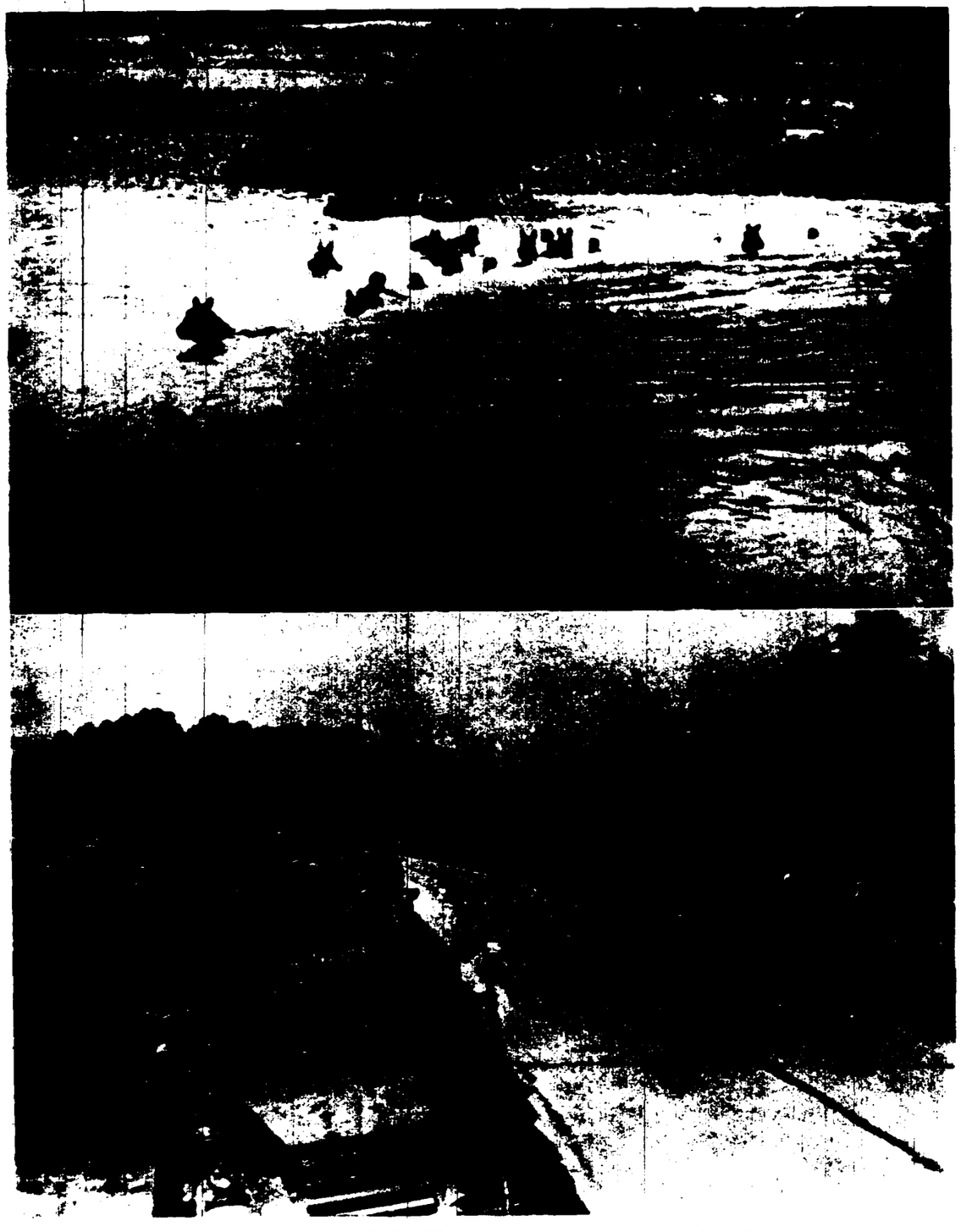
FIRST BASIC CAVALRY

1. *Military Fundamentals:*

	Hours
(a) Orientation—National Defense Act and R.O.T.C.	2
Obligations of Citizenship	2
Military History and Policy	4
(b) Military Discipline, Courtesies, and Customs of the Service	3



1—Advanced R.O.T.C. students, University of Georgia, on a terrain exercise. 2—Students on rifle range. 3—Mounted wrestling. 4—Rescue race. →



All training is limited to that which will produce the maximum practical application in war.
Above photos were made during summer ROTC training with 6th Cavalry.

