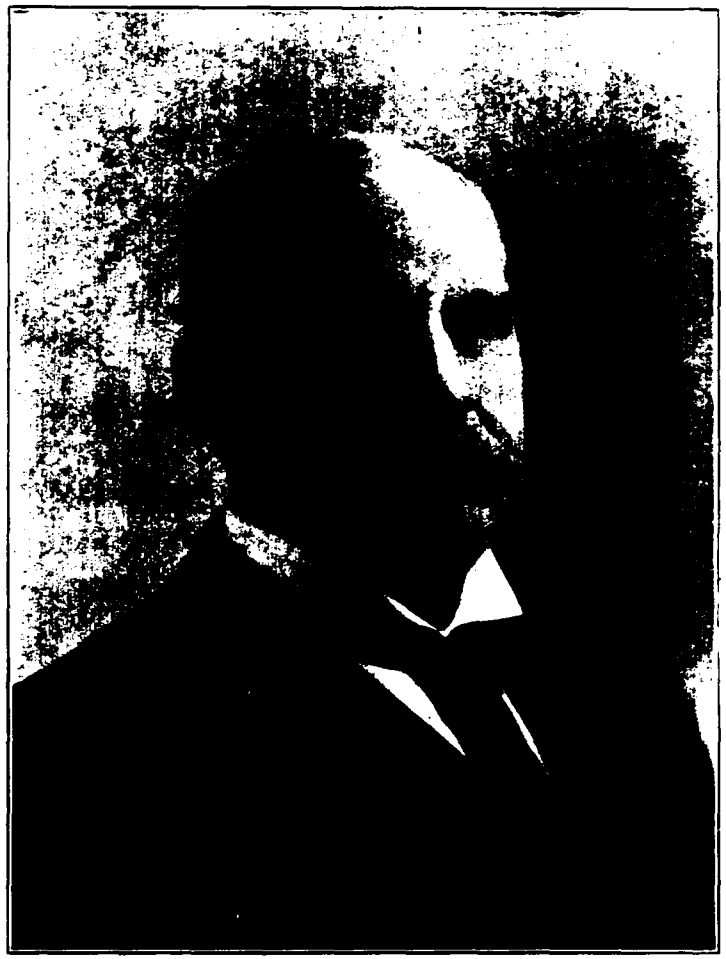

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JOURNAL

OF THE

United States Cavalry Association.

VOL. XIX. JANUARY, 1909. No. 71.

SUGGESTED CHANGES IN THE CAVALRY DRILL REGULATIONS.

BY COLONEL JAMES PARKER, ELEVENTH CAVALRY.

GENERAL REMARKS.

Assimilation.

A CERTAIN degree of assimilation between the Infantry and Cavalry Drill Regulations should be considered necessary for the following reasons:

1. We have seen in the Spanish-American War, infantry regiments officered by cavalry officers, cavalry regiments officered by infantry officers, cavalry officers promoted to command of infantry brigades; cavalry, infantry and artillery officers acting as inspectors and critics of other arms, and acting as adjutants general to generals in command of other arms. We constantly find cavalry soldiers in infantry commands, and vice versa. In general it may be said that the knowledge of all arms of the service is beneficial to all officers. Without assimilation, officers of one arm are more liable to be ignorant of conditions in other arms. Formerly there was more assimilation than at present. Now we find

the cavalry "four" called in the infantry "squad," and the infantry "mass," called in the cavalry "close column."

2. The importance of the mounted infantry rôle for cavalry makes a certain amount of assimilation necessary.

MOBILITY.

It is of immense importance that the cavalry should be a mobile arm. It is the only arm which on the field of battle and in the face of the enemy may have to change formation quickly. The best drill book is that which permits the cavalry command to pass with ease and quickly from any formation to another. Thus it should be possible for a squadron to pass from any one of these formations directly to the other: Line, column of troops, mass, line of fours, line of platoon columns, echelon. A squadron should be able to deploy, dismounted or mounted, from any formation. Deployments dismounted, which are usually made by a cavalry command under fire, when the greatest haste is necessary to get the horses under cover, thus taking away the largest target they present, should be made in the simplest manner and by means of the shortest possible commands. This is not the case in the present drill regulations.

TRUMPET.

To maneuver large bodies of cavalry with precision and promptitude the use of the trumpet is indispensable, the ordinary voice being drowned by the noise of the horses. Therefore particular attention should be paid in the drill book to make it possible to communicate commands for the more important changes of formation by the trumpet. This is particularly necessary in the case of the regiment where the loudest voice does not reach over the length of two squadrons. With trumpet calls for "mass," "line of fours," "line of platoon columns," "echelon," "close columns," etc., it is very easy to adapt the spoken command so that it may be easily translated into a trumpet call.

DOUBLE RANK.

The Drill Regulations might with advantage contain authority for use in the "charge," on special occasions, of the double rank. It is probable, for instance, that when weight is desired in order to drive home a charge, that the double rank can be used with advantage.

DISMOUNTED FIGHTING.

Recent wars have revised the opinion of the best soldiers as to the value of shock action of the charge. Instead of the charge being the "most important cavalry movement," (Par. 448) the best opinion to-day is that *the value of cavalry lies first in its mobility, next in its fire action, and next in its shock action.*

This conclusion follows from the following reasoning:

1. In shock action modern cavalry is about a match for the cavalry of a hundred years ago. Its superiority in mounts, arms, equipment or tactics is not so great as to remain uncontested.

2. On the other hand, the infantryman of to-day is vastly more formidable as a fighting man than the infantryman of a hundred years ago, for he shoots three times as far, four times as fast, and much more accurately. And when armed with a magazine gun his rifle is practically always loaded and ready. The infantryman of to day on the line of battle is equal to at least ten infantrymen of the days of Waterloo.

3. "Cavalry cannot charge unbroken infantry." This dictum, contested 100 years ago, is incontestible to-day. This results from the enormous superiority of the modern rifle. To-day the charging trooper, if he reaches the infantry line unhurt, finds there a foe alert and confident, and, thanks to his magazine gun, ready to exchange shot for saber blow. He cannot be ridden down.

4. Given time for dismounting and forming line, modern cavalry can convert itself into foot troops, equal man for man in fighting ability to the best infantry.

5. It follows that dismounted cavalry, well prepared, can whip mounted cavalry, and that cavalry will fight dismounted, not only in combats with infantry, but also, on many occasions, when fighting cavalry. But this will depend on having time sufficient to dismount and form line.*

6. Cavalry in its work of exploration, is particularly exposed to ambush. This fact, as well as the necessity at times of employing dismounted fire against charging cavalry, makes it indispensable that cavalry should be trained to dismount and go into action with utmost promptitude. Further, it should be able to dismount and fight on foot from any formation. Cavalry caught in the act of dismounting and deploying by a charging enemy, is likely to be overthrown. The methods then of forming line dismounted of a troop, squadron, or regiment must be revised. The troop should be able to dismount and open fire in thirty seconds, and the squadron or regiment with similar rapidity. This calls for a revision of the methods prescribed in the present drill regulations.

7. The ability of cavalry to emulate infantry, as a dismounted force, combined with the wonderful mobility and ability to reach distant points without loss of time leads to an enlargement of the functions of cavalry, and to an increase in its importance. In these days of greatly extended battle lines, cavalry, operating mounted or dismounted on the flanks or rear of the enemy, will have opportunities to do him infinite damage. The battle of the future will not be won so much by direct assault as by flank attack. The extraordinary extension of the modern battlefield makes necessary wide turning movements, involving long marches, executed with utmost rapidity, and for this, great bodies of cavalry, taught properly to fight on foot, are best adapted.

*It may be laid down as an axiom, that to charge against an equal body of cavalry skilled in fighting on foot, invites disaster when the enemy has over sixty seconds notice of the attack. It is easy to demonstrate that this amount of warning will give the enemy thirty seconds for dismounting and thirty seconds for aimed fire. At the extended gallop, about 450 yards is covered in thirty seconds, and 900 yards in sixty seconds. It would seem, therefore, that in the attack on cavalry riflemen, the charge should not be discovered by the enemy until within close range, say 600 yards. This calls for ambush, surprise, the use of cover, and the training of horses and men in charging over short distances starting from the halt or walk.

8. The effective use of cavalry in war is largely a question of terrain. In the days when only shock action was employed and cavalry could approach without danger to within 300 yards of infantry, open country was essential for the best use of cavalry. Now, when shock action cannot be employed unless from concealment, and fire action is the principal rôle of cavalry, cover is necessary, and treeless plains are no longer "cavalry country." No drill book can properly serve its purpose which does not devote part of its pages to the question of terrain as it affects the employment of cavalry.

9. Conforming to recent observations in warfare and the discovery that, even at long range, a squad or platoon furnishes a target for artillery, while the individual skirmisher furnishes none, the normal formation in extended order, that is, the formation usually to be taken in action as soon as deployed, should be the formation "as skirmishers," line of platoons (not squads) to be used only on special occasions when not exposed to the fire of the enemy and when, on account of cover, this formation will not attract attention. In other words, the formation "as skirmishers" not affording a target, and being more or less invisible, up to a certain point, enables a closer approach to the enemy's position before fire is opened. The "squad" formation should be abandoned. A subdivision of less size than the "platoon" dismounted is too small for effective work.

10. Since the necessity for the employment of cavalry in extended order, mounted, is infrequent, the space given in the present Drill Regulations to extended order, mounted, is misleading and causes much time wasted by experienced officers in teaching a formation that, practically, can never be used.

11. It is proposed that extended order dismounted be made the basis of instruction and be taught first to cavalry troops; and that the trooper in extended order dismounted be called a "skirmisher," and in extended order mounted a "forager."

12. Since cavalry troops are liable to be attacked by dismounted fire while mounted, in any formation, and since changes of formation under fire are liable to be attended with much loss, it is proposed that the drill book provide for dismounting to "fight on foot" from any formation by the simple command "*Skirmishers, guide right* (*left* or *center*), MARCH," the command "*Skirmishers*" being the signal for dismounting and forming threes dismounted opposite the horses, and the command "*March*" the signal for deploying from the base designated by "*guide right*, (*left* or *center*)."

13. It is further proposed that all deployments be made at "double time," that all skirmishers when at a rest, shall lie down or otherwise place themselves out of sight of the enemy.

PRELIMINARY INSTRUCTION.

The drill book should lay down a precise course for the instruction of the recruit. It should give if possible, the number of hours per day to be devoted to mounted drill and the number of hours for dismounted drill. The recruit's course should be of at least eight weeks, drilling six days per week of five hours drill per day, three of which should be mounted drill, which gives 120 hours of mounted drill as compared with 200 hours of mounted instruction of cadets, the total course formerly had at West Point. On account of the lack of such a course, precisely laid down, it is believed much valuable time was wasted in preparing volunteers for cavalry service during the Spanish-American War. Even in the regular army much valuable time is wasted during the instruction of the recruit in exercises which are almost purely spectacular.

SQUADRON DRILL.

It is proposed to greatly simplify the commands and means used at squadron drill, making it possible to give almost all commands on the trumpet, and also making it possible to ploy or deploy from any formation to any other, the methods of ploying and deploying being made much

more uniform than in the present regulations. Thus it is proposed to change directly from any one of the following formations to any other:

Line,
Line of fours,
Line of platoon column,
Mass,
Close column,
Double column of fours,
Double column of platoons,
Echelon,
Column of fours,
Column of platoons.

These changes of formation to be executed by the simple commands:

1. *Form* (*line, line of fours, line of platoon columns, mass, close column*, etc., etc.), 2. *Guide right*, (*left* or *center*), 3. MARCH.

The command to be given either by voice or trumpet, or both.

The direction of the march of the subdivisions in ploying and deploying to be as a rule parallel with and perpendicular to the line (not oblique).

(The oblique ployment or deployment rarely saves much time, and often makes the movement complicated.)

Commands and means used in troop drill which can be adapted to the maneuvering of the squadron are retained. Thus all changes of direction in a column formation are effected by the command:

1. *Column right* (or *left*), 2. MARCH. And all changes of front in line, line of platoons, mass or echelon, by the command *Right* (or *left*) *turn*, MARCH.

REGIMENTAL DRILL.

The chapter devoted to the regiment in the present Drill Regulations needs many changes, as I found during two seasons at Fort Riley, Kan., during which, for the first time an opportunity to use this drill was had. Generally speak-

ing, it would be desirable if the commands used in drilling the squadron could be used with the regiment when the same movement is performed. This is not always the case, and leads to confusion. Many desirable changes of formation are not now possible without exceeding authority given in the Drill Regulations. The whole chapter devoted to regimental drill should be rewritten.

This drill should be simplified in commands and means as is proposed for the squadron drill, and the commands should be made possible to deliver on the trumpet.

STREET FORMATIONS.

A chapter should be devoted to the proper disposition and handling of troops marching in crowded cities, and in opposing rioters and disorderly crowds. It is usually found by those of long experience in street marching, that the use of the trumpet is indispensable on account of the noise. Trumpet calls should be adapted to such changes of formation as are most frequently used. In handling crowds and in repressing riots, cavalry is the most useful arm, since it can put down disorder by using the saber, and not having, like the infantry, to resort to firearms. In addition, crowds can be broken up by the mere movement of mounted troops without using the saber. Occasions for the employment of cavalry to restore order are liable to recur with increasing frequency as our country becomes more densely populated.

REVIEW OF LARGE COMMANDS.

Latitude should be given in the formation of commands of less than a division so as to adapt such a command to the ground on which the review is to take place, especially when it includes different arms of the service. All orders, if possible, should be given by the trumpet, so as to enable movements to be executed simultaneously.

Depending upon the circumstances, the size of the force and the shape of the review ground, it should be possible to review a command—

In line,
In line of columns,
In line of masses,
In double lines, double lines of column or double lines of masses, or
In close column, or
In three lines.

The review is a most valuable ceremony. It is an exercise in forming a brigade or division in line of battle promptly and without confusion. It enables the soldier to contrast the precision of marching, discipline, equipment and neatness of various organizations, and thus enhances a healthy rivalry. It gives soldiers and civilians and foes an impression of power and efficiency for war which can not otherwise be had. Properly utilized, it is a quick and comprehensive inspection of a command. To accomplish properly such purposes it must be executed promptly, without dragging and without the confusion which is generally caused by failure to hear commands.

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CHANGES IN DETAIL.

Following are some of the more important changes recommended in the school of the soldier, school of the trooper, school of the squadron, and extended order. These changes are merely *sketched;* general principles being given to which it is proposed the drill book should conform.

Par. 26, Elementary Instruction: The period of instruction of the recruit will be eight weeks, or forty-eight working days.

The recruit should receive at least 120 hours of mounted instruction, eighty hours of dismounted instruction before being required to do duty with the troop. He should drill mounted, at least three hours; dismounted two hours per day.

For the first three weeks mounted instruction should be on the quietest horses, and, as a rule, on the riding track. Particular attention will be paid to individual horsemanship,

including the position of the trooper at all gaits, the use of the reins and legs in changing gaits, in turning and in passing. Great care will be taken in the earlier lessons to give the recruit confidence and prevent him from becoming timid. There will be frequent rests.

The dismounted drill during this period will be in the school of the soldier, with and without arms, including the setting up exercises, marchings, manual of the carbine, saber and pistol.

After the first three weeks, and until the end of the recruit instruction, the recruit will ride his own horse, and the instruction will be more advanced, to include, besides riding on the track, the school of the squad, saber exercise, and a small amount of riding without saddles, this latter being limited to not more than half an hour every day.

In the dismounted drills during this second period the first two weeks' course will be continued to include, in addition at other than drill hours, sighting, aiming and position drill and gallery practice.

Instructors of recruits will, at such hours as are available, instruct their squads in the care of arms, clothing and equipments, the customs of the service, the Articles of War, the regulations, guard duty, the nomenclature of the horse, saddle, carbine, pistol, etc.

Par. 45. Setting up exercises: To be assimilated to those of the infantry.

Par. 68. Manual of the Rifle: Same.

Par. 218. Saber exercises: To be revised as modified by Provisional Regulations 1907, in the form finally approved.

Par. 250. Fencing exercise: Same.

Par. 179. Manual of the Pistol, and Par. 185, Pistol Firings. To conform to Manual adopted and to Firing Regulations.

Par. 289. To pack the saddle: To conform to recent orders.

Par. 308. Mounted exercises: The mounted instruction of the recruit during the first three weeks should be with a saddle in order that he may gain confidence and in order that the position and use of the reins, hands and legs,

and the general position of the recruit may be perfected by the instructor, before the recruit takes up the more difficult riding bareback.

It is exceedingly important that the recruit should gain entire confidence before bareback riding is commenced. There are many men who, if they receive a bad fall at the beginning, are ruined as riders.

Such mounted exercises as interfere with the proper instruction of the horse in his obedience to hand and leg, should be sparingly indulged in, in order that his training under the saddle may not be injured. Such exercises are jumping on and off horses while in motion, riding face to the rear, riding double and wrestling on horseback.

The horse will not be thrown unless it is necessary to enforce his obedience. A horse should never be taught to lie down while his rider is on his back.

Bareback exercises not specifically authorized by the regulations are prohibited. In these are included Cossack riding, Roman races, and standing or kneeling on horse's back.

Par. 278. Conform to the new bridle.

Par. 293. Conform to the new method of holding reins.

Par. 370. The wrestle: Omit as being ruinous to the training of the horse.

Par. 372. Omit for the same reason.

Pars. 398 and 399. Running at heads: Should give authority for the "tournament" or running at heads at high gaits with saber or revolver on straight track, this being a desirable form of instruction.

Pars. 519, 520 and 521. Omit as being unnecessary.

EXTENDED ORDER.

Movements in extended order, mounted, are executed by the same commands and means as when dismounted, conforming to the principles described for dismounted drills, and using the word "forager" for "skirmisher." Deployment and assembly, mounted, will habitually be executed at a trot, and dismounted at double time.

The trooper in extended order dismounted is called a "skirmisher" and in extended order mounted a "forager." The skirmishers of each four are Nos. 1, 2 and 3; No. 4 is "horseholder." Skirmishers when not in movement lie down, or otherwise place themselves out of sight of the enemy.

THE PLATOON IN EXTENDED ORDER.

Par. 498. (A). Being in column of fours, to fight on foot:

1. *Skirmishers*, 2. *Guide right* (or *left*), 3. MARCH.

At the first command the skirmishers of each four dismount, link horses and form facing to the front in their normal order, three yards to the right of their horses.

(Note: Skirmishers on dismounting from column of fours habitually form on the right flank. *This rule is general.*)

At the command "March" (which in emergencies may be given before the execution of the first command is completed) skirmishers deploy on leading four in the direction and with the guide indicated.

(B). Being in line, to fight on foot:

1. *Skirmishers*, 2. *Guide right* (*left* or *center*), 3. MARCH.

At first command skirmishers dismount, form rank, link horses and form three yards in front of their horses. At the command "March" skirmishers deploy on the base four.

(C). Being in line or column of fours, to dismount and assemble the skirmishers.

1. *Skirmishers*, 2. *Assemble*, 3. *Guide right* (*left* or *center*), 4. MARCH.

At the second command skirmishers assemble three yards in front of the column or line, on base four.

TROOP IN EXTENDED ORDER.

(D). The troop dismounts to fight on foot and deploys to the front as skirmishers from line, from column of fours, from line of platoons in column of fours, from column of platoons, or from echelon, by commands and means as explained in (A) and (B); the deployment being made when in line of platoons, in column of fours, column of platoons, or

in echelon, on the four indicated by the command, *Guide right* (*left* or *center*).

(E). The troop dismounts to fight on foot and then deploys to the front in line of platoons, from line, from column of fours, from line of platoons in column of fours, from column of platoons, or from echelon, by command as follows:

1. *Skirmishers*, 2. *Line of platoons*, 3. *Guide right* (*left* or *center*), 4. MARCH.

Platoons move to their places in column of fours.

SQUADRON IN EXTENDED ORDER.

The squadron dismounts to fight on foot and deploys as skirmishers or in line of platoons to the front from line, from line of fours, from mass, from line of platoon columns, from echelon, from double column of fours, by commands and means as explained for the platoon and troop. The deployment is made with utmost promptness. Unless otherwise indicated each troop other than the base troop will remain mounted at first command and then proceed at a trot to its position on the skirmish line and deploy as skirmishers. (General rule.)

Preferably commands in extended order should be given by the trumpet. Trumpet call introduced "line of platoons."

THE SQUADRON.

Par. 697–784. After extended order the more important use of the trumpet is in the drill of the squadron and regiment. The trumpet calls introduced into this drill are: 1. "*Form line*" (first bar of tattoo suggested; 2. "*Form mass*" (third bar of tattoo); 3. "*Form line of platoon columns*" (first bar of reveille); 4. "*Form echelon*" (third bar of reveille); 5. "*Form close column*" (third bar of the general).

Being in line, line of fours, mass, line of platoon columns, echelon, to change direction to the right or to change front to the right, the command is given 1. *Right turn* (or *right half turn*), 2. MARCH.

Being in any column formation to change direction to

the right the command is given *Column right* (or *column half right*), MARCH.

Being in line, to form mass:

1. *Form mass*, 2. *Guide right* (or *left*), 3. MARCH.

The right troop executes *right forward fours right* and moves forward thirty yards plus the depth of the troop and is halted.

Each of the other troops executes *right forward fours right*, and when clear of the line executes "*Fours right, March; Guide left.*" When nearly opposite its place in the new formation each troop executes "*Fours left, March,*" and moves forward to the line.

If executed at an increased gait, each troop, other than the base troop, in column of fours executes "*right forward fours right,*" and is conducted in column of fours by the shortest line to the rear of its position and thence up to the line.

Mass can be formed on the center troop by the command 1. *Form mass*, 2. *Guide center*, 3. MARCH. The troops break to the front into column of fours and are conducted to their position.

Being in mass, to form line:

1. *Form line*, 2. *Guide right* (*left* or *center*), 3. MARCH.

Executed by reverse means. Base troop executes *left front into line, march.* Each of the troops, other than the base troop, executes *fours left, march*, and when nearly opposite their position in line, *fours right, march* and *left front into line, march.* If executed at an increased gait the same principles apply, the troops gaining their intervals by marching toward the flank of the squadron.

To form line on the center troop: 1. *Form line*, 2. *Guide center*, 3. MARCH.

In *ploying* at an increased gait troops move by the shortest line. In *deploying* at an increased gait troops will move in a direction parallel to the line. *This rule is general.*

In deploying at an increased gait, the leading element will halt after advancing thirty yards. *This rule is general.*

Being in line, to form line of platoon columns:

1. *Form line of platoon columns*, 2. *Guide right* (*left* or *center*), 3. MARCH. Executed as in forming mass, the troops breaking to the front in column of platoons and closing their intervals on the base troop by moving parallel to the line. If at an increased gait, by moving to the rear of their positions, in column of platoons, by the shortest line. (Commands of commander second troop: "1. *Right by platoons*, 2. MARCH, 3. *Fours right*, 4. MARCH, 5. *Guide left*, 6. *Fours left*, 7. MARCH, 8. *Troop*, 9. HALT") (In case of increased gait: "*Right by platoons, Trot*, MARCH; *Guide right; Column half right*, MARCH; *Column half left*, MARCH; *Walk*, MARCH.)"

Being in line of platoon columns, to form line:

1. *Form line*, 2. *Guide right* (*left* or *center*), 3. MARCH.

Executed as in forming line from mass. Command of commander of second troop: "*Fours left*, (*trot*), MARCH; *Fours right*, MARCH; *Left front into line*, MARCH."

To form close column from line:

1. *Form close column*, 2. *Guide right* (or *left*), 3. MARCH.

First troop stands fast. Each of the other troops wheels by *fours right*, changes direction to the right, then to the left, and when the rear four is about to enter the column is wheeled by fours to the left, halted and dressed.

If at an increased gait, the first troop moves forward. The other troops move by the right flank, then by the left flank and close distance on the troop in front.

Deployment from close column into line is executed by reverse means, the first troop standing fast.

Being in line, to form double column: *Form double column of fours*, MARCH. Executed as in Par. 773.

Form double column of platoons, MARCH. Executed in the same manner by breaking into column of platoons on the center.

Being in mass, to form close column to the right or left: *Fours right* (or *left*), MARCH, *Squadron*, HALT.

Mass to the right from close column is formed by reverse means.

Being in mass, to form close column to the front: *Right turn*, MARCH, *Fours left*, MARCH, *Squadron*, HALT.

Mass to the front in close column is formed by reversed means.

Being in mass, to form line of platoon columns: *Form line of platoon columns, Guide right*, MARCH. Executed similarly to forming line from line of platoon columns.

The first troop moves forward, forms into column of platoons and halts at thirty yards.

The commands for second troop: *Fours left*, MARCH, *Fours right*, MARCH, *Form line, guide right*, MARCH.

Mass is formed from line of platoon columns by reverse means.

Being in mass to form double column of fours: *Form double column of fours*, MARCH.

The center troops move forward, followed by the flank troops. Intervals are corrected toward the guide.

Being in double column of fours, to form mass: *Form mass*, MARCH, *Guide center*. Executed by reverse means.

Being in mass to form echelon: *Form echelon, Guide right* (*left* or *center*), MARCH. Executed as in forming line except that first troop continues to move forward, the other troops deploying and gaining their intervals and distances from the troop next toward the base. Commands of second troop: *Fours left*, MARCH, *Guide right; Fours right*, MARCH; *Form line, Guide right*, MARCH.

Being in echelon, to form mass: Executed as from line.

Being in line of platoon columns, to form line of fours: *Form line of fours, Guide right*, (*left* or *center*), MARCH. Base troop moves to the front in column of fours thirty yards. Other troops move by the left flank and gain interval, then by the right flank, break into column of fours on the side of the guide and are halted on the line.

Being in line of platoon columns, to form echelon: *Form echelon, Guide right* (*left* or *center*), MARCH.

The base troop executes left front into line and marches to the front. The other troops move to the left flank, gain required distance, move by the right flank and form left front into line on first platoon and continue the march.

Line of platoon columns is formed from echelon on the leading troop as from line.

Being in line of platoon columns to form double column of fours: *Form double column of fours*, MARCH *Guide right.*

Center troops break to the front in column of fours on the side toward the center. Other troops in each wing follow center troops in column of fours. Intervals are closed toward the guide.

Being in line of fours, the squadron is formed into mass, line of platoon columns, echelon, double column and close column, by similar commands and means.

Being in close column, mass may be formed to the right or left by the command *Fours right*, MARCH. Mass to the front may be formed by the command *Fours right* (or *left*), MARCH; *Left* (or *right*) *turn*, MARCH.

Line, line of fours, line of platoon columns, double column of fours, double column of platoons, may then be formed by appropriate commands, as explained above.

Echelon from close column and close column from echelon are executed in the same manner as when line is formed from close column or the reverse. Close column is formed from double column by first forming mass.

Double column of platoons: Being in line of platoon columns, to form double column of platoons: *Form double column of platoons*, MARCH. Executed as in forming double column of fours from line.

Note: This formation is introduced for the following reasons:

It furnishes a formation of exceptional advantage on the field of battle when fighting cavalry, on account of the facility with which it is possible to face to a flank, preserving the same formation. The column can also deploy quickly in any direction into other formations, valuable in the attack.

To face to the right or left, preserving the same formation. *Troops column right*, MARCH.

To deploy to the front in line: *Right* and *left front into line*, MARCH.

Into line of platoon columns: *Form line of platoon columns, Guide center*, MARCH.

Into Mass: *Form mass, Guide center*, MARCH.

Into line of fours: *Form line of fours, Guide center*, MARCH.

Into double column of fours: *Form double column of fours, center forward*, MARCH.

Into echelon of platoon columns: *Form echelon of platoon columns, Guide center*, MARCH.

Into two lines: *Form two lines, Guide center*, MARCH.

In echelon of lines: *Form echelon, Guide center*, MARCH. The double column of platoons may deploy to and on the right or left.

Into line: *Platoons right turn. Left troops, on right into line*, MARCH.

Into line of platoon columns: *Right into line of platoon columns*, MARCH.

Into double line of troops in line of platoons in columns of fours: *Fours right*, MARCH.

In double line: *Platoons right turn*, MARCH. In echelon on center: *Platoons right*, MARCH. *Form echelon, Guide center*, MARCH.

THE BENÉT MERCIÉ OR HOTCHKISS PORTABLE MACHINE GUN.

By Second Lieutenant HARRY L. HODGES, First Cavalry.

THIS gun, designed primarily for use with cavalry, has been developed with especial reference to that arm. It is the invention of Mr. Benét (a brother of Colonel Benét of the Ordnance Department) and of M. Mercié. Being built on the same general principle as are all Hotchkiss guns, it is automatic through gas pressure and not on account of recoil.

Having passed very successfully the machine gun tests required at the Springfield Arsenal, this machine gun was sent to Major George W. McIver, Commandant of the School of Musketry at the Presidio of Monterey, California, for the purpose of determining its tactical value.

By Major McIver it was brought to Atascadero for the exercises recorded hereafter and to be used in conjunction with the other arms in the maneuver work.

So far as the mechanics or the mechanical workings of the gun, the Springfield tests are very thorough, comprising in brief, tests for accuracy with fixed aim or oscillating aim, for accuracy with normal fire or fire of extreme rapidity, for speed in replacing broken parts, for the effect of excessive or insufficient powder pressure in the cartridge, of rust, of sand, and finally an endurance test, of which the board says, concerning the Hotchkiss gun: "It was decided that no more firing should be done under the fourth series test 13, as the gun had passed a satisfactory test and, after firing 15,038 rounds, appeared to be firing as well as at the beginning. Only one spare part had been used, and that was an ex-

tractor that had previously been fired 9,798 rounds." The mechanism had been fired:

With barrel A	1,290 rounds
With barrel B	11,230 rounds
With barrel C	13,160 rounds
With barrel D	300 rounds
	25,980 rounds

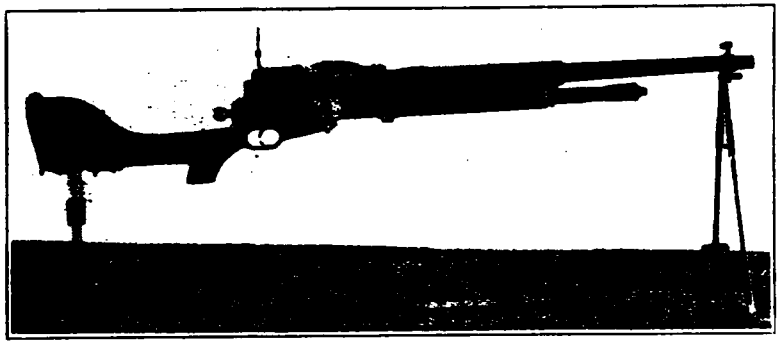


PLATE 1.

In appearance the gun is very much like our magazine rifle only somewhat larger (Plate 1). The feed strips, or clips, hold thirty cartridges, the cartridges being held by projections from the surface of the clip (Plate 2). The clip itself is of brass and is easily reloaded. Two men can re-

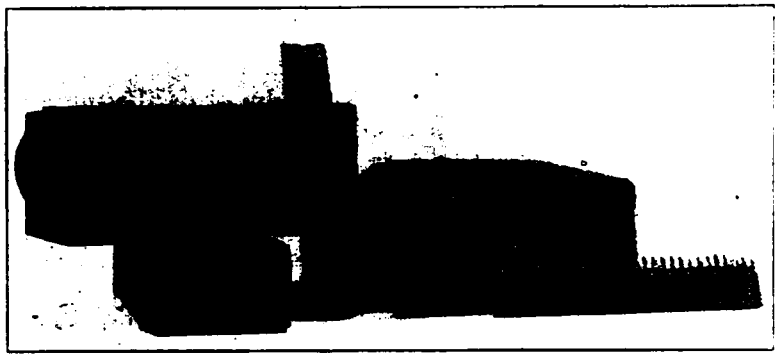


PLATE 2.

load 1,200 rounds in forty five minutes. These clips are carried in boxes, ten clips to a box, the whole weighing nearly thirty pounds.

The trial pack (Plate 3) is provisional and may admit of improvement, but the illustration shows how easily there can be packed on one mule two guns (one on each side) each weighing thirty pounds, 1,200 rounds of ammunition

PLATE 3.

weighing 120 pounds, and two extra barrels, the whole making a total weight of less than 200 pounds. The gun can also be carried on the cavalry horse with the rider, for it can be separated into barrel and stock, each weighing fifteen pounds, and half attached to each side of the saddle.

The gun is served by two men (Plate 4). One man can carry the gun and three hundred rounds of ammunition, while the other carries six hundred rounds.

This latter number can be doubled, if necessity requires, by attaching pairs of the boxes together by straps.

In action, one man does the firing (Plate 5) while the other loads the gun and assists in making large changes of

direction when necessitated by the movement of the target.

The gun can be used by one man, carrying a smaller number of rounds of ammunition.

In firing, single action, semi-automatic action or automatic action may be employed, allowing the piece to be used for one shot, for a dozen more or less, or for thirty, without reloading.

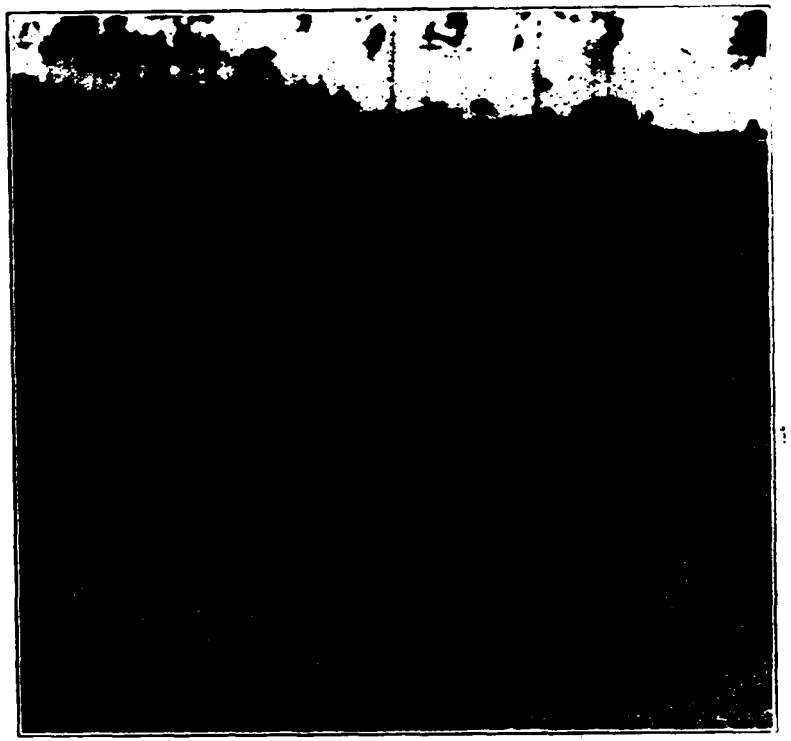


PLATE 4.