(c) Military Sanitation and First Aid 5
(d) Organization of the Army—Organization of the Cavalry 5
(e) Map Reading 15

2. *Leadership:*
(a) Cavalry Drill 62
(b) Horsemanship 10

3. *Weapons:*
(a) Rifle Marksmanship 15

123

SECOND BASIC CAVALRY

1. *Leadership:*
(a) Drill 60
(b) Horsemanship 25

2. *Weapons:*
(a) Cavalry Weapons 14

3. *Combat Training:*
(a) Technique of Rifle Fire 11
(b) Scouting and Patrolling 13
(c) Combat Principles of the Rifle and Light Machine Gun Squad and Platoon .. 4
(d) Cavalry Marches and Camps (covered with (c) above)

127

FIRST ADVANCED CAVALRY

1. *Military Fundamentals:*
(a) Aerial Photo Reading 5
(b) Administration I and II 5
(c) Care of Animals and Stable Management 6

2. *Leadership:*
(a) Principles of Leadership and Instructional Methods 44
(b) Horsemanship 18
(c) Mechanized and Armored Elements 4

3. *Weapons:*
(a) Cavalry Weapons 14

4. *Combat Training:*
(a) Combat Orders and the Solution of Problems 15
(b) Marches, Security, Development for Combat, Offensive Combat, Defensive Combat and Organization of the Ground .. 15
(c) Combat Principles of the Rifle, Light Machine Gun, Heavy Machine Gun, Caliber .50 Machine Gun, 81-mm. Mortar, 37-mm. Antitank Gun, Scout Car, Motorcycle and Light Tank Platoons ... 26
(d) Defense Against Chemical Attack 3

Total 155

SECOND ADVANCED CAVALRY

1. *Military Fundamentals:*
(a) Military History and Policy 16
(b) Military Law 6
(c) Property and Funds 3
(d) ORC Regulations, Continuation of Training as Reserve Officer 2

2. *Leadership:*
(a) Principle of, and (b) Instructional Methods 46
(c) Horsemanship 15

3. *Mechanization:* 20

4. *Combat Training:*
(a) Review of Combat Training from the Squad to the platoon inclusive; Combat Orders and Solution of Problems . 16
(b) Combat Principles Rifle Training, Machine Gun Troop 30
(c) Antiaircraft Defense 3
(d) Combat Intelligence 2

5. *Review* 6

Total 165

★ ★ ★

Military History

"For anyone who aspires to become a great commander, there is an open book, called military history, which begins with the hand-to-hand struggle between Cain and Abel and which did not end with Napoleonic Campaigns.

"Its reading, I must admit, is not always exciting. One has to plow through a mass of uninteresting details! But—one accumulates facts, often encouraging facts! and at the bottom of it all, one arrives at the final realization how it all came about, how it had to happen and may happen again."—*von Schlieffen.*