The gun can be concealed as easily as a rifle (Plate 6).

Mechanically the Hotchkiss is probably the simplest of any machine gun made. The gun consists of twenty-six pieces, composed of a total of 114 parts. The gun was made at first the weight of the Rexar, 16.6 pounds, but it was found that the durability of the gun was doubled by the increase of metal at various places. The gun now weighs thirty pounds.

Captain J. H. Parker, commanding the provisional machine gun company at Atascadero, gives it as his opinion

PLATE 5

that the Benét-Mercié machine gun has the most perfect mechanism of any machine gun yet invented.

The exercises given the Hotchkiss gun at Atascadero were the following:

PLATE 6.

Exercise I.—A demonstration of the failure of our present system of target practice properly to instruct men for field firing. This was the firing of a platoon of thirty-three men at targets appearing and disappearing in various positions

and at various ranges. These targets were drop targets, bobbing targets and moving targets on sleds. This demonstration served its purpose of showing some of the weakness of our present system of target practice. Although not intended for the purpose, this demonstration served as a basis for the comparison of machine gun and infantry fire referred to in the following exercise.

Exercise II.—The Hotchkiss gun was run through the same course. This served only to show that for firing at targets in skirmish line, bobbing targets in skirmish line, etc., a machine gun is not as effective, without an extravagant expenditure of ammunition, as thirty-three riflemen; this at ranges less than 1,000 yards. Taking into consideration the comparative scores made, seven per cent. of hits by the platoon, five-and-a-half per cent. by the machine gun, and the fact that the machine gun operator was an expert and knew the ranges, while the platoon was an ordinary one, the fire of the machine gun may be said to be equal to about twenty skirmishers, rather than to twenty-five as the proportion would show it.

This served very clearly to demonstrate the portability of the gun, the fact that it could be easily carried forward with the firing line without subjecting the operator to greater danger than an ordinary rifleman would undergo. The gun can be taken by a mounted man across the pommel of his saddle, giving opportunities for unexpected action beyond that of any tripod machine gun.

Exercise III.—Was the firing machine gun of 1,080 rounds continuously at groups of targets in different directions. A change of barrels was made after 600 rounds, which change was effected in forty seconds. The firing was accomplished in a sum total of twenty-seven minutes, with about ten minutes of actual firing. The percentage of hits, in the skirmish line target used, was about twenty per cent.

The recoil from this gun is very slight, much less than that of the army rifle.

This test served to demonstrate the facility with which various targets could be picked up, the change from target

to target while firing being made in an average of about twenty-three seconds.

Exercise IV.—Was the firing of thirty shots at eight kneeling figures at a distance of about 300 yards, the string being fired in less than one minute, with the result of fourteen hits.

This served to demonstrate the accuracy of the piece in its semi-automatic action.

Exercise V.—Was the firing of the gun from a sitting position, resting the legs of the fork on ammunition boxes. The test was satisfactory.

Exercise VI.—Was the rapid firing of the gun at a bare space on a hillside having a slope of about thirty degrees, at a range of 2,000 yards. Ninety shots were fired in fourteen seconds. As far as could be judged by glasses, the dispersion covered a space of about sixty by eighty yards.

This served to demonstrate the ability of the gun to fire very rapidly and with effect on large targets at long ranges. The test was satisfactory but not exhaustive.

Exercise VII.—A target of 110 irregularly mixed prone, kneeling and standing figures, was placed at a distance of 1,000 yards. The targets were in five rows of about twenty-one targets to a row. From front to rear the target was about forty yards.

This was a comparative but not exhaustive test between the Maxim and the Hotchkiss guns, each firing for a space of two minutes, the gun being at a ready when the command to fire was given.

The results were, for the Maxim 180 hits (number of targets hit not taken) out of 266 shots, or 40.6 per cent.; for the Hotchkiss, 162 hits on 65 targets out of 370 shots, or 43.8 per cent.

The actual firing time of the Maxim was about one minute; the other minute was employed in getting and keeping the gun on the target by the mechanical aids for traversing and elevating.

This test served to demonstrate that for firing at large targets at about 1,000 yards the Hotchkiss was equally as

efficient as the Maxim. Had the test been for five minutes, perhaps the Maxim would have made the better showing.

The quicker a machine gun can be brought on a target and held for effective fire, the more useful it will be for the "fire of opportunity." Two minutes will doubtless be the limit before disintegration of a large living target will render fire aimed at one point useless.

When one witnesses the test of the two guns, the question appeals to the mind, whether mechanical aids should not be done away with when as good results can be obtained by human skill, for the mechanical aids need maintenance, which is difficult in the field; and jams due to elevating, depressing or traversing are eliminated. By "human skill" is meant the skill of a marksman, for really more manual dexterity is required in keeping a tripod gun on the target, for the pointer has, in order to keep up a fire on one place, to elevate or depress, to traverse, and to fire, three separate things to be done with two hands. The single bearing of a tripod gun is very liable to work loose, and the gun, though clamped, will swing off the target.

During the tests at Atascadero the gun was fired 3,500 rounds with but one jam, which was remedied in twelve seconds by pulling back the cocking lever. At Monterey 7,500 rounds were fired without mishap. The tests were undergone at Springfield without stop due to mishap of the gun for more than a minute.

The question of *indirect fire* with the machine gun is one which has received some attention. To obtain any good and consistent results with such fire, the Hotchkiss would require a mount.

There is also a question whether, for ranges beyond 1,500 yards, a mount is not necessary. Data is not yet available to fully determine the point.

The results obtained with this gun, without tripod, at long ranges, would seem to justify its use in the cavalry; whether infantry will need a tripod for their gun in a long-sustained combat is a question with which the cavalry has little to do.

The chief use of a machine gun with cavalry is to supply

a certain amount of infantry fire without dismounting the men necessary to obtain that fire with rifles.

Cavalry combats should be short, else due use is not made of their mobility. The cavalry should endeavor to approach its objective in such a way that it should be able to start its action, except on an open plain, at a shorter distance than 1,000 yards, more or less, otherwise infantry could do the work more effectively. Trench says: "As dismounted cavalry cannot be advantageously employed in long-sustained combats, whatever is to be done should be done quickly."

Indirect firing with machine guns will be used chiefly within permanent or semi permanent positions, where no cavalry will ordinarily be found. The chief use of machine guns is undoubtedly the "fire of opportunity," the opportunity is fleeting; indirect fire requires some time in this development, meantime the target disappears. In order to take advantage of opportunities direct fire ordinarily will be used.

For the foregoing reasons and on account of the greater portability, mobility and greater amount of ammunition that can be carried, it would seem that the cavalry machine guns should be without tripods or should have a very light, detachable one to take advantage of exceptional cases in the use of the cavalry gun.

Accepting this gun, tactically the same as the Rexar gun, as the cavalry gun, what should be the composition of a machine gun unit?

The following is a suggested organization:

For each section:

1 non-commissioned officer,
1 gun, mule or horse,
2 guns,
1,200 rounds,
2 gun pointers,
2 horses,
300 rounds each horse,
1 horseholder,
1 horse,
300 rounds

2 assistant pointers,
2 horses,
300 rounds each horse,
1 pack mule or horse,
2,400 rounds,

Six men, six horses, two mules or horses, 2,550 rounds per gun.

To insure 10,000 rounds being available for each gun will require for each two guns a pack train of six mules or a four-mule wagon to carry baggage and 15,900 rounds of ammunition.

In the present state of the development of machine guns, whether the development of the tactics of the arm will later demand a company (troop) organization or not, the company organization is very probably the best for the development and improvement of the gun, its tactics, and for the training of men capable of operating and repairing the gun. Major McIver has had some opportunity to observe the company organization with the present gun, and believes that such is the proper organization.

HORSEBREEDING IN FOREIGN COUNTRIES—REMOUNTS.

By Veterinarian COLEMAN NOCKOLDS, First Cavalry.

THE foreign governments recognize the fact that they can learn something from their neighbors; this is shown by the encouragement they lend to horse shows of an international character, such as those which have been held in recent years at Antwerp, Hamburg, Amsterdam, Vienna, Brussels, Paris, and this year in London. These exhibitions afford opportunities which do not occur otherwise of comparing the results of various systems and methods of breeding Is there not something that we can learn and make use of from these exhibits, the objects of which have taken so many years to accomplish, and not waste our time by experimenting blindly along lines that were thrashed out thoroughly by other nations many long years ago?

A great opportunity of seeing the stamp of horse each government of Europe is striving to produce for military purposes occurred in September 1900, in the International Horse Show held at Paris, when the French government spent upwards of $250,000.00 in prizes and erecting suitable buildings, etc., for the show, which lasted only one week There were collected horses of numerous and varied strains from all parts of France, from Germany, Hungary, Austria, Russia and Turkey. So excellent an opportunity for comparing a large number of representative examples of different breeds is unlikely to recur soon, and a wonderful object lesson on these lines with the opportunities for information has gone.

The army horses of various breeds and nations were shown mounted at the Paris exhibition. To demonstrate

the results of the practice of breeding for the various classes of work horses are required to perform, a selection of sizeable stallions and mares was first paraded, and these were followed into the ring by a troop of heavy cavalry mounted on the produce of these mares and stallions. Then were shown stallions and mares of medium size, and with them a detachment of cavalry mounted on their progeny. After these came stallions and mares more highly bred, followed again by a troop of light cavalry mounted on their progeny. This was undoubtedly the most interesting and instructive exhibition of breeds of military horses that has ever occurred. The International Horse Show that took place this year in England is still fresh in the minds of all persons interested in such proceedings.

It is worth while to briefly glance at the systems of horse breeding prevailing in some of the chief continental countries, noting that the object of each country is to foster and encourage the breeding of classes most useful to the people of the country, and the special inducements offered for the type of army horses needed.

FRANCE.

At the conclusion of the wars which called forth all her strength in the earlier years of the nineteenth century, the want of horses in France engaged the serious attention of the government. Commissioners were appointed to travel through the country and ascertain what horses of certain old and esteemed breeds could be procured to restock the Royal studs; and measures were adopted to encourage private breeders.

The *Sporting Magazine* of 1820 contains translations of a minute presented by the Minister of the Interior to Louis XVIII, recommending a number of gentlemen for gold and silver medals in recognition of the work they had done and were still doing to promote the breeding of horses. Some details are given of the studs owned by these gentlemen, and from these it would appear that Arabs and Spanish stallions found place in several private studs.

From the same publication we learn that for some years

prior to 1820 foreign breeders had ceased to buy only thoroughbreds in England to improve their stocks, and "great numbers of English half-bred mares have been collected and sent abroad."

"Cecil," in an article on racing in the *Sporting Magazine* of 1851, says horses for general use were then very scarce in England, while the French government was encouraging their production, more especially that of powerful animals for military purposes.

France now, for stud purposes, is divided into six districts, which contain twenty-two government studs for stallions. From these studs 3,038 stallions are distributed among 689 local covering stations for public service.

The report of the Inspector-General of horse breeding operations in 1899 gives the following list of stallions serving that year; these are divided into three classes:

Thoroughbreds—	
Thoroughbreds	262
Arabs	105
Anglo-Arabs*	260
Not Thoroughbreds—	
Southern half-breds*	164
Norman and Vendeans	1,384
Qualified trotters*	261
English hackneys	71
English hackneys cross-bred*	78
Draught—	
Percherons	278
Boulonnias	61
Ardennes	54
Bretons	51

Since the year 1899 the government has increased the number, and this year the total number of stallions is 3,450.

*The Anglo-Arab is a cross between the English thoroughbred and the Arab.

The Southern (du Midi) horses are bred in the Tarbes district, and have a long strain of Arab blood.

Qualified trotters, certified to have trotted one kilometer in one minute and forty seconds. These horses have been graded up from hackney sires which were imported from England forty or fifty years ago.

English hackneys cross-bred are a cross between English hackneys and hunter mares imported from England

From the table showing how the stallions are distributed among these twenty-two studs, we may select two important examples, the stud at Tarbes, in the Pyrenean region, where light horses are chiefly bred, and Le Pin, in Normandy, where heavier saddle horses, carriage and light draught, and a proportion of heavy draught horses are produced.

At Tarbes in 1899, the horses available for distribution among covering stations, were: Thoroughbreds: English, 34; Arabs, 27; Anglo Arabs, 48; total, 109. Half-breds: Southern horses, 37; Normans and Vendeans, 7; Norfolks, 4; total, 48. In all, 157 stallions.

At Le Pin, the following were available for distribution: Thoroughbreds: English, 22; Arab, 1; Anglo Arab, 11; total, 34. Half-breds: Southern horses, 3; Normans and Vendeans, 97; qualified trotters, 55; Norfolks, 20; total, 175. Draught sires: Percherons, 67. In all 276, stallions.

The largest stud in France is that at St. Lo, in Normandy, whence 365 stallions were distributed in 1899; but it is less representative than the two of which details have been given, consisting of 281 Norman and Vendean stallions, with fifty-nine qualified trotters and twenty-five English thoroughbreds.

The following illustrates the system in vogue at one small covering station; there are hundreds similar. At Lasparre, in the Medoc, the following stallions stood for three months during the season in 1900:

1. Monbran; thoroughbred. Fee for half-bred mares, $1.24; for thoroughbreds, $4.00.
2. Balsamin; thoroughbred. Anglo-Arab (*i. e.*, by a thoroughbred sire; dam by pure Arab). Fee, $1.25.
3. Troupaic; half-bred (by thoroughbred Anglo-Arab; dam by half-bred Norman sire). Fee, $1.25.
4. Rip Rap; half-bred trotter (by thoroughbred; dam by half-bred Norman sire). Fee, $1.75.
5. Risque a Tout; half-bred trotter. Fee, $1.25.
6. Piedetal; half-bred Norman. Fee, $1.25.
7. Quna; half-bred Norman. Fee, $1.25.

All the half bred trotters and half-bred Norman stallions have hackney blood in their veins.

Lesparre is in a district in which horse-breeding is by no means a prominent industry. It is one of the chief vine-growing regions of France. The celebrated vineyard Chateau Lafite is only seven miles from Lesparre, yet the owner of a mare may choose from seven stallions, representing five different strains, paying the small fees specified above.

The supply of stallions is adjusted to meet the demand. The foregoing list shows us that experience has taught the stud authorities to make provisions for service by half-breds of five times as many mares as are sent to the thoroughbred or Anglo-Arab. There are no heavy draught stallions at Lesparre; the reason is to be found in the fact that oxen are very generally used for cart and plough in this district, and heavy draught horses therefore are not bred. If we turn to the Finistere Department of Brittany, where post horses are bred, we shall find the same principle in operation; there they stand stallions of a stamp calculated to get the sturdy "blocky" horses for which the district is noted, and which have been graded up from imported hackney sires.

In France, during the year 1899, there were 2,940 stallions belonging to the State in actual work; these covered 170,155 mares; the fees paid for service amounted to 1,275,250 francs, or about $255,050.00. Looking more closely at the returns of service, we find that the thoroughbred class (English, Arabian and Anglo-Arab), 579 stallions performed 26,144 services, or about forty-five each; the half-bred class 110,411 services, or over fifty-seven each; and the draught sires, 33,600, or over seventy seven each. The thoroughbred stallions were employed more especially for crossing purposes, 21,743 mares other than thoroughbreds having been sent to them.

The stallions at each local covering station are changed frequently.

Besides these 3,038 stallions belonging to the state, there are a large number in the hands of private owners. Any stallion whose services are available to the public must be licensed by government as belonging to one of three classes:

1. "Approved" stallions, which are considered good enough to improve the breed of horses. These are divided

into two classes: Sires which earn over $20.00 per service form the first class; these receive no bounty from the state. The second class consists of sires for whose services $20.00 or less is charged by the owner; these receive an annual premium of from $60.00 to $400.00 a year. In 1899 there were 1,334 "approved" stallions, viz:

Thoroughbreds	303
Not thoroughbreds	485
Draught	546
	1,334

2. "Authorized" stallions, which receive no premium, but whose progeny are eligible to compete at shows subsidized by the State.

They were:

Thoroughbreds	24
Not thoroughbreds	34
Draught	162
	220

3. "Accepted" stallions, which have nothing to recommend them but a certificate of freedom from roaring and intermittent ophthalmia.

In 1899, 7,631 stallions were brought before the committees for acceptance for service during the season of 1900, and 7,467 were passed.

There is only one government stud farm where sixty mares are kept. This is at Pompadour.

English thoroughbred, Arab and Anglo-Arab horses only are bred at Pompadour, and the farm is only a small factor in the general scheme of breeding. Improvement is sought principally through the provision of good stallions.

Bounties are given for brood mares, filly foals, and as prizes for horse-breaking at public competitions. These measures encourage owners to retain possession of the best breeding stock for the benefit of the nation, and stimulate endeavor among people to achieve skill as horse masters.

In every district in France shows are held at which the young stock are exhibited and are awarded prizes. The two-year-olds are led and the three-year-olds are shown mounted.

The judges are officials connected with the neighboring studs and one or two representatives of the head office of State Haras in Paris.

About $1,350,000.00 of public money is spent annually in France in horse-breeding. The expenditure includes the maintenance of the stallion studs and depots, the purchase of horses, premiums to private stallion owners, and prizes given at races, local shows, etc.

GERMANY.

The stallion for public service belonging to the state, which in 1896–7* numbered about 2,600, are distributed among seventeen "Rural Studs" which in their turn, supply stallions to 899 covering stations.

The stallions at the end of 1895 were classed as follows:

Class 1. Light riding horses, 419, including 94 English thoroughbreds, 4 Arabs and 2 Anglo-Arabs.

Class 2. Heavy riding or light draught horses, 1,153.

Class 3. Heavy draught horses, 681; Percherons, 2; Belgian and Ardennes horses (draught), 86; Clydesdale and Shires, 71; French and Norman farm horses, 13; German farm horses, 161.

The principal object of the German Government Stud Department is to provide remounts for the army. Of the stallions mentioned above 1,989 were purchased, only 598 having been bred on the State farm.

In the year 1884 there were 775 covering stallions in Germany, with 2,152 stallions; in 1895 the number of covering stallions had increased to 899, with 2,587 stallions. The covering fee charged is generally under $5.00.

Of the remounts supplied to the German army in 1895 about 6,000 were for cavalry; of these, 588 were got by thoroughbred sires.

Privately owned stallions must be approved by local committees (which also license bulls and boars) before their services may be hired.

*Information of a later date than 1896–7, concerning the German studs has proved unobtainable.

During the fiscal year of 1895–96, 2,308 licenses were applied for, and of these 1,488 were granted; 812 were for light riding or draught horses, 563 for farm and cart stallions, and 113 for crosses between the two. Much is done to promote private enterprise.

There is a special fund provided by the government from which private horse breeding associations can obtain loans free of interest. Such loans must be repaid within six years. At the end of 1895, sixty-one associations had taken advantage of this fund, the total loaned being $26.375.00.

Brood mares may be purchased on very easy conditions from the government supply depot at Kalkreuth, the principal stipulation being that the buyer shall have the mare covered by a good half-bred stallion belonging to an Imperial Stud, and shall offer the produce when three years old to the army buyer as a remount. If, however, the owner wishes to employ the produce for stud purposes he is not bound to put it on the remount market. Pecuniary inducements are also offered to breeders to retain good brood mares and raise young stock.

For the convenience of breeders, the War Office agents arrange markets at suitable times and places, where young animals on sale as remounts for the army may be inspected and bought; *no middlemen are employed.*

Horses are purchased by the military buyers at three years old. The average price paid is about $190.00, but purchasing officers are, or were a few years since, instructed to deal liberally with the breeders. It was the rule not to try and beat down the price asked for a horse if it were reasonable; and giving a small breeder more than he demanded was not unknown if the animal appeared more valuable than the owner supposed it to be. The young horses thus purchased are kept at the remount depots for about fifteen months, and are then distributed among regiments. Before this distribution takes place, breeders may select any mares that promise to make particularly good brood mares, paying a little more than the average price for the animals so chosen. Few, however, take advantage of this privilege.

In addition to the seventeen "Rural Studs" there are

four state breeding studs with about 660 mares and 30 stallions. Of these Graditz and Trakehnen are the more important. The stallions bred at these establishments are sent to the Rural Studs if they can fulfill the standard of merit required by the committee which is assembled to examine them. Those that fail to satisfy the committee are sold by public auction.

The largest of these studs is that at Trakehnen in east Prussia. The estate covers 10.300 acres; the breeding stock comprises 4 thoroughbred and 12 half-bred stallions, with over 400 mares.

The Trakehnen horse, as it may be called, for it breeds true to type, is generally a long, low black horse, about 16 hands high, with the best of limbs and a beautiful head, "a trifle too long in the back, but a valuable stamp of horse; they are extremely quiet and tractable."

By the distribution of illustrated pamphlets the German government endeavors to instruct breeders in the best methods of managing stock, and also concerning the stamps of horse required for the army.

A typical artillery and heavy weight saddle horse is described as follows, for the guidance of breeders: "Height at 3 years, 15.1 to 15.2½; height when full grown, 15.2¾ to 16.1¾. Activity, speed, freedom of action and endurance. The breast need not be as broad in the saddle as the artillery horse. The fetlock should not be too short; while, on the other hand, if too long it bends too low and causes the heavy weight carried to produce fatigue on a long march. A good back for the saddle is as necessary in the cavalry horse as a good shoulder for the collar in the artillery horse."

The "general requirements" in horses for the German army are thus detailed:

1. Small blood-like head, neck well set on.
2. Strong, well-placed legs with big joints.
3. Well arched ribs and good sloping shoulders.
4. Well-formed strong back, not too long, well-coupled and high-lying kidneys.
5. Strong hocks, free from disease.
6. Round sound hoofs with healthy frogs.

7. Sound constitution and good digestion.
8. Free, energetic action.

The net cost of Germany's horse-breeding establishments is about $950,000.00 a year.

HUNGARY.

The stud machinery in Hungary is elaborate and extensive. There are four state breeding farms where stallions are bred for public service. The stallions, which in 1896 numbered 2,838, are sent out to eighteen central depots, and from these upwards of 964 local covering stations are annually supplied. The service fees range from 32 cents to $3.10. Large breeders may hire stallions from the central depots for the season.

Hungarian methods are admirably described by Professor Wrightson, in his "Report on the Agriculture of the Austro-Hungarian Empire," published in Vol. II (Second Series) of the *Journal of the Royal Agricultural Society* (1874); and by Mr. J. Collins, Principal Veterinary Surgeon to the British Forces in 1880, whose reports on the studs and breeds of horses in Hungary was, by the permission of the Secretary of State for War, reproduced in the *Journal of the Royal Agricultural Society*. Much the same methods exist at the present time.

The breeding of horses in Hungary is one of the most popular branches of rural economy, and is carried on not only by the government, but by most of the great landed proprietors with wonderful results.

Hungarian breeders take issue with many English breeders, who look upon the thoroughbred as essential to the supply of half-bred saddle horses. They think it quite practicable to raise a distinct race of saddle horses, possessed of the necessary fixity of character.

They still look to England for their supplies of thoroughbreds and Norfolk trotters; but they have in recent years succeeded in their object of establishing breeds of their own.

The Crown studs in Hungary are conducted upon a very large scale.

At Mezohéyges there were upwards of 650 brood-mares. Colonel Horváth, the officer in charge of the latter stud, shows how the Hungarians have succeeded in establishing a fixed breed of saddle horses, as follows: "The race of horses is throughout half-bred. We have had two studs of half-blood Arabian mares since the years 1825 and 1827; two studs of English mares (Furiosa and Abugress) since the years 1841 and 1842; also the family of Nonius, obtained from France in 1815; two studs of the ancient blood of Lippieza, which is a mixture of Spanish and Arabian blood, since the year 1807; and lately we have begun to form a stud of Norfolk blood, with stallions of that race and mares of different indigenous families."

The Colonel gives the numbers of mares of the several strains he names.

At the time he directed the stud there were 136 half-blood Arabs, 148 English, 113 mares of various strains from Lippieza, 220 Nonius or Anglo Norman mares, and 33 of the Norfolk mares, as the beginning of a stud of this breed. The stallions used included English thoroughbred, pure Arabs or half-breeds belonging to the families named.

Colonel Horváth states that the principle kept in view in breeding suitable stallions is very simple. It is the gradual improvement of a family by the introduction of nobler and higher blood, while at the same time the type of the family is retained. Where more blood is wanted fullblood horses are used according to the previous breeding of the particular family. The produce, when strong enough, is served once more by a thoroughbred, and then the breeder resorts again to a sire of the original strain of the family. It is in fact, a system of breeding from half bred stock, with an occasional use of thoroughbreds when there is a tendency to coarseness.

When asked the question, "Do you hope to establish fixed or permanent half-bred races which may be bred truly "*inter se*?" Colonel Horváth replied: "The families of Nonius, Majestosa (Lippieza blood), Gidran and Schagya (Arab blood) are already constant. Furiosa and Abugress (English thor-

oughbred) and Norfolk breeds will require ten or twelve years more of careful breeding."

The Nonius strain derives its name from a famous sire of that name which was procured from France in the year 1815. The original Nonius was got by an English horse named "Orion" out of a mare of the Anglo-Norman breed, which breed was largely built up on Norfolk trotter blood.

Among the Hungarian exhibit at the Paris International Show were very models of what the fifteen-stone hunter should be, and some perfectly shaped carriage horses; and living proof was furnished of the sound practical wisdom which directs stud operations in Hungary.

The best were those of Nonius (Norfolk trotter) and North Star (thoroughbred) strains.

Reviewing his experiences during his visit to Hungary, Professor Wrightson says: "The result of much observation was to show me that the best horses in Hungary are descended from English stock."

A number of stallions foaled every year at the Royal studs and about 200 yearlings, which are annually purchased at an average price of about $117.00 are set apart and reared with the view of use as public stallions. At the age of three years these are inspected and classified; about one-half the number are rejected as stallions and cut; the best, to the proportion of about twenty per cent., are sold as "communal stallions;" death accounts for the remaining four or five per cent. of the total.

The communal stallions are sold to the chiefs of the agricultural divisions, known as communes, at prices varying from $150.00 to $250.00, payable in four annual installments. Each commune undertakes to maintain its stallion at its own expense and in a suitable manner, the proper discharge of its obligations being the care of one or more government officials. The stallion is available for service within the limits of the commune at a maximum fee of a little less than $1.00.

In parts of Hungary the method of service is to lead the stallion; in other parts the stallion is turned loose with mares, which may not number more than eighty.

Should the horse not be kept in a proper manner, he is, after repeated cautions, liable to be withdrawn from the commune at the end of the third year, and the commune forfeits the installments of the price paid. If the stallion dies or fails as a stock getter during the first three years, the authorities replace him by another. At the end of the third year he becomes the property of the commune, which is then able to dispose of him as it pleases. Many communes change their stallion every third year, depending upon circumstances.

With the one exception of there being imported Clydesdales on the estate of the Archduke Albrecht, the only English horses seen in Hungary are thoroughbreds and Norfolk trotters.

The estimated cost for the Hungarian Horse-Breeding Department for the year 1897 amounted to $1,166,665.

AUSTRIA.

In the year 1876 a committee of inquiry on horse breeding was appointed by the Austrian government, and the result of its investigations was the division of the whole country into five districts, with a view of providing stallions suited to the varying requirements of each.

From the central depots in each of the five districts over 2,000 stallions are distributed among 522 stations, each station accommodating from one to ten stallions. There are no fewer than thirteen different breeds of horse in use, and care is taken that each station shall receive a stallion or stallions suited to local requirements. In fulfillment of the scheme suggested by this committee, good local breeds are retained pure, approved stallions of each being used for public service; in districts where the local breed have degenerated or stand in need of improvement, the stallions are carefully chosen to raise the general standard.

Thus, thoroughbreds of English descent, but bred in the country, are used on strong mares to supply remounts. In other districts roadsters, Clydesdale and Suffolk stallions are sent to be mated with mares of a class to throw heavy artillery riding and draught horses.

In the mountainous regions, where small, and hardy horses are required for draught and pack work, every endeavor is made to keep the local breed pure The Pinzauer horses are highly spoken of for such work in hilly districts; they are very strong and hardy, and have good action; the lighter class trot quite well enough to perform heavy carriage work over bad ground. Their color is peculiar—white or light, "splashed" with dark spots.

In 1897 the Austrian state included, among other stallions, 94 English thoroughbreds, 766 English half-breds, and 208 hackneys.

Special inducements are held out to private breeders to keep brood-mares, and prizes for young stock and mares are freely offered. The regulations concerning privately owned stallions vary in various provinces of Austria, but encouraged if suitable for stud purposes.

Such horses are licensed; the horse in some parts must be inspected once a month during the covering season. Anyone who uses an unlicensed stallion to cover mares other than his own, whether for fee or gratis; or knowingly allows a mare to be covered by an unlicensed stallion; or suffers entire colts of one year old or more to pasture with mares of any age, is liable to fine equal to $2.00 or thereabouts.

In addition to the five central depots, there are two state breeding studs. These are maintained for the purpose of producing stallions for public service; one is at Radautz and the other at Piber. At Radautz there are over a thousand animals, including about 250 brood mares.

Pains are taken to keep all the young stock at Radautz in condition; they are kept as much as possible in the open air, and are exercised for at least three hours daily by mounted drovers, who are assisted by dogs.

During the summer, from May to September, the young horses are driven to the hills or on to distant wild ground, and left to their own devices. At the age of three the young horses are taken in hand and broken, and those stallions which are considered suitable for service are got into condition and distributed among the central depots in their fourth year.

There are, in addition to those two breeding studs, establishments at Kladrub and Lippieza, where carriage horses are bred. The Kladruber horses are very large and showy animals, with great action; they are descended from the Spanish and Italian stock, but careful mating for generations has greatly increased their size, which is now often as much as 17 hands 2 inches. These horses are chiefly used in the Royal carriages on state occasions.

The Lippizienne horses have marked character of their own, having been obtained from Spanish, Italian, and Arab stock, carefully crossed.

They are long-bodied, short-legged horses with good quarters, legs and feet, and stand from 15 to 16 hands. They are very handsome, hardy and fast.

The covering fees in Austria range from 41 cents to $4.00, for ordinary stallions; in some poor districts mares are covered by the state horses free of charge.

Her horse breeding operations cost Austria $700,000.00 a year.

ITALY.

For stud purposes the country is divided into seven districts, which include 377 covering stations, each of which accommodates one or more stallions. Only ten of these stations receive four or more sires, the large majority receiving one or two. In 1895 there were 582 government stallions distributed among the covering stations; this total comprised 72 English thoroughbreds, 78 Arabs, 6 Anglo-Arabs, 396 hackneys and half-breds, 29 heavy draught horses and 1 American trotter.

With the object of ensuring uniformity, it is considered advisable to keep the same stallion at one covering station as long as possible.

With the exception of one or two thoroughbreds, whose services are only requisitioned by owners of racing stock, the service fees are low, though higher than most Continental countries. In 1895, 18,846 mares were served by government horses at a fee of about $2.00 each; 1,021 at $5.00 each, and 258 at $7.00 each. The War Department buys remounts

at three and four years old, paying, on the average $120.00 for three-year-olds, and $160.00 for four-year-olds. The horses so purchased are sent to one of the remount depots, and are issued to regiments when four years and six months old perfectly unbroken.

About 3,500 young horses are annually purchased by the remount committees.

Greater stringency in examination of late years has produced a considerable decrease in the number of privately owned stallions performing public service. There were 645 private stallions standing for public service in 1895.

Colonel Needham (of the British service), in his report on stud work in Italy, says that the great defect of the Italian horse is want of size and substance, but he admits that the cavalry horse shows great endurance when carrying heavy weights and performing long marches.

Italy spends about $150,000.00 net on horsebreeding annually.

RUSSIA.

In no European country is more attention devoted to the breeding of horses than in Russia. The oldest Imperial stud now in existence is that at Derkoulsk, established in 1750; but, without reviewing the history of the Russian horse-breeding department, it may be said that it has been an object of solicitude to successive sovereigns for the last 400 years. Ivan III., who reigned during the last forty years of the fifteenth century, established the first government stud of which there is a record, near Moscow, and compelled all great landed proprietors to establish breeding studs.

The government maintains about 1,100 stallions at fifteen depots; from these depots the horses are distributed among covering stations all over the country, wherever horse-breeding has place among local industries. As in other countries, the number of stallions at each covering station varies in accordance with the needs of the district. They vary in number from two to nine, but four is the usual complement.

The fees charged for service range from 76 cents to $11.45, in ratio with the merits of the stallion selected; each

mare is allowed three leaps, if necessary, but not more; the covering season lasts from the 3d of February to the 18th of June. The stallions are put to service at five years old, and in their first season cover forty mares, but no more; when six years old they are permitted to cover sixty mares, and in very exceptional cases as many as ninety. Stallions which are old, but still capable of service, are given away on condition that the recipient uses them for stud work.

Since the year 1862 shows for all horses bred in Russia have been held annually; about $112,500.00 are given annually in prizes, and honorary awards are also distributed. The twenty-six turf societies in Russia receive among them $70,000.00 a year to be given in stakes. Horse fairs are encouraged; there are 460 of these in various parts of the country, at which some 300,000 horses change hands.

Independent of the fifteen stallion depots there are four government breeding studs. There is one at Khrenovoi, which was purchased in 1845 from the daughter of Count Alexis Orloff, the descendant of the noble who founded the famous breed of trotting horses known by his name.

This stud consists of saddle-horses (17 stallions and 100 brood mares, trotters (13 stallions and 100 brood mares), and English thoroughbreds. (5 stallions and 45 brood mares). It is also celebrated for the Rostophschine breed of trotters, which was founded by Count Rostophschine, a contemporary of the founder of the Orloff breed. The best mares here are those got by Arab stallions from English mares. Khrenovoi is also one of the stallion depots.

The Belevodsk stud embraces four separate establishments:

1. Derkoulsk, referred to above as the oldest breeding stable in Russia, is given up to breeding of carriage horses, and the stud consists of about 22 stallions and 150 mares.