Cavalry Training at Culver

By Lieutenant Colonel B. F. Hoge, Cavalry*

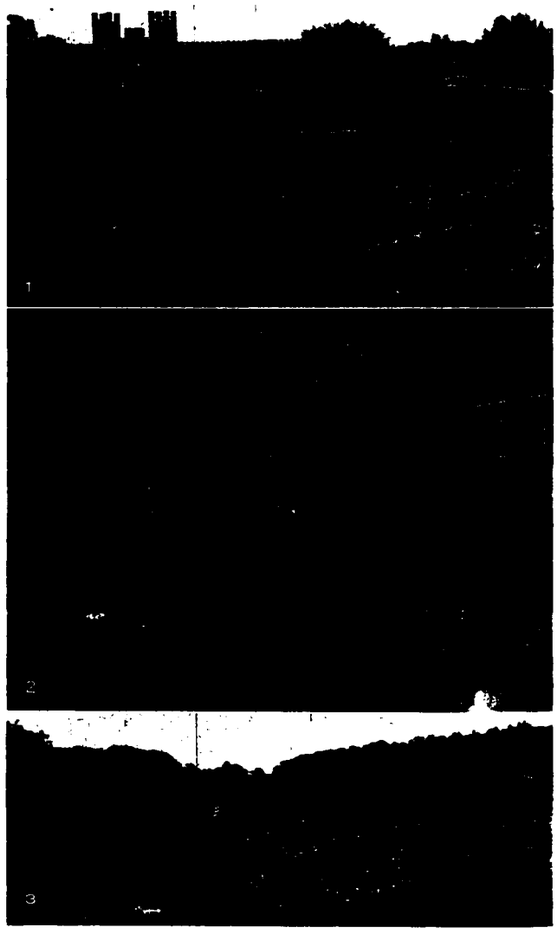
CULVER MILITARY ACADEMY, Culver, Indiana, controlled by the Culver Educational Foundation, is operated on a nonprofit basis. It has an enrollment of approximately 640 cadets, organized into Senior R.O.T.C. Units of Infantry, Field Artillery, and Cavalry. The Field Artillery is organized into a battery of 130 cadets, the Cavalry into a troop of 155 cadets, and the balance into four infantry companies and band.

The cadets are quartered in modern, fire-proof barracks by organization. Each organization is administered by one or more tactical officers, who are generally reserve officers employed by the Academy. These officers assist the Regular Army detail in giving the required R.O.T.C. instruction. The physical plant at Culver is very fine and modern consisting of barracks, administrative offices, mess hall, gymnasium, recreation building, riding hall, stables, power plant, shops, arsenal, laundry, hospital, and 1,000 acres of diversified terrain, including beautiful Lake Maxinkuckee. The Academy owns and maintains its own animals, about 70 for the battery, and 140 for the Black Horse Troop. Horse equipment, guns, arms, *et cetera* are supplied by the Government. The riding hall has a floor space of 300 x 100 feet. In the basement of the Recreation Building is located a large gallery rifle range, a pistol range, and a musketry range large enough to fire squad problems on landscape targets.

Culver is primarily a preparatory school for college. The average age of new cadets upon entrance is fourteen and upon graduation eighteen. Of course, new cadets may enter who require but two or three years to complete the requirements for graduation. All new cadets enter one week in advance of the old cadets. During the week they are equipped with uniforms, instructed in military courtesy, the regulations governing the Corps of Cadets, close order drill. Also they are given intelligence tests, assigned to classes and given physical examination during the initial week.

During their entire stay at the Academy, all cadets are under strict military supervision. Rooms are inspected daily with a formal inspection on Sunday morning before Chapel. In the fall and spring, formal parades are held on Sundays after Chapel. The Corps is formed and marched to and from meals and R.O.T.C. instruction. In general, the organization of the Corps, its administration, system of discipline, and the daily life of the cadets, is very similar to that existing at West Point. The principal difference is the age of the cadets and the fact that the primary objective at Culver is to prepare the young man for entrance to college. In my opinion that half the value of the instruction at Culver, from a military viewpoint, is derived from the daily experiences of the cadet where smartness, neatness, promptness and military methods of living are enforced.

The R.O.T.C. Cavalry instruction starts each year with close order drills without arms, followed by issue of arms and extended order drills—all dismounted. The drill period is generally between 2:30 and 3:30 PM from Monday to Friday inclusive. After about two weeks the old cadets of the Cavalry are ready for mounted work and the new cadets about two weeks later. Mounted instruction starts with basic equitation and horsemanship, than proceeds to squad drill, platoon drill, and finally a few days of troop drill. The above instruction usually terminates at Thanksgiving, when weather conditions make outside drills of little value. By this time the cadets and horses present a highly creditable appearance in mounted formations.