2. Streletz, devoted to a stud of Arabs, about 20 stallions and 150 mares. The Streletz stud has given its name to a breed of horses which differs only in its superior size from the Eastern bred Arab; the Streletz horses were among the exhibits that attracted most attention in the Paris show.

3. Limarveo, where Arabs only are bred.

4. Novo Alexandrov, for half-breds (about 20 stallions and 150 mares). All these four studs are known collectively as the Belevodsk stud.

The third stud at Janow, a comparatively small one for half-bred horses; and the fourth at Orenbourg (12 stallions and about 85 mares) is for breeding only Kirghiz or steppe horses.

For more than a century the Russian government and private owners have imported thoroughbreds from England.

The English thoroughbred stallion "Grey Diomed" and four mares formed the foundation stock of the Golowkowa stud in 1794. "Traveller" and "Orelius," son of "Eclipse," were imported in 1799. "Doncaster" in 1810, "Cerberus" in 1812, "Memnon," winner of the St. Leger of 1825, a few years later. In 1833 a special mission was sent to England to buy stock; the stallions "Birmingham," "Middleton" and "Admiral" were purchased, and numerous mares, among them "Lalla Rookh," "Executrice," "Tweedlewings" (by "Touchstone"), "Metal" (by "Glaucus"), and "Marchioness."

The Imperial studs are directed with great judgment; the utmost care is exercised in the choice of forage; all horses are exercised regularly every day, and young horses when three and a half years old are tested for strength and staying power according to their class and breeding. No mare is given up to breeding until she is five years old and fully developed.

Attached to each government stud farm is a school of horsemanship, where breeders receive instructions in the principles of the industry, and where riding is taught. At Khriovoi is a special school where trainers, jockeys, huntsmen and coachmen are taught the best methods of training young horses.

Private enterprise is encouraged every way, and very many of the Russian nobility maintain large breeding studs on their estates.

At Slawuta, Prince Sangusko has, or had, a stud of Eastern horses, which, Mons. Salvi observes, show to what a pitch of perfection the typical Arab may be brought when wisely mated, well nourished, and reared under favorable

conditions; "it has the height, bone, and spirit of an Irish horse, and yet is the Bedouin horse, preserving all its Eastern characteristics, but bigger and stronger." Many private owners devote their attention entirely to the Anglo-Arab. At least one, however, makes a specialty of carriage horses, which he has succeeded in bringing to a high standard, using Mecklenburg stallions upon Eastern mares.

The twelve regiments of horse guards and Eighth (reserve) Cavalry Brigade, are horsed from the Imperial studs, as the steppe-bred animals are not powerful enough to carry the men.

About 7,200 horses are required annually for the Russian cavalry of the line.

There are seven "brigade stations" to which the remount officers send the young horses which they buy from the breeders; these horses have run wild on the steppes until caught for sale; their entire education is carried on by regimental breakers. They cost on the average about $76.00, but by the time they are fit to take their places in the ranks they have cost about $185.00 each. Dragoon remounts must not be less than 14.2⅝ in height, and are bought from the age of three off to rising five.

Captain H. Hayes says of a batch of 800 remounts which had been sent in by the buyers a few days before:

"As these dragoon remounts average about 15.1½, they are somewhat small, and to English eyes would probably appear at first sight rather light; but closer inspection shows that they have plenty of bone, are compactly built, and have no superfluous lumber to carry. They are with few exceptions, entirely free from cart blood, and consequently if their forelegs in some cases seem a bit deficient below the knee, the back tendons run more or less parallel to the cannon bone, and we find no coarseness about the fetlocks, which is evidence of inability to stand work under the saddle. These Russian remounts have, as a rule, short backs, muscular loins, good feet, fairly small heads, and are well ribbed up.

"They are particularly good across the loins, which is a point that receives much attention from Russian breeders.

"Formerly the horses of the Don, from which country the best remounts are obtained, were generally 'back at the knees,' 'calf-kneed;' but this defect has been almost entirely eliminated by careful crossing.

"The members of the selection committee, which pass or reject the animals brought up by the buyers of remounts, are specially critical as regards the quality of the pasterns. On the whole they have very good forelegs. Their shoulders are inclined to be short; but their worst point is undoubtedly their hocks, which in many instances are weak, too much bent (sickle-hocked) or inclined to curb. These remounts, especially those which come from the country of the Don, have a strong infusion of Arab blood, with a dash of the thoroughbred. They are essentially saddle horses bred for cavalry purposes; the Russian horses are reared under conditions of privation and hard work to get their living, and are consequently more useful as slaves and campaigners than they appear to be."

Four of the fifteen Imperial studs are situated in the horse-breeding region of the Don.

TURKEY.

The Ottoman government possesses four important studs, all of which are situated in Asia Minor and are organized on lines similar to the great Hungarian establishments, Mezoheyges, Babolna, etc., and which are under the control of the Minister for War.

The Tchifteler stud, situated in the province of Brousse, on the Sea of Marmora, was established in the year 1832; the lands, covering 29,600 acres, consists of somewhat varied pasture of vast prairies watered by three streams. After the Crimean War a thousand mares were received at Tchifteler from the English and French armies, and these, like the animals already at the farm, were allowed to range at liberty until the year 1886, when nearly the whole stock perished from drought.

In 1886 three hundred Hungarian mares of inferior and unsuitable strain were sent to this stud; these were kept

under cover, but the native mares and their broods continued to roam at large. As stable accommodation was built, however, the latter were housed, as well as fifty brood mares which had been purchased in Russia.

Since 1892 Arab blood has been introduced, and only once since this step was taken has the Tchifteler stud been able to furnish annually over a hundred good and efficient remounts. The progress made has been continuous, and this year the total number available for the army will be three hundred.

The Arab stud consists of fifty-five stallions of pure blood and eleven half-bred stallions got by Arabs out of native mares. In addition to these there are ninety-one native stallions and six Normans, which were bought in 1900, thirteen Hungarian and eleven Russian stallions. There were two years ago 660 brood mares and fillies, of which thirty-five were Russian, ninety three Hungarian, and the remainder native bred.

The officer in charge of the stud is a colonel, who has under him a military staff.

The second stud is that of Sultan Sou, between sixteen and eighteen miles from the town of Malatia, in the province of Harpout, in the interior. It controls an area about 600 miles square, which includes thirty-two villages, having some 5,000 inhabitants; part of this area is given up to agriculture, and the remainder devoted to horse breeding. The Sultan Sou stud was founded in 1861 and was reorganized in 1889; attached to it is another farm—that of Osman Dide where there are enormous hill pastures, to which the droves of horses are sent in the summer. There are at Sultan Sou twelve pure Arab stallions, six Kurdish and one Hungarian; seven pure Arab mares, twenty-one Kurdish and twelve Hungarian. The object of this establishment is the improvement of the Kurdish breed of horses; the number of Kurdish brood mares will this year be increased to 200; how many mares of this strain are running at large in this district is unknown.

The Tehoukourova stud owes its name to a once famous breed of horses which is said to be now nearly extinct. It

is situated in the province of Adana, which is bounded on the south by the Mediterranean, and consists of two vast estates, one covering 197,680 acres, and the other 74,160 acres.

The larger estate consists of prairie land comparable to the plains; the second lies on the shore of the Mediterranean at the mouth of the river Djiham which flows through it.

This stud was established in 1892. There are now eight pure Arab stallions, three Kurdish and five horses described as "Anatoliotes," obviously after the province of Anatolia in western Asia Minor. There are twenty-one pure Arab mares and sixty-two of the Tehoukourova breed. Many native horses also run loose on the two estates. The special object of this stud is to establish the Tehoukourova breed. It is under the direction of a colonel of the Turkish army, who, besides a civil staff, has a troop of cavalry.

The Vezirie stud farm covers about 131,780 acres and lies close to the city of Bagdad, between the Tigris and Diala. This stud, which is under the direction of a general of brigade, was founded in the year 1896, and no great progress has so far been made with it. The stock last year consisted of ten stallions and fifty-seven mares, all pure Arabs, the object of the Vezirie stud being the production of Arabs of the best strains.

Endeavors are made every year to buy the best young horses from the wandering tribesmen, but good ones are rarely obtainable; in 1900 it was hoped that 100 would be secured, but three foals and one filly of the highest stamp was all the director of the stud was able to buy from the tribesmen.

Local covering stations are established in various districts, and these are supplied with stallions from the four large government studs; pure Arab stallions are often loaned to village communities far from the stud headquarters for the sole purpose of improving the breeds.

Each stud carries a stud book which contains the guarantees and proofs given by Sheiks in respect of horses obtained from the tribesmen. These warrants are verified by

the inspectors who travel in the interior and pay regular visits to the tribes in question.

* * *

With the exception of private individuals, who are interested in the breeding and grading up of the sporting horse (trotters and runners) and a few others (considering the population) who go in for the heavier grades, Clydesdale, Percheron and Norman, we as a nation are singularly behindhand as breeders of the all round useful saddle horse; there are plenty of a kind, fancy gaited and bronchos, but the ideal war horse and hunter are few and far between.

Among the many subjects which are sure to occupy an important place in the question of army reorganization, the supply of suitable horses for military purposes must engage serious attention.

It is waste of time and money, with no object gained, for us to experiment, and in the end start on just what other nations, after many long years and enormous expense have to hand. Take for instance the Arab; it has been found that he does not, and never can, come up to expectations as a weight carrier and long distance horse any more than he can make the speed of the present time racer.

It is true that all of our fastest horses are direct descendants of the Arab, and although superior to his ancestors of a hundred years ago, the race horse of to day is lacking in that degree of stoutness so necessary in the military horse. Even races have been made shorter to accommodate the increased speed and decreased stamina.

Records are lacking that show the conditions of distance and weight before 1700; but there is plenty of evidence to show what race horses were required to do during the eighteenth century; then the race horse was an animal combining speed with stoutness. The early thoroughbred, like the Arab of to-day, lacked size; he averaged little more than 14.2 in height, in this respect resembling the three famous sires from which all modern race horses are descended.

The Byerly Turk, imported to England in 1689; the

Darley Arabian, 1730; and the Godolphin Arabian 1730, were all under 14.2 hands in height. These mere ponies, compared with the thoroughbred of to-day, performed the tasks which we read of in old turf records between 1718 and 1764.

During October, 1718, at Newmarket, twenty-three matches were made, and in twenty-two the distance was four miles.

A match of the old style was always run in three heats; four miles was the usual length of a race, but six-mile races were not uncommon.

The weights prescribed by law varied from 140 to 168 pounds.

In the endeavor to breed for greater speed, bigger and longer striding animals were produced. Admiral Rous writing in the year 1806, said that the English race horse had increased an inch in height in every twenty-five years since 1700.

Such horses as "Shark" and "Hambletonian" had bone and substance; they had extraordinary stamina, staying power and ability to carry weight.

"Shark" was foaled in 1771, was got by "Marsk" from a mare by "Snap"; he started twenty-nine times and won nineteen times, receiving six forfeits and paying four; he made more money up to his time than any other horse. "Shark" came to America in 1786, and in Virginia laid the foundation of the famous Snap blood.

"Hambletonian" was foaled in 1732; he was got by "King Fergus" from a mare by "Highflyer," and was bred by Mr. J. Hutchinson, of Skipton, near York. "Hambletonian" was only once beaten; on that occasion (at York, August, 1797) he ran out of the course just after starting. There are a great many direct descendants of this wonderful horse in the United States

These animals could be depended on to run three four-mile heats in one afternoon, and could be depended on to get stock with their own valuable characteristics.

The modern race horse has undergone a great change from his progenitor of a century ago. It is well known that in breeding of every species of animal the endeavor to obtain one quality, when it succeeds to produce the quality sought in greater proportion, often produces manifest deterioration in other attributes. Such has been the consequence of aiming solely at speed; other essentials, such as strength and endurance, have been in a great measure lost.

The foregoing is merely to show that we have the blood in our own country that could produce animals (properly crossed) second to none in the world.

In my report on the British remount system, published in the CAVALRY JOURNAL some months ago, I tried to show that we had better advantages, as regards room, forage, pastures, etc., than any country in Europe; I also recommended as a remount system a combination of the European and British.

To produce the best, there must be the right kind of stallions and mares to commence on; in all foreign countries that have accomplished the best results, the thoroughbred blood predominates; it seems as if what is known as the hackney breed (really a half-breed) or mares on that order, about the merits of which as regards history and breeding something must be known, as it is useless for breeding purposes to take stud or dam merely on their looks. The studs should be thoroughbreds with good records, especially in regard to their stamina and progeny.

The old breed of Norfolk trotters, which is fast dying out were sought after as crossers, chiefly on account of their staying powers; they are compact built, cobs, rarely measuring much over 14.2. It is no uncommon thing in Norfolk to-day to get up behind one of these hardy little horses and doing eighteen miles within the hour.

The idea of starting a breeding establishment in the Philippine Islands, judging from records of horse breeding in the tropics, is almost certainly doomed to disappointment. If it were feasible, the practice of taking any weed of a mare and using the mongrel stallions that have been shipped here from time to time, in itself must spell failure; but the main factor against it is the knowledge that (quoting from Sir Walter Gilbey, one of the foremost authorities on the sub-

ject, and from whose book on "Horse Breeding" most of the above is taken):

"Climate and the prevailing normal conditions of life are paramount in determining what the size and character of the horse of any given country shall be."

Again, Major General Sir John Watson, an experienced Indian horse man, speaking on England's endeavor to create an Anglo-Indian type of horse, capable of reproducing itself, says it can never succeed; the endeavor has been persevered in for a century, has failed, and will fail, "for we are fighting against nature, and nature will beat us in the long run."

The late Colonel Hallen, Army Veterinary Department, for over thirty years general superintendent of horse breeding operations in India, expressed the following views in his report on the subject:

"In temperate climes, with good feed, horses of great size can be produced and depended on to maintain their size. In very hot countries, which offer comparatively poor feed, such as Arabia, Persia, and northern India, we find the native races small, wiry and active. Again, in cold countries we find the smallest and most stunted horses. In India, the old stud department, for various reasons, failed to establish an improved breed of horses in the eighty years of its existence.

"It is almost hopeless to try and override the natural laws which determine the size of the horse of any country without materially impairing its valuable qualities."

The Colonel added that it is unreasonable to expect that the reorganized Horse-Breeding Department should have accomplished the task during the twenty odd years it has been at work; seventeen years have elapsed since then, and although the Indian government started with 300 stallions no good results have been accomplished as regards the improvement of the home bred animal for army remounts.

The Walers shipped in from Australia, when seen after shipping and the long sea voyage, did not impress one very favorably at first sight; they seemed to lack bone, were too long coupled, and in general had rather a weedy appearance.

But many who were prejudiced at first, have changed their opinions; since these horses have been filled up and handled they have improved one hundred per cent. and have become very likely looking remounts. It is certain that they came from good blood, as there are very few besides thoroughbreds and half-breds among this class of horses in Australia. Although no severe tests have been imposed upon them as yet, there is every likelihood of them proving to be a very useful mount for the kind of work that troops have in the Philippines.

The average price paid for these mounts would not call for the best class of horses for remounts that could be bought in Australia.

Without going into details regarding a national system of horse breeding, which would benefit the farmer, small breeder and large breeder alike, it seems to me that a general distribution of picked stallions, of the breed most suited to the needs of the local community, either by the United States government or by each individual State, would be of profit to the nation at large, and the military service would then be able to obtain suitable remounts from the breeder direct, as of course a system of registration would be kept of mares covered and foals born. This would do away with the sinking fund caused by the employment of middle men. The nominal fees charged would more than reimburse the expense involved.

A selected number of young horses and mares could be sent to the remount farms for breeding purposes. The animals bought could be sent to the remount depots for handling and training until old enough to be forwarded to regiments.

In this way combining the Continental and English systems, a perfect and permanent mount for the army could be assured in a few years, at much less expense than the present method of supplying the doubtful class of animals that are now furnished our service.

MACHINE GUN ORGANIZATION, EQUIPMENT AND ARMS.

By First Lieutenant ALBERT E. PHILLIPS, Tenth Cavalry.

THE tactical employment of weapons in war are usually based first on their characteristics, though sometimes a weapon is invented to supply a need, and its tactics are thus decided before its birth.

The characteristics of the machine gun and its tactics largely influence its organization. Our machine gun platoons have officially been in existence since July, 1906, and have had varying degrees of success, depending largely upon the interest taken in, and the assistance afforded by, superior commanders in furthering the experiment.

Colonel Macomb truly said: "Just now these platoons seem to be beggars and orphans, meeting with many rebuffs and not at all popular, having no special home of their own, and living like a pauper family, broken up and divided for support among its kinsmen."

A provisional organization was necessary during the experimental stage of development, but that stage has been passed, and it is with the organization believed to be the most applicable to the Maxim machine gun, which has been adopted by our army, that this article is principally concerned.

Several able officers have suggested a trial of the Rexar gun for the cavalry, principally on account of its portability; a doubt existed as to the mobility of the Maxim, it being thought too cumbersome and slow in coming into action, repacking, etc. The Rexar (Danish) gun is, in general appearance, similar to a rifle, and is fired with the shoulder as a support. Its weight and action require that it be fired from the prone position only. The gunner receives a part of the

recoil and consequent vibration, and its accuracy depends largely upon the nerves of the firer. It cannot cover an area or follow a target with the accuracy of a gun mounted upon a tripod. Its rapidity of fire is less than the Maxim.

The weight of the Rexar is given as 16 5 pounds, and this is the principal reason advanced for its adoption by the cavalry. But this is misleading, in that we must not only consider the weight of the gun, but the weight carried by the gun animal. In the case of the Rexar, the gun is carried on the gunner's horse, while the Maxim requires a mount for gunner and one for the gun and tripod. The gunner's mount, Rexar, includes gun, saddle, 400 rounds of ammunition and kit, and the weight is given as 100 6 pounds. If we add to this the weight of the gunner, averaging let us say, 165 pounds, we have 265.6 pounds to be carried by the gun horse.

With the Rexar there is a saving of one pack animal.

The weight of the Maxim with water jacket filled is 74.5 pounds; tripod with cleaning rod 78 pounds. The weight of pack, English model saddle, is given as 266.95 pounds. This weight includes an extra barrel of 7.5 pounds, but does not include any ammunition. The English model ammunition packs average about 280 pounds.

From the above it will be seen that the weight carried by the gun animals of both types of gun is practically the same. And as the ammunition which would be used with either gun would undoubtedly be the service ammunition, the subject must also be considered from the standpoint of facility of ammunition transport.

The Maxim being heavier, there is, therefore, less recoil and vibration and consequently greater accuracy.

The Maxim gun is not slow in coming into action or in repacking. In a well trained cavalry organization the gun can be unpacked, set up, loaded, aimed and fired in less than twenty-five seconds. In the last department meet (Luzon 1907) one of the guns of the Tenth Cavalry platoon was unpacked, loaded, aimed and fired in seventeen seconds. In this instance the gun squad was dismounted.

With improvements in the pack outfits, better time can be made. This subject will be considered later.

To accomplish the purposes of machine guns, the two most important factors are mobility and efficiency. To acquire the former, there must be a reduction in the weights of loads now carried or the loads must be carried in a different manner, and all organizations should be mounted. For the latter, sufficient men having the intelligence and ability to acquire the requisite knowledge to efficiently perform their duties must be assigned. It is recognized there will exist a difference of opinion as to mounting all machine gun organizations.

General Alderson (England), having commanded a brigade in South Africa, his remarks on the mounting of machine gun units are well worth our consideration.

"I am of the opinion, if the most is to be got out of the guns, the detachments, even with infantry, should be mounted.

"The tendency of a pack animal led by a man on foot seems to be to go slower than the man would go without it. Hence machine guns easily get behind infantry, and are unable to make up ground lost by necessary detours, by the time taken in going into and coming out of action, etc., nor can they be quickly sent to a position in advance or on a flank, etc. With the mounted detachment, it is quite different. There is no question about the guns keeping up, and they can be sent quickly to any desired position.

"They can hold on to any such position as long as required, to cover the advance or retirement of their infantry, and then easily catch them up or get into another position. In fact, if the detachments are mounted, the value of the gun is more than doubled. * * * With the detachments unmounted, they are not mobile enough to a brigadier, because he cannot get them where he wants them in time."

The innumerable uses of machine guns demand mobility greater than infantry. Machine gun organizations in almost every army are mounted, and if ours are not, we shall lose a decided tactical advantage.

The smallest unit in our army which combines tactical and administrative functions is the company, troop or battery. Tactical efficiency being its prime requisite should be the basis of the first computation of the strength of its components. The result must then be modified to obtain administrative, without loss of tactical efficiency. To obtain the requisite tactical efficiency we must have an ample number of men, yet there is a limit to the number of men who can be economically employed, and we must not exceed that limit.

Colonel McClernand, who was an observer with the armies in Manchuria, reports: "The loss among men serving machine guns is usually great, and this requires that a large number be trained in each regiment to use them."

The efficient service of the gun demands a squad of five men, one of whom should hold rank. This number of men provides two to each side of the gun mule to unpack gun and tripod respectively, and the fifth man to take down tool box and ammunition boxes.

The rapid consumption of ammunition requires celerity in its replenishment, and two men of the gun squad would be utilized for this purpose.

A leader for each gun mule is necessary. Without being wasteful, but solely for efficiency, there should be a leader for each ammunition mule, whose load must be instantly available, at least in a mounted organization. We have but four ammunition mules in each section, the loads of which should be immediately available.

In dismounting for action, it is simpler, quicker and better for conducting the led animals, if each man of the gun squad has a leader or driver on his right, to whom he may pass his reins. If the platoon or battery is marching in column, with the gun mules of each section followed by the four ammunition mules of their respective sections, with chiefs of section at the head of their respective sections, the organization is then in almost instant readiness for action in any direction. In case of action to either flank, the guns have about their normal interval, and the column is not too long for quick frontal fire or fire to the rear, especially if the

guns move to a flank and halt in echelon. The led animals, which include horses of the gun squads, require protection, so it makes for economy as well as efficiency if each of the four ammunition mules of a section has a leader. A non-commissioned officer must be in command of each section thus composed.

It is believed that an organization of four guns, peace strength, expandable to six guns, war strength, would be the least expensive and most suitable, and could conveniently be organized to conform to the strength in men and horses of a troop of cavalry. This number of guns does not permit assigning two to each squadron in time of peace, and the writer is of the opinion they should not be so assigned except temporarily for a special mission. It is submitted that, as a general principle, the best results will be obtained from their collective action.

This gives us a firing battery of four sections, each section composed as follows:

1 sergeant, chief of section,	
1 corporal, gunner,	Gun squad.
3 privates,	
5 privates (drivers),	
10 total.	

The chief of section should have immediate charge of all material, animals, etc., of his section and, in action, observe, direct and control the fire of his piece, under direction of his platoon or battery commander.

There would be, then:

4 sergeants,
4 corporals,
32 privates.

Exercises in maneuver require a guidon. One sergeant is therefore added, who, in action would have immediate charge of the led animals of the firing battery.

As an assistant to the captain in the performance of fire observance and control, signal, casualties, etc., one sergeant is added.

For the service of security and communication, as range

takers, position finders, etc., two corporals are added, one for each platoon.

The necessity for two trumpeters is obvious. In an executive or administrative capacity, we must have a first sergeant, a quartermaster sergeant and two cooks. As the quartermaster sergeant will have charge of the property "in hand," there should be a stable sergeant to properly care for the animals, stables, etc.

The number of animals demand the services of two horseshoers. One farrier and one saddler are necessary. There should be a competent mechanic, a man qualified to make repairs to the guns, pack-saddles, etc.

The enlisted personnel would consist of, then:

First sergeant	1
Quartermaster sergeant	1
Stable sergeant	1
Sergeants	6
Corporals	6
Cooks	2
Horseshoers	2
Farrier	1
Saddler	1
Chief mechanic	1
Trumpeters	2
Privates	32
Total	56

It is believed that a better and more suitable title should be given the men now designated "Farriers and Blacksmiths" and the following is offered: Designate farriers "Veterinary Corporals," and blacksmiths, "Horseshoers."

It is assumed that as many complete elements should be maintained in a battery as are necessary to its prompt expansion into an efficient unit for war service, especially so in a mounted machine gun organization which, for efficiency, demands a high degree of tactical and technical training.

THE TRAIN.

The train for a pack organization should consist of "pack transportation." Experienced packers, and at the same time good machine gun men and a well organized pack train cannot be made in a day and, while it would be extravagant to keep the train "horsed" for war service, its organization in-

volves not only the personnel necessary for this service during "times of peace," but sufficient trained personnel as a nucleus for the organization of additional gun and pack elements when the possibility of war appears.

The number of privates provided for each section contemplates the actual number required for the "manning" of the section, no provision having been made for the replacement of the guard, fatigue, stable duty, sick, in confinement, casualties, absentees, etc., therefore, in the organization of the necessary train for peace service, if the requisite number of privates are provided, we shall have men for such contingencies, a trained nucleus for war service and a support for the guns in outbreaks or any emergency requiring actual campaigning during peace. Keeping these premises in view, and at the same time not exceeding the limit to the number of men who can be economically employed, it is believed that nine privates added to the number previously estimated would be sufficient for the train. The enlisted strength of our organization would be then sixty-five men.

If to the enlisted strength there be added a captain to command the battery, a lieutenant to command each of the two platoons and another for reconnaissance work, who will be a trained "mitrailleuer" to command the third platoon when the battery is organized for war service, the personnel will be complete.

ANIMALS.

It is thought that sixty horses will be ample as mounts for the enlisted personnel, as from five to ten per cent. of the men are nearly always left in the post.

As the weights of our present experimental packs are already too great to permit the mules to maintain the gaits of cavalry for any considerable distance, and, as it is advisable to have the pioneer and intrenching tools accompany the guns (in infantry the men also carry their kits on the ammunition mules), one mule is provided for each section to carry this equipment, to reduce and equalize weights of packs in case a mule is killed or disabled, and to carry such other impedimenta as required

In view of the assumption that platoons will frequently be detached, it may seem desirable to make each platoon more nearly independent by the assignment of mules to carry the mechanics tools, stores, etc., and two mules are provided for each platoon.

To carry two days' rations for sixty-five men we shall need three pack mules. Two days' grain for sixty horses, plus four horses (officers'), six mules. Officers' baggage, etc., two mules.

The four gun and ammunition sections require twenty mules. Two days' grain for thirty nine mules, plus grain for the mules carrying these loads, four mules.

In the above statement no provision is shown for carrying the tentage ordinarily carried during peace maneuvers, etc., but as the eight mules carrying tools, etc., and the four mules with the grain for mules have light weight loads, the tentage might be carried on these mules. During a war campaign when tentage is not needed, these mules would have loads sufficiently heavy by the replacement of tentage with other stores.

Complete in all its details of men and animals, then the battery would be organized as follows:

OFFICERS.	
Captain	1
First lieutenants	2
Second lieutenant	1
Total	4

ENLISTED PERSONNEL.	
First sergeant	1
Quartermaster sergeant	1
Stable sergeant	1
Sergeants	6
Corporals	6
Cooks	2
Horseshoers	2
Farrier or veterinary corporal	1
Saddler	1
Chief mechanic	1
Trumpeters	2
Privates	41
Total enlisted	65

ANIMALS.	
Horses (officers')	4
Enlisted men	60
Total	64

PACK MULES.	
Firing battery:	
Four guns	4
Ammunition	16
Intrenching tools	4
Total	24
The Train:	
Mechanics tools, etc.	4
Rations	3
Forage	10
Officers' baggage, etc.	2
Total pack mules	43

The strength of enlisted personnel and horses is the same as prescribed for a troop of cavalry.

The number of pack mules to each section is increased by one over that now authorized.

Should wagon transportation be furnished instead of pack, three escort wagons would be required, so the number of mules in the proposed train (nineteen) is but seven more than would be required if wheel transportation be supplied, but to furnish wheel transportation to what might be termed a "pack organization" would be to impair its efficiency. Then again, in case a pack mule of one of the sections is killed or disabled, a mule of its kind would be at hand to carry its load, without seriously intefering with the transportation problem, and a trained packer and machine gun man would be available to replace a like man of a gun section.

BATTERY EQUIPMENT.

Before venturing to approach the portion of the subject of which this article treats relating to equipment and arms, it would be well to endeavor to clearly appreciate the rôle which the machine gun attached to cavalry is designed to fill and toward which equipment and arms are but as means to an end.

The value of the mounted troops in war depends on the increased mobility they possess in virtue of being mounted. And by mobility we mean not merely speed, but capacity to cover long distances at relatively high speed while still having something in hand at the end of the march for fighting or any other eventuality; and, like the proverbial weak link in the chain, the least mobile component of a cavalry command measures the mobility of the unit.

The machine gun with the cavalry should be a substitute for rifle fire rather than a supplement to it.

Movements in advance, to a flank, pursuits, rear guard actions, to check a turning column, to secure and hold positions until the arrival of the infantry, to move rapidly to other positions, allowing the cavalry to be more than ever, cavalry pure and simple, is a rôle which, for its accomplishment, makes it requisite that the machine gun organization attached to cavalry be equipped with guns, saddles, etc., the weights of which, and the manner of carrying the loads be such as to not hinder or impede the movements of the cavalry command.

It is not thought necessary to enter very deeply into details nor to examine and discuss the weight of every article. My idea is to bring forward points relating to equipment and arms which seem well suited to discussion.

The characteristic and ballistic elements of the Maxim give it precedence over the Danish gun (Madsen). And it has been shown that the weight of the Maxim does not compare unfavorably with the other gun, when the subject is considered from the standpoint of facility of ammunition transport, and the weight of load carried by the gun animal, if equipped with a suitable pack-saddle.

We now come to the subject of pack-saddles. So far no distinction has been made as to the equipment of our machine gun platoons, infantry and cavalry platoons having been equipped alike. We have been experimenting with the "aparejo" with Rice frame and with a modified English saddle, neither of which, for various reasons, seem suited for this special service.

While the "aparejo" is probably the best pack-saddle for general use, it is not suited for cavalry machine gun service. It is too cumbersome and heavy and requires experienced men to properly handle it. The weight of the gun and tripod pack (aparejo) is given in the hand book as 278.38 pounds. This does not include the box with tools and spare parts, or any ammunition, which should by all means be carried on the gun mule so as to be instantly available.

The weight of the "aparejo," without stuffing, is given as 53.75 pounds. The stuffed "aparejo" weighs about 60 pounds. The Rice frame weighs 29 pounds. Deducting the weight of the gun and tripod (152 pounds), our gun mules carry a saddle load of 131.63 pounds, on which to pack a load of 152 pounds, making the total weight of load 283.63 pounds.

The ammunition loads are 291.54 pounds, and 287.20

pounds; with the pick mattock, hatchet, shovels, etc., these packs will average over 300 pounds.

G. O. 46, Philippines Division, August 17, 1908, states:

"The standard load shall be from 200 to 300 pounds, depending on the size and strength of the animals and the conditions of the service. Care should be taken not to overtax animals, especially those not fully developed, while breaking and training them for field service, but they should be gradually hardened till they are able to carry the standard load for the distance of ten to twelve miles in a day's practice march."

Daly's manual of instruction for pack trains states: "Weight of load 300 pounds, maximum hourly travel five miles per hour, twenty miles per day, for sixty days continuously. * * * This applies to well organized and seasoned pack trains." Surely pack animals carrying such loads, on bulky saddles, suitable only to a mule gait cannot be expected to maintain the gaits of fast moving cavalry for any considerable distance.

The usual gaits of our pack trains are the walk or amble and fox trot. Increased gaits and frequent halts are harder on pack animals than continuous marching, and in time of peace our pack trains usually do not halt, but continue the march until camp is reached.

The English saddle consists, in brief, of two leather panels, with canvas pads sewn to the panels. In the upper right and left hand corners two pieces of leather are sewn to the flap around three edges. These form seats for the ends of the steel side bars of the frame, and are intended to hold the panels and frame together. They soon rip out and then the saddle breaks down. The hair padding gets matted and produces swellings, and there is no way to remedy it without ripping the saddle. The side bars are small and produce swellings of their size and shape. Rain falls between the panels, wetting the blanket and pads. The canvas pads soon wear out. In case of a broken frame it is rather difficult to pack the loads. However, it may here be stated that several platoon commanders have recommended this

saddle in preference to the "aparejo," principally on account of its light weight. We must have a pack saddle of a simple, solid, light pattern, permitting the machine gun to follow the cavalry across country at all gaits—a pattern that will not injure the animal's back; one on which the loads might be lashed with the diamond or other hitch in case of a broken frame. We must have a frame-work built to fit an animal's back, and not only built to fit the saddle or pad. The hangers should be close fitting and tightly fastened near the body of the animal, without compression of the sides, the center of gravity being neither too high or too low, giving full play to the animal's muscles, and to its breathing movements; in short, a cavalry equipment more like a saddle to carry a man than like a pack-saddle. The dimensions of the gun, the tripod and the cases should be considered in the construction of the saddle. Keeping these premises in view, the writer has devised and had built under his supervision, a pack outfit designed to fill all of the above requisites and to overcome all objectionable features of the two saddles now in use. With this saddle, the Maxim gun is not too heavy to accompany cavalry across country at all gaits.

The new saddle may be stuffed while on the animal's back, thus being assured of correct distribution of filling material. Rain cannot fall between the pads, wetting the blanket, as in the English saddle. It has no leather pockets to rip out. It is made almost entirely of leather and will outwear several English saddles. In case of breakdown of frame or hanger the load may be lashed with a diamond, squaw or other hitch. The frame is constructed along principles differing from either of the two now in use and weighs considerably less.

The frame for the gun and tripod packs is arranged to carry two boxes of ammunition, but more may be carried if desired. The load is not high riding, is carried so as to disturb as little as possible the natural center of gravity, allowing the animal to maintain its equilibrium and consequent free movements at all gaits.

The pack has fewer parts and weighs less than the English model.

EQUIPMENT.

Horse and Individual.

It is believed that the horse and individual equipment should be the same as issued to the cavalry.

Arms—Individual.

Opinions differ as to the advisability of retaining the rifle, though all seem to agree that each machine gun soldier should carry a revolver.

The saber is in the way and should be discarded.

Considering only mounted organizations, the rifle would be carried on the horse and would not be in the way. The battery would not have to depend upon other troops for support.

As the men of the gun squads do not lead mules, these men would be available for work with rifles against patrols, small bodies, etc., making it unnecessary for the machine gun to go into action against such bodies, and covering the withdrawal of the last gun on the firing line.