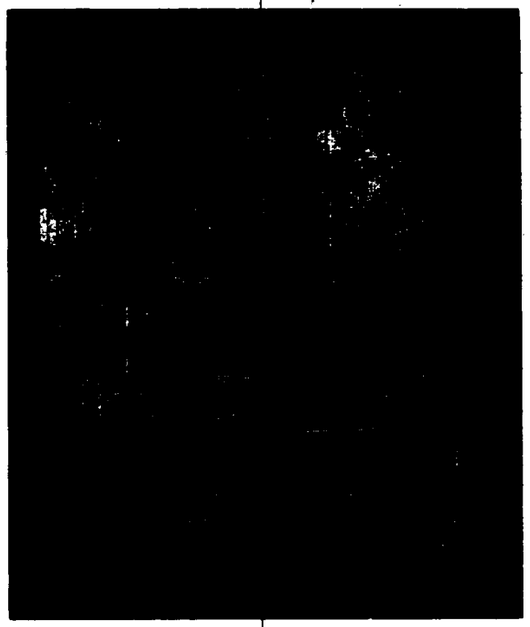
1—Cavalry on the parade ground with the riding hall in background. 2—Modernly equipped barracks. 3—Mounted units—the Artillery and the Cavalry—approach the reviewing stand at one of the weekly Sunday parades.

*Professor of Military Science and Tactics.

Indoor instruction is now started and continues until about April 1st when the weather permits resumption of outdoor work. The troopers are organized into four classes, corresponding to the four years of R.O.T.C. training prescribed by the War Department.

Training outdoors is resumed about April 1st and continues until June. Horsemanship and drill are reviewed and brought back to standard as rapidly as possible. Tactical training is then taken up involving marches, security, approach marches, attack and delaying action. The War Department allots but 96 hours to cover the assigned subjects in each of the basic years and 160 hours for each of the two advanced course years. To secure results that are at all satisfactory requires careful planning, and expert instruction, as the field of instruction is extremely broad. The entire time available could easily be spent on equitation and drill.

The Academy officials make a number of long drill periods available in the spring season, of two or three hours length each. These are invaluable in putting over the combat training. To attain reasonable perfection in covering the program as outlined here is a race against time, at best. The whole-hearted coöperation of the Academy officials, the splendid compact facilities available, and the fine type of youngster to work on are factors that help in solving the problem.



Plebes forming for their regular noonday mess formation.

PRESS REPORTS

RED CAVALRY UNITS TAKE MANY VILLAGES

—By the Associated Press

Kuibyshev, April 25.—Red army cavalry units, scorning the spring swamps which have bogged down other ground forces, have taken a number of German-occupied villages and reached an important highway feeding the German front, dispatches to the newspaper Izvestia said today.

The horsemen were reported to be harassing the Germans at every turn by lightning raids on villages despite the efforts of German planes and artillery to check them.

On the Karelian front, it was reported that a unit of Russian guards attacked a hilly sector where the Germans had been fortifying the crests during the winter and captured an important height. . . .

GERMANS USE CAVALRY IN CAUCASUS DRIVE

—By the Associated Press

Moscow (Wednesday), May 13.—Heavy fighting raged through the night in the *Kerch Peninsula* with the *Germans throwing masses of cavalry*, tanks and infantry against formidable Russian forces defending that narrow gateway to the Caucasus, front-line dispatches reported early today. . . .

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This new Eighth Edition contains more information than ever before. The vital question of censoring soldiers' mail has been handled fully, as have the ticklish duties of the Public Relations Officer. The new supply procedure (Circular 105, April 10, 1942) has been included, and also the latest information on promotions (Circular 111, April 15, 1942). New colored plates on all the officers' insignia, and many of the shoulder patches of both the Army and Civilian Defense organizations have been included. Many other changes and revisions have also been made.