Careful training with the rifle is requisite for efficient service of a machine gun.

As the proposed organization conforms in enlisted strength to that of a troop of cavalry, it may be used as cavalry, as the men of the present cavalry platoons may be used, for those occasions when fast work is required and machine guns are not needed.

If, in the organization of mounted machine gun units, the rifle is retained as an individual arm, there would be created a combatant force containing the greatest degree of fire power combined with independence, mobility and flexibility.

UNIFORMITY IN THE TROOP.

By Captain CORNELIUS C. SMITH, Fourteenth Cavalry.

IN writing on this topic no criticism of army regulations is intended. On the contrary all rules for the uniformity of organizations are what they should be, as far as they go, but in some cases seem limited.

In the discussion of the subject it will be necessary, in a few cases, to get away from the main question, but this is for the purpose of ultimately reaching it more fully and satisfactorily. No doubt my views will not be fully concurred in throughout, and if some who read this paper know better methods for effecting what it strives for, or some points not touched on here, I will be glad to hear from them.

It is hardly necessary to assert that to attain results constant and painstaking efforts are needed on the part of the officer commanding the organization. His attention must be so steady, and his judgment such, that the interest and attention of his men be kept.

In order to attain good results in making uniformity in and about the barracks and stables, the use of the troop fund should not be hampered, especially as this money is, as a rule, the result of the ingenuity of the organization commander, and, strictly speaking, belongs to the men under him for all purposes of improvement.

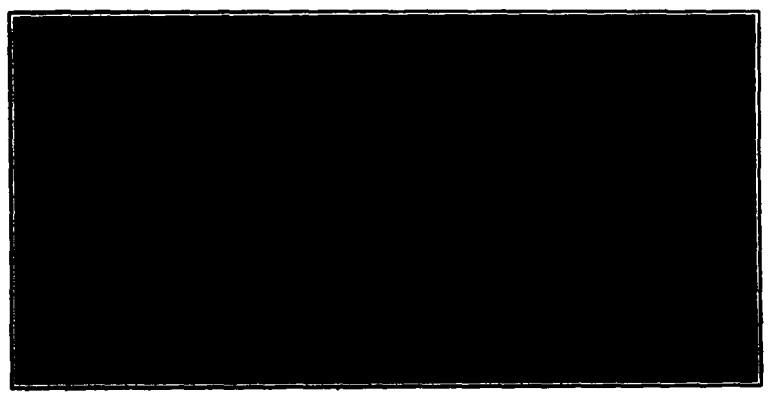
Regulations state (Par. 319): "The purchase from * * * company funds of any article which can be obtained on requisition from a supply department is forbidden." This ought to be most liberally construed by all authorized fund book inspectors, and no fault should be found by them when reasonable expenditures, which apparently conflict with this regulation, are made with the approval of the company council. As a matter of fact it is difficult to determine what should or what should not be purchased

with money of the fund, and for this reason I am of the opinion that the utmost liberality should be allowed a company, troop or battery commander in the expenditure of his fund. This argument seems especially potent when the talents of the organization commander produce the money of a fund.

Uniformity in the troop is best described under several different heads, viz: Uniformity of the men, among the horses, at the barracks, at the stables, etc. Each of the foregoing heads will be touched on in turn, and a few photographs are given to illustrate graphically this article.

G. O. No. 169, W. D., August 14, 1907, if carefully adhered to, will, as a rule, make the men of an organization comparatively similar in appearance. An inspection, however, by one who knows the niceties of military dress will reveal some things which should not be. For instance, in how many organizations will we find all the men wearing their campaign hats fixed in the same shape? In how many companies will all the men be found wearing the string on the hat to keep it from blowing off? What troop is there where some of the men do not have either the shoestring, legging string, or both, dangling?

Note the two following pictures, and what is meant by uniformity in the troop, in so far as the appearance of the men is concerned, will at once be apparent.

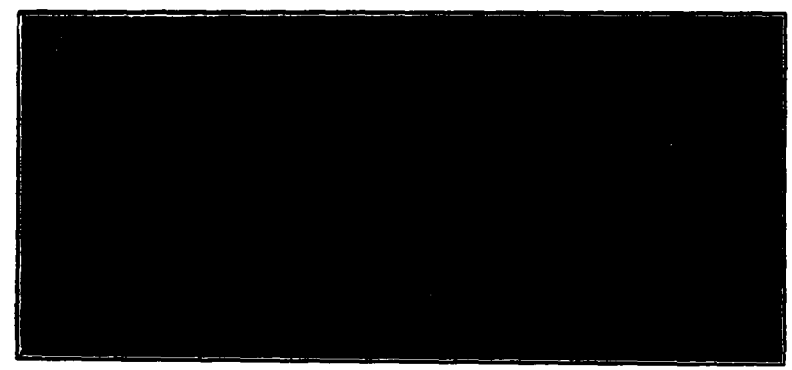


A "Sloppy Weather" Squad.

A Neat Squad.

Uniformity in horses of a troop is more satisfactorily attained if all are of the same color, so that in turning out for parades, etc., the platoons can be distinctive. In a sorrel troop the lightest colored animals might make up some of the platoons, with the chestnuts in others.

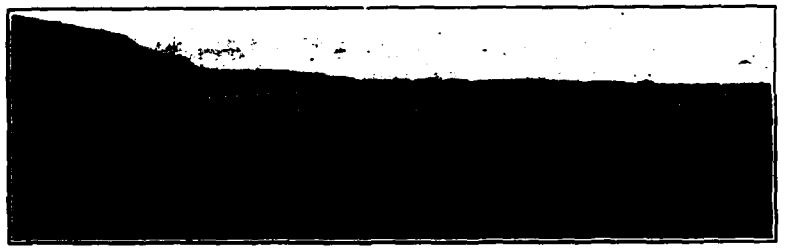
Each horse in line should be made to appear as much like his neighbor as is possible. The manes and tails well groomed, hoofs (on occasions of parade and ceremony) blackened, and shoes shined. The English straw brush (shown on top of rack in next picture) is the best for manes and tails, and if it can be procured in no other way, should be



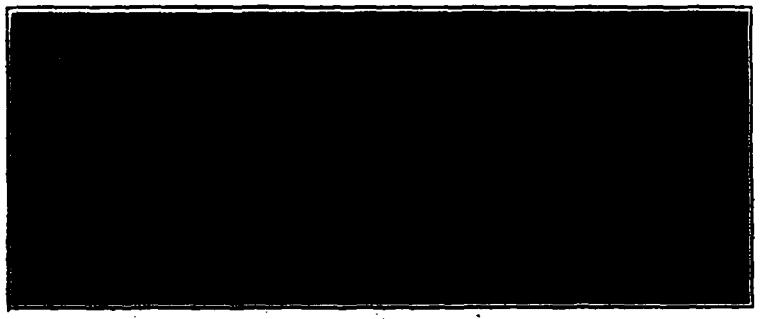
Curry-comb and Brush Rack.

purchased from the troop fund. Liquid shoe blacking gives fine results on the hoofs; shoes being polished with emery cloth.

Only systematic grooming will make a horse appear well taken care of at all times. A stated number of minutes should be spent by the groom on the near side of the animal (neck, body and legs), the same length of time on the off side, on the tail, and on the mane and forelock. Every man should be working on the same part of the horse at the same time so that the first sergeant may keep check to see that there is no loitering. The photographs following show the result of the foregoing method of grooming, and grooming as explained.



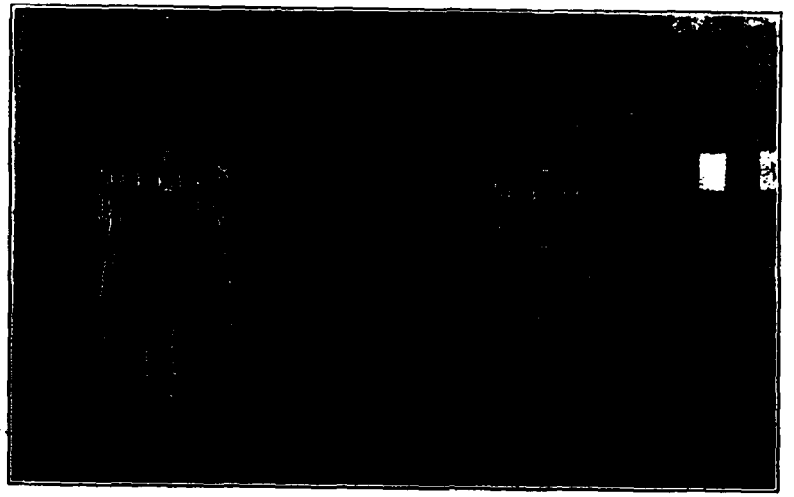
SOME GOOD MANES.



SOME WELL GROOMED TAILS.

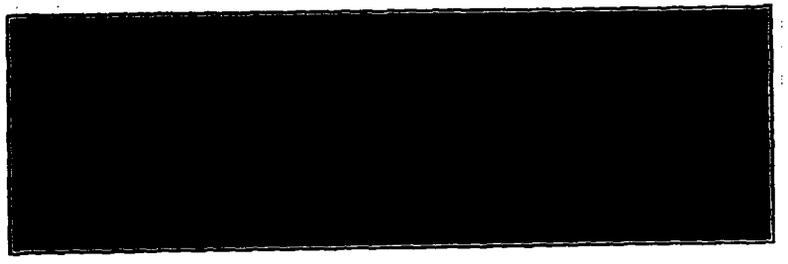
"BRUSH OUT THE TAIL."

To make the barracks uniform in appearance every box locker should contain the same articles, arranged in each exactly alike. Each man's clothing should be hung on the wall (each man should be supplied with at least three coat hangers from troop fund) as is his neighbor's. The equipment is to be kept together. The next picture will best illustrate this paragraph.



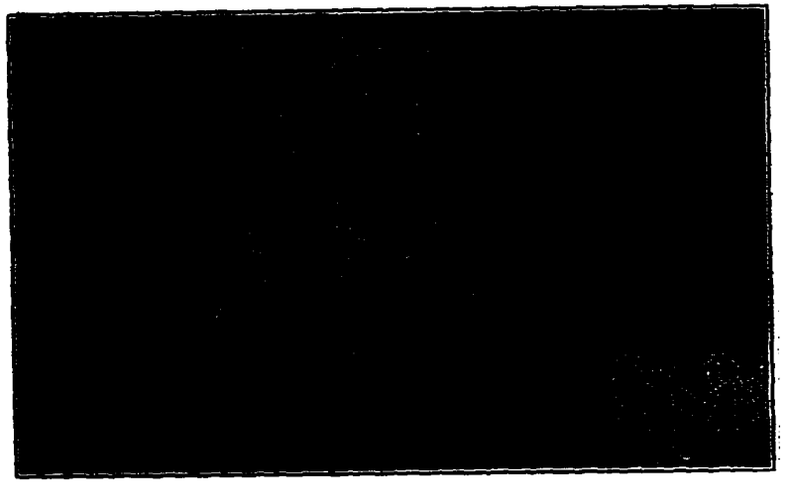
INTERIOR OF BARRACKS, SHOWING ARMS AND EQUIPMENTS.

At the stables it is very satisfactory to have everything in uniform shape. The currycomb and brush rack shown in a picture in another part of this paper indicates how this part of the kit may be kept. Racks should be provided for all rifles and sabers at the stables for use while the men are saddling and unsaddling. These are shown in the next picture.



RIFLE AND SABER RACKS AT STABLES.

The one peg allotted each trooper for his saddle and part of his equipment is by no means sufficient to keep a neat, uniform looking saddle room. I have given each man of my troop three pegs, as per picture following.



INTERIOR OF SADDLE ROOM.

The giving of so many pegs to each man entails work, as the saddle rooms provided contain, as a rule, only enough pegs for giving one to each trooper, and in order to provide three, others must be made, and room must be found for additional saddle rooms. The satisfaction of not having the equipment cramped, the clearness with which it shows up for inspection, and the neat appearance of the saddle room in general, pays many times over for all the work and trouble one goes to.

NOTES ON A TRIP THROUGH INDIA.

By Major W. C. BROWN, Third U. S. Cavalry.

I ARRIVED in India at Tuticorin from Java June 16th and proceeded thence to Calcutta, making short stops at Madura, Trichonopoly and Madras.

At Calcutta I called on the U. S. Consul, who kindly gave me letters to His Excellency, the Lieutenant Governor of Bengal, at the summer capital at Dargeeling; the Viceroy of India at Simla; and the Commissioner of the Northwest Provinces, Peshawar.

From Calcutta I proceeded to Dargeeling, which is reached by a two-foot gauge (almost a toy) railroad through fifty miles of the Himalaya Mountains. This road is quite a feat of engineering, and the problems solved in its construction are similar to those which will be met with if ever a railroad is constructed from Camp No. 1 to Baguio; in the Philippines. The trucks on this road carry four tons each, and the curves in the track are so sharp that in one or two instances a complete loop is made within a radius of about thirty-five yards.

Dargeeling is the summer capital of Bengal, and one of the most beautiful hill stations in India, being within sight of Mounts Everest, Kunchinganga, and a dozen or more peaks of 20,000 feet or more in height. It is garrisoned by a couple of companies of infantry, and is at the end of the trail leading across the Himalayas into Thibet, over a pass some 16,000 feet in height. I was told, however, that white men were not allowed in Thibet, and only a limited trade, by means of pack transportation, is carried on by natives.

I was very cordially received by the Governor, Sir Andrew Fraser, who expressed himself quite freely regarding the progress being made by the English in governing India. The government, he said, is trying to get the natives to depend more and more upon themselves, and while the progress is slow, it is gratifying to note—even in his own time—a marked improvement.

Years ago he said if one were asked whether the native petty officers could be depended upon, the reply would have been that such and such ones were all right, and could be depended upon, but on the whole they were not reliable.

Now the case is reversed, and the reply to the same question would be that so-and-so would doubtless accept a bribe, but on the whole they might be regarded as trustworthy. The proper way to go about it, he said, was to work with their head men—the natural leaders. It is only recently that this has been thoroughly appreciated by the British.

In giving franchise to the natives the best plan he finds is to let each class select their own electors for themselves, and from themselves. The farmers to select a farmer, the Mohammedans to select a Mohammedan, etc., and the men thus selected then vote for a man to represent the district. By this means the people are fairly represented in any matter at issue.

The second in authority in Bengal is now a native—something impossible twenty years ago.

Important posts in the judiciary have been held for many years by natives, whose acts and rulings necessarily have to be in the open—as in open court—where wrong doing is easily detected. A dishonest executive, however, can more easily cover up his tracks.

At Benares I called upon Major W. C. Nicholson, commanding the Eighteenth Infantry, and was very hospitably received and entertained that evening at the officers' mess. The regimental mess is so prominent a feature of the social part of the military establishment as to deserve more than a passing mention.

Unmarried officers are by regulations required to belong to the mess and to take their meals there. In reply to my query as to what would happen if an officer elected to run his own mess, I was told that the unmarried officer would have to pay his share of the mess bill anyhow, and in event

of his not taking his meals at the mess he would be called to account by the colonel for not doing so.

While in India I was entertained at a number of these regimental messes, which are handsomely furnished, and enable officers to subsist far more economically than when messing separately or in small messes.

They afford officers a means of entertaining foreign officers and other strangers in a manner creditable alike to their regiment and service; but better than all, they bring officers together several times a day, thus affording means of transacting minor matters of business and an interchange of ideas on professional subjects, as well as the promotion of harmony and a regimental *esprit de corps* among the officers themselves.

The mess building is used for courts martial and courts of inquiry. Married officers attend their formal monthly mess dinners. It is to be regretted that such messes are with us the exception rather than the rule. The Britisher is a great sportsman, and takes a just pride in decorating his mess table and the walls of his mess rooms with the trophies of sport and the hunt. The morning on which I was entertained at the First Lancers, Captain Macauley of that regiment had just returned from a tiger hunt in the southern provinces, bringing back nine tiger skins, one measuring ten feet from tip to tip; three of these animals he shot within a period of about twenty minutes.

Upon inquiry I learned that they do not have garrison schools for officers as we do.

Those who have taken the course at Sandhurst tell me that the actual work there covers a period of only about nine months.

They have examinations for promotion for officers of all grades up to and including the second in command, and while there is no direct law penalty of discharge from the service awaiting them who fail, as is the case in our army, there seems to be no "let up" on that account on the part of officers to pass; for an officer who fails in his examination may be indirectly forced out of service.

One officer who had been appointed to the service without an examination, said that the examination came particularly hard on him by reason of this, and that officers frequently, just before examinations, paid twenty pounds ($100) per month to be coached for the ordeal. No officer can be promoted to a captaincy in the Indian army until he has first passed the School of Musketry. The examination for majors to determine their fitness for promotion to lieutenant colonel usually consists in the solution of a field problem, and no officer can be promoted to the command of a regiment until he has passed his examination.

There is a Staff College at Quetta. The competition for places at this college is very keen. Graduates have the letters "P. S. C." (passed staff college) after their names on army lists, and, generally speaking, it is from these that staff officers are selected. It would seem that we might to advantage follow the British plan and show more fully an officer's record in our monthly army list.

Officers get two months leave a year, counting from the time they leave their station until they return. Those stationed on the extreme frontier get three months leave.