More than seventy-five thousand copies of this standard manual are your best guarantee that:

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Book Reviews

BUILDING MORALE. By Jay B. Nash, Ph.D. A. S. Barnes and Company. New York, 1942. 154 pp. $1.00.

Much has been spoken and written on the subject of morale, but this brief volume definitely has a new slant. Doctor Nash is chairman of the Department of Physical Education and Health, School of Education, New York University. In simple language he explains the importance of morale in our daily life and, in turn, how vital it is to the life of our country—"Morale by itself has no significance, but *morale for a purpose* is the all-important spirit that makes for victories."

All teachers, more than ever before, now have the great responsibility of stimulating the morale of their students. Although this book was written primarily for teachers, the parents of children and the commanders of troops can find in it material for similar responsibilities. "Morale wins wars, wins games on the athletic field, conquers the wilderness, carries us over crises and gives nations vitality to face and solve problems."

✓ ✓ ✓

ARMY POSTS AND TOWNS (1942 edition). Compiled by Charles J. Sullivan. Haynes Publishers. Los Angeles, California. 199 pp. $3.00.

When it is most needed, this encyclopediæ reference book of over 400 army posts and towns is now ready for distribution. It was compiled and edited specifically for army use. It serves a useful purpose.

All post libraries should contain a copy!

✓ ✓ ✓

THE OFFICER'S GUIDE (8th edition). The Military Service Publishing Company, Harrisburg, Pa. May, 1942. Appropriately illustrated. 479 pp. $2.50.

This new (8th) edition of *Officer's Guide* is worthy of special attention. In our opinion it now stands preëminent in its field. It has assumed the earned position of a standard guide for officers, junior and senior, irrespective of arm or service. It contains a wealth of up-to-the-moment information that cannot, under a single cover, be obtained elsewhere.

Numerous changes in regulations necessitated changes in the previous editions; so opportunity was taken to rewrite and improve several chapters and to add several new and valuable features in order to complete the scope of its intended purpose—an officer's *personal* guide—a ready reference on customs and correct procedures that pertain to commissioned officers the Army of the United States.

Every officer will want a copy of this eighth edition of *The Officer's Guide*. Take our word for it!

THE VALOR OF IGNORANCE. By Homer Lea. Harper and Brothers. New York, 1942. 344 pp. Maps and Appendix. $2.50.

What do we know of a little hunchback named Homer Lea who served as a Lieutenant General in the Chinese Republican Army? In 1909 in a book called *The Valor of Ignorance* he issued an extraordinary warning to the people of the United States—that war between the United States and Japan was inevitable. Clearly, by word and map, he outlined the course that Japan's aggression would take. Today, Japan is using precisely the general plan that Homer Lea then predicted. By some, Lea was acclaimed as one of the great military minds of the century; by others, a crank. Today, Homer Lea's conception of Japan's military course has been vindicated!

Of equal interest, however, is the introduction to this new edition written by Clare Boothe, in which is told the story, *The Valor of Homer Lea*. Be sure to read it!

✓ ✓ ✓

THE DAY OF THE SAXON. By Homer Lea. Harper and Brothers. New York, 1942. 249 pp. $2.50.

As in his first book, *The Valor of Ignorance*, Homer Lea in this volume, initially published in 1912, similarly gave a warning. Forecasting the inevitable nature of the Anglo-German conflict, as early as thirty years ago Lea drew brutal and startling conclusions as to the measures England should take to meet German and Japanese aggression.

"Fresh and pertinent as though it had been written this morning are his findings on the 'racial' character Germans insist on giving to their war making. Lea today would be saddened and fearful anew to hear so many asserting that 'Hitler, not the German people is our enemy.' He would most certainly insist that only to deal with the Fuehrer and the Nazi leaders would simply be to leave Germany lying fallow for another Hitler."

Disregarded and denounced as an alarmist at the time, today Homer Lea returns to the literary and military spotlight.

Clare Boothe's introduction, "The Valor of Homer Lea," also appears in this second book.

✓ ✓ ✓

MECHANIZED MIGHT. By Major Paul C. Raborg. Whittlesey House (McGraw-Hill Book Company, Inc.) New York, 1942. 284 pp. Illustrated. $2.50.

The author in easy style tells a descriptive and informative story of mechanization and motorization in our army. Having had personal experience in the Air Corps, Infantry and Cavalry as well as considerable staff duty in World War One, Major Raborg speaks authoritatively although obviously with more of a World War I than a World War II perspective.

His chapter, "The United States Cavalry and its Motorization," is of particular interest to cavalrymen.

Major Raborg stresses in general what our army is doing to keep step with new developments and some of the lessons our military observers have learned from the present and previous wars.

Graphic descriptions of actual fighting add to the book's reading interest.

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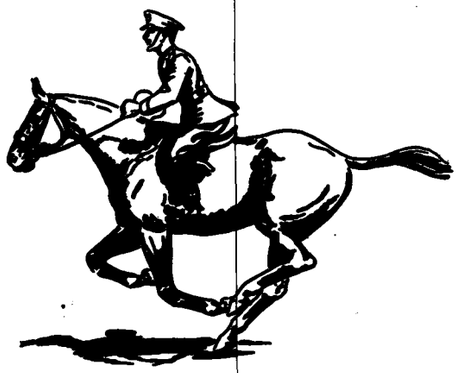

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The Cavalry Journal

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No. G-1 on The Cavalry Journal booklist —See last page, this issue.

Manual of Mess Management

1st Edition, November, 1941

In this one volume a troop commander or mess officer, a mess sergeant or a cook, can find all the information necessary for running an Army mess of any size. It combines most of the material in the six main official books that apply to messing, plus additional matter for those who help in any way in the feeding of the American soldier. 346 Pages.

No. C-21 on The Cavalry Journal booklist —See last page, this issue.

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By MAJOR C. M. VIRTUE

Long recognized as an authority on Army paperwork, this book's usefulness is now further increased by numerous revisions and added matter.

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No. C-5 and C-6 on The Cavalry Journal booklist —See last page, this issue.

THE ARMY OFFICER'S MANUAL. By Lieutenant Colonel A. C. M. Azoy, CAC, A. of U. S. D. Appleton-Century Company. New York. 366 pp. $2.50.

For some time there have been two generally accepted personal "guides" for the army officer; i.e., *The Officer's Guide*, by The Military Service Publishing Company, and *Officer's Manual*, by Moss. *The Army Officer's Manual*, however, covers material that is largely supplementary to the two "guides" mentioned and includes many of the latest revisions in army regulations and procedure that are useful to the army officer. Many questions that the inexperienced citizen officer naturally would ask are here answered. It is applicable particularly to officers of dismounted branches.

WHAT THE CITIZEN SHOULD KNOW ABOUT MODERN WAR. By Fletcher Pratt. W. W. Norton and Company. New York. Illustrated, 184 pp. $2.50.

WHAT THE CITIZEN SHOULD KNOW ABOUT THE AIR FORCES. By Lieutenant Colonel Harold E. Hartney. W. W. Norton and Company. New York. Illustrated. 226 pp. $2.50.

WHAT THE CITIZEN SHOULD KNOW ABOUT THE ARMY ENGINEERS. By Lieutenant Colonel Paul W. Thompson. W. W. Norton and Company. New York. Illustrated. 210 pp. $2.50.

These three informative books recently have been added to the *Citizen's Series*. In this case, however, they were written by well known authors. The books consequently reflect their greater experience. Remember the others? *What the Citizen Should Know About The Army; The Navy; The Coast Guard; The Merchant Marine; Civilian Defense; Our Arms and Weapons;* and *The Marines.*

It might be added truthfully that our men in the service, also, could well spend their spare time in broadening their knowledge of these subjects by a perusal of these interesting and timely books. Every military library should include this series!

WAR AND NATIONAL POLICY. A Syllabus. Edited by Grayson Kirk and Richard Poate Stebbins. Farrar and Rinehart, Inc. New York. 1942. 131 pp. $1.00.

It has become increasingly plain that totalitarian war and defense preparations by the non-totalitarian nations are phenomena which must be given recognition in courses in American universities and colleges.

This course syllabus is the result of the research and study of specialists within and without Columbia University combined with the Institute for Advanced Study, and is now offered in the belief that it will be useful to other colleges and universities.

The copy for this syllabus was completed during the summer of 1941, but it has added value and interest now that the United States has been forced into a condition of full belligerency.

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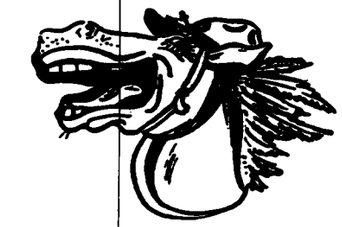
Horse Feathers



The Ultimate Source

After the World War armistice, General Pershing started the custom of genial inspections, mingling with the men. He was a bit green at it—after a year and more of unbending and terrifying surveys of his troops. He was easily nonplused, therefore, and one unexpected reply from a thrice-wounded soldier cramped his style for the rest of the day. He had put his hand, friendly-like, on the old warrior's shoulder and said kindly, "Sergeant, where did you get those three wound stripes?" The soldier looked him squarely in the eye and replied, "From the *supply sergeant*, Sir."

He was wont to speak plain and to the purpose, like an honest man and a soldier—Julius Caesar, III.

Rubber seems to be scarce everywhere but in the neck.

Necessity sometimes is also the mother of intervention.

Slogan for Stalin: KEEP 'EM FLEEING!

In this war we at least have had enough of *over-prediction.*

Quizitis?

SELECTEE: "Doctor, what is it that I feel—gastritis, arthritis, neuritis or laminitis? Guess three out of four!"

"What's the last word in airplanes?"
"Jump!"

GUIDE: "We are now passing the most famous brewery in Milwaukee."
TROOPER: (Bailing out of the bus) "*I'm* not!"

"—*a toast to the JAP navy!*
BOTTOMS UP!!!"

WHOOPER: "I wish the Lord had made me a man!"
TROOPER: "He did—I'm he!"

TROOPER: "I suppose you dance?"
HOSTESS: "Oh, yes, I love to."
TROOPER: "Fine—that's better'n dancing."

Pay Day

TROOP BARBER: "Well, Trooper, how 'bout a shampoo?"

TROOPER: "Listen, Jerk, I'm in this war all out! Cut the *sham*, but gimme all the *poo* ya got—I wanna sling it at the Japs!"

"Say, Post Baker, aren't you making your rolls a little larger these days?"
"Rolls? Say, howdoyergetthatsuch, Them's loaves."

The real trouble with many who think that they have a hard row to hoe is—they don't like to hoe.

The only difference between meddling and investigating is that *we* always investigate—the other fellow meddles.

It's a good horse that never stumbles. The fault is not in stumbling, but in *stumbling* twice at the same place.

Don't kill time, kill the enemy!!!

TROOPER I: "What sort of a guy is your platoon sergeant?"

TROOPER II: "He's a horsey gent who gets in my hair, and when he does I have an uncontrollable obsessed desire for a horse-clipper haircut."

It takes the truth a long while to catch up with a rumor.

Troopers and pins are useless when they lose their heads.

What is whispered usually does a lot more damage than what is shouted.

Great things happen when energy gets chummy with enterprise.

A Joke's a Joke for all that—

Whether you call your wise-cracks "Spark Plugs," "Gas Fumes," "Hossplay," "Horse Scents," "Hosstales," "Hoss Gags," "Hossy Gibes," "Horseclippings," "Hosslaffs," "Horse Chestnuts," or "Jus' Hossin'," send them in anyway. They're probably just plain old fashioned "Horse Feathers"; and if they are, *we'll print them.*

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