I was informed that in India quarters in kind are not supplied. Officers rent their own quarters, even though these may be government property. The amounts assessed for rent of quarters are: Subalterns, 50 rupees ($16.00) per month; majors, 70 rupees ($22.00) per month; lieutenant colonels, 100 rupees ($32.00) per month.

The furlough provisions for native soldiers are very liberal, especially during the hot season. They said, "We must do this or we can't get the men." These extended furloughs enable men to go home and do considerable work on their farms, and they frequently bring back recruits with them. When going to their homes on furlough they get free transportation.

The pay of the native infantryman is, on entering the service, 9 rupees ($3.00), with an extra 3 rupees ($1.00) per month for subsistence.

The system of recruiting is territorial, but scrupulous care is taken not to get men of different castes in the same organization.

When men prove to be unsuited to the service it seems to be easier to secure their discharge than in our army. If a soldier of less than three years' service is "unlikely to become a good infantry or cavalry soldier," he may be discharged by the colonel of the regiment. After three years of service the man may claim his own discharge, but there are certain restrictions as to this, so that he does not often take advantage of it.

On the following morning, by appointment, I proceeded to the parade ground, where the recruits were being drilled. I was shown one of the company store rooms, and a private was turned out in full field equipment for my inspection.

My attention was called to a sleeveless rain coat, or cape, of willesdenized canvas, which seemed to be regarded with much favor; also a short overcoat of loosely woven woolen material, lined, and very warm, and yet not long enough to impede the legs in marching.

When in the field, on marches, maneuvers, etc., the weight carried by the native infantryman consists of his rifle, 100 rounds of ammunition, three days' rations and but little else. His load is thus considerably lighter than ours.

Their shelter tent is of willesdenized canvas, rather heavier than ours. I think ours is the superior article.

It was noticed that this regiment was equipped with aluminum canteens of the German pattern.

The advisability of an aluminum canteen was investigated and reported upon by the writer no less than fifteen years ago, when the Germans and French were just equipping their troops with it, and the opinion is expressed now, as then, that it is the best, cleanest, and in the long run the cheapest. The tin canteen becomes quickly rusty inside, its shape renders carrying it less convenient than the German pattern, which is concave on the side next the body. The felt covering, secured on the aluminum canteen by means of snap buttons, is easily removable, so that the canteens of a company can be periodically taken in and boiled, thus rendering them clean and sterile.

Attention in this connection is invited to the recommendations on this subject of our military observers in the Russo-Japanese War.

Their field cooking outfit is a marvel of lightness and compactness, being made of aluminum, and the various utensils "nest," so as to afford a maximum of capacity for a minimum of bulk. This is on similar lines to cooking outfits sold in the United States by dealers in sportsmen's supplies. This light, cleanly and compact arrangement suggests ideas for the improvement in our own company kitchen outfits.

Mosquito bars are used by enlisted men to a limited extent only.

To illustrate the difficulties of government in India, where caste is so predominant a feature, I was told that when measures were first taken to put in water pipes in some large city (Lucknow, I think), it was found that, were the water put in, one of the principal castes would not use it, as the tenets of their religion forbade the use of water coming through

pipes or any such means prepared by the hand of man. Finally after serious consultation by their priests in Calcutta the use of water so obtained was decided to be permissible. One of the principal causes of the Indian mutiny, it should be remembered, was the compelling of native soldiers in loading their muskets to bite the ends of paper cartridges which were sealed with tallow and butter, the touching of the mouth with any such substance being regarded by the Mohammedans and Hindus with horror.

As my visit to India was during the hot season I saw mainly recruit drills, and in these much latitude is permitted in the matter of uniform, both with officers and men, civilian clothing frequently being worn. The helmet for Europeans is regarded as a necessity, and attached to the rear a sort of apron is frequently worn to protect the nape of the neck from the direct rays of the sun.

On the khaki coat officers wear a neat, stamped, dark brown leather button, instead of the bronze button worn by us.

On June 30th I visited by appointment the First (Duke of York's Own) Lancers, and was shown there their barracks and stables by Major H. L. Roberts, commanding the regiment. The mounts of this regiment of four squadrons are serviceable horses about 14½ to 14¾ hands in height.

Men are armed with the lance, a curved saber and rifle. Each squadron is provided with a pioneer equipment consisting of:

One axe, felling, curved.
Six axes, pick (simply an ordinary small pick).
Four bill hooks.
One spoke shave.
Twenty shovels (small pointed shovel with a T handle).
Two spare helves for pick axes.
Four spare handles for shovels.

They had ordinary litters for carrying wounded such as we used in the U. S. service, but the feet are provided with wheels three and one-half inches in diameter.

They also had a number of blanket litters which are

essentially the same as what we improvise from the shelter half and a couple of rifles.

I was shown the Patterson carrier for the rifle, and was told that on account of frequent breakages it had been condemned as a means of carrying the rifle. Major Rogers is inclined to the opinion that the faults might be remedied. I certainly agree with him, and have heard other officers express the same opinion. Our scabbard is not satisfactory, and something on the lines of the Patterson carrier is the most practicable method which I have seen for carrying the rifle. For illustrations see pages 618–622, CAVALRY JOURNAL for April, 1906.

This regiment is shortly to make a change of station by marching, and they informed me that from twelve to fourteen miles a day would be about their rate of march.

The men furnish their own mounts and transportation, the latter consisting of one small pack mule with pack saddle to each two men. This mule carries about 180 pounds, and the "Syce," or native servant, who rides him. The "Syce" is the servant of the two native soldiers, who pay him from their personal funds for his services.

This being the slack season, about thirty per cent. of the men were off on furlough. These furloughs are for quite long periods, up to about seven months.

Men are allowed to take their horses with them on furlough. A horse which dies in service is replaced without cost to the soldier.

The quarters of the native soldiers are quite primitive, with dirt floors, and built at their own expense, with thick brick walls, parallel to and close to the stables. In this regiment they are divided into rooms so as to give two men to a room.

Horses are kept in stable during the day time and out on the picket line at night.

The method of securing horses, quite different from ours, deserves mention. Instead of being tied by a halter strap to a picket line they are secured by a long, six to eight-foot rope, from a peg to a hind fetlock joint and by a short, two-

to three-foot rope, running from a peg to the opposite front foot. Occasionally both hind feet are secured.

This method of securing horses was later noticed in the Royal Dragoons.

Horses are groomed two or three times a day, but they get neither herding nor grazing, nor do they have a corral in which to roam about at will.

On July 1st, I visited the Twenty-fourth Punjabi "lines," as they call their barracks, and was shown about by Majors H. A. V. Cummins and S. H. Climo.

At the time of my visit about one-third of the regiment was absent on furlough, but the remainder presented a fine, snappy appearance, both in the execution of movements and in their dress.

The white officers are mounted, which I understand to be the rule in all the native regiments.

The barracks are single story, with thick mud walls, dirt floors, constructed at the expense of the men of the regiment.

The men sleep on primitive cots of their own manufacture, and are doubtless satisfied with these accommodations, as they are rather better on the whole than what they have been accustomed to in their homes.

There appears to be in garrison no system of company mess, such as obtains in our service, but the men get so much and find their own subsistence.

As to clothing, the men get upon enlistment 60 rupees ($20), which is enough to provide him with a full kit. This is supplemented by a small additional periodical allowance. The company commander assists the men by making contracts for cloth, detailing a man on special duty as tailor, etc.

Each battalion has its Maxim gun detachment, the guns being carried on pack mules—rather small but serviceable animals.

The rifles, cartridge belts, ammunition, etc., are kept under lock and key in a small room adjoining barracks, called "The Bell of Arms." This rule is general, is very strictly enforced, and includes such private arms as the men may have.

I was shown by Major E. Mackins, commanding the Royal Dragoons, the stables of that regiment, where they have mostly Australian remounts costing forty-five pounds each.

They will average 15½ hands in height, look sleek and well kept, and of quite a uniform grade. As a class or grade they are somewhat superior to the remounts which we have recently bought in Australia and delivered in Manila for $136.00. These horses, however, are by no means worth $85.00 each more than ours, that being the difference in cost. There are a few Hungarian and Argentine horses in this regiment of about the same stamp as the Australian horse.

They keep their horses in the stable in the day time and on the outside at night. They are bedded with sand, which

seems to answer the purpose, and is more economical than straw. Their horses are usually "cast" at fifteen years of age.

There is one "Syce" (native groom) employed to about every three horses. They assist in the care of horses, grooming and stable police generally.

Their forage allowance is twenty pounds of dry grass, roots and all, and ten pounds of grain, composed partly of bran and partly of crushed oats.

Horses' eyes are protected from flies by an eye fringe. This rule seems to be general in all mounted organizations, as I noticed its use subsequently at the remount depots of Saharanpur and Amednaga.

There was no corral, and no running water available.

I was also shown there one or two of the barrack rooms in this regiment. Men sleep on iron bunks without springs.

They have the new short rifle, which they regard with much favor. The saber is dull with bright steel scabbard, not up-to-date. They also carry the lance, but do not think much of it as a practicable weapon, largely on account of the difficulty in carrying it.

At the Royal Dragoons I was also shown in succession the messes of the sergeants and corporals, both of which are very comfortably furnished, that of the sergeants even elaborately so, being quite as good and in some respects possibly better furnished than some of our officers' messes in the States.

The Cantonment of Lucknow comprises a garrison of four regiments of infantry, two of cavalry and two field batteries. The buildings as a rule are much farther apart than with us, covering a space of about two by two and one-half miles, or five square miles in extent.

In so extensive a military establishment one is surprised at finding no telephone system, especially as conditions here, buildings far apart and a hot climate, make a telephone system the more desirable.

The movements of troops, as was shown in the Russo-Japanese War, will in future, both in maneuver, marches and on the field of battle, be directed by telegraph and telephone. Much of this must be done personally by general and staff officers. It would, therefore, seem to be important that they keep themselves constantly personally familiar with the use of telephones.

The evening before leaving Lucknow I had the honor of dining with General Sir Ronald Macdonald at one of their large messes. General Macdonald had command of the troops in the expedition into Thibet some four years ago, and has the unique distinction of having commanded troops in an engagement over 19,000 feet above the sea level, in an almost unknown country, with a line of communications running back over a pass 16,000 feet high. His account of these operations was most interesting.

The transportation for this expedition consisted of thousands of coolies, each carrying about eighty pounds of supplies on his back. In fact, while the soldiers on this expedition numbered only 2,500 men, the entire personnel, including transportation coolies, numbered 25,000 men.

An account of this expedition is to be found in Lieutenant Colonel Waddell's "Lassa and its Mysteries."

In the low temperatures (24° Fah.) which they experienced they were obliged to remove all oil from the working parts of their guns to prevent clogging by the stiffening of the oil. The mechanism of the quick-firing guns, such as lock, firing pin, etc., had to be carried in pockets in the shirts of the gunners that the warmth of the body might keep the lock in working condition.

The water jacket was filled with twenty-five per cent. of rum, with the addition of enough kerosene to prevent men from drinking it.

MANEUVERS.

Their maneuvers they try to make as progressive as possible, small units operating against each other at first, and gradually increasing until one division is pitted against another.

When large bodies are turned out bullock-carts are employed as transportation, and with these two miles an hour is about all that large commands can make. They find it advisable on the score of economy not to attempt maneuvers where more than 10,000 men are engaged.

The usual practice is to start out on a maneuver about 2 P. M., bivouac, engage in the maneuver, and return to barracks about 3 P. M. the next day. Last year the maneuvers were suspended on account of the famine.

They have a practice, he told me, of allowing officers to serve for a term of three months (which was thought to be hardly long enough) with another arm so as to get familiar with their working, etc.; a cavalry lieutenant would serve with field artillery, an artillery lieutenant with infantry, etc. This is an idea which we might adopt to advantage.

I discovered that the officers here are well informed re-

garding our Civil War, and were assiduously studying Henderson's Stonewall Jackson.

REMOUNT DEPOTS.

On July 7th I had the pleasure of visiting the army remount depot at Saharanpur, Major T. G. Peacocke, superintendent. In this establishment they have some 1,600 horses, 500 of which are cavalry and the remainder artillery remounts.

They are purchased at a flat rate of forty-five pounds each at either Calcutta or Bombay. If at the former place it costs three pounds to transport them to the depot. The purchasing is done by an officer of the Remount Department assisted by a veterinarian.

Horses are kept at the remount depot for about a year, or even at times as long as three years, depending on what demand there may be from the regiments for remounts.

They do not buy Australian horses younger than four years, as they think that horses develop in their earlier years better in their own country.

A period of about nine months at a remount depot is regarded as essential to get the horse acclimated. A minimum (war time) measure would be four months at the depot.

At first horses are simply driven around and handled, the force for this purpose being about one native "Syce" (groom) to every ten horses. Later, horses are taken in hand and broken to be driven or ridden, the force for this purpose being one "Syce" to three horses.

In breaking cavalry remounts no attempt is made to do more than to see to it that the horse is broken to saddle so that he can be ridden. His finished training as a troop horse is left until he joins his permanent command.

Much of this training is in the way of driving, which is directly in the way of the education of the artillery horse, and a good thing for the cavalry remount as well.

There is a farm of about 700 acres run in connection with the remount depot upon which all the hay and grass is raised, much of it alfalfa, of which a number of cuttings a

season are secured. All harvesting is done by hand. Practically all of the grain is purchased.

The personnel comprises a major as superintendent, an assistant, two or three sergeants, and about 1,200 natives. The latter get six rupees ($2.00) per month.

The greater part of the horses are kept in five long stable buildings, about 300 yards or more in length. The depot is divided into two sections, as a precautionary measure should disease break out. It is regarded as essential that a reserve of at least 3,000 artillery and 500 cavalry remounts be kept on hand. The smaller number of cavalry horses is explained by the fact that they are securing each year a greater number of horses bred in India suitable for cavalry.

The stable buildings are of brick with tiled roof and a relatively small corral adjoining. The clay stalls are the finest I have ever seen. Each horse has his descriptive card in rear of his stall. They allow about double the space in width of stalls that we do. This is on account of the hot climate.

The use of the eye fringe is universal. Horses' tails are not docked at the remount depot, as they regard it necessary for the tail to extend as far as the hock joint that the horse may defend himself against flies.

From about 9:30 A. M. to 3:00 P. M. horses range at will in a paddock where drinking water is always available. They are also allowed to run at will in the corral at night, being turned out after the evening feed is consumed.

FEEDING OF HORSES.

They feed about ten pounds daily of green alfalfa or impie (a sort of plant not unlike green corn or sugar cane), also dry chaff and not more than three pounds of grain.

Barley is roasted or parched before being fed. Oats are invariably crushed and hay cut into chaff, and for these purposes they use horse power (four horses) and are, while breaking in horses for artillery, able to utilize them for supplying the power to crush and cut the feed. By cutting the hay into chaff they claim that they have less waste than when fed long.

"The economy and utility of chaff feeding cannot be overestimated; it should be in every way encouraged when practicable."* (Animal Management 1908, p. 122.)

This is a practice subsequently observed at the remount depot at Ahmednagar and in large stables in Bombay. It is also the rule in Australia, and with the Dutch in Java.

This is a custom to which it is desired to invite especial attention. The Britisher is a good horseman, and English gentlemen, both at home and in the colonies and dependencies of Great Britain, ride and engage in mounted sports far more than the same class in the United States, and by reason of this the more intelligent classes have been led to study the best and most economical way of feeding the horse.

Fodder is, all things considered, rather more costly with them than with us, and naturally they adopt means to get the most for their money in this commodity.

Every troop commander in our cavalry, in passing through his stables in the morning, has noticed in the droppings the quantity of oats which has gone through the horse whole, the animal securing no nutriment whatever from it. This is most pronounced in the case of horses who bolt their food.

All this loss is avoided by crushing the oats. Our wasteful methods of feeding are simply the result of custom, and we may well consider the advisability of adopting methods of people who certainly know as much about the feeding and care of horses as ourselves.

Our extravagant and wasteful methods constantly work to the disadvantage of the expensive mounted services, and I have often wished that our people could see something of the economical methods which I have noticed practiced abroad. Their advantages would then be more apparent and there would be less prejudice against adopting them.

Horses are clipped at the proper season, clippers run by foot power (bicycle gearing) being used for this purpose.

*Animal Management, Edition 1908. Prepared in the Veterinary Department for General Staff War Office. Sold by Wyman & Sons, Ltd., Fetter Lane, London, E. C. Price 1s. 6d. A valuable little treatise on care and feeding of animals.

PURCHASE AND HIRE OF OFFICERS' MOUNTS.

Officers are permitted to buy horses from the remount depot, or may hire them from the government at ten pounds per year.

Much attention is given to matching teams and breaking them to drive well. This is done with cavalry as well as with artillery horses.

SURRA.

I inquired here about surra, but was told that they now have but little trouble from it, although it is prevalent in Burma.

The prevailing opinion is that surra comes from a fly which transmits the disease by its bite.

It is believed that if all the animals in an infected district were removed, healthy animals coming in would be given surra by this fly, which is found usually in low, swampy ground.

Its range of habitat seems to have clearly defined limits. For example, in coming over a certain road it was found that animals invariably contracted surra. The route was changed and no more animals became infected.

On the steamer from Bombay to Suez, I had the pleasure

of traveling with a veteran officer who, during his varied service had commanded a camel corps where surra had been quite prevalent. He had made a study of the causes of the disease, and is convinced that the germ is found in swamps and in grass grown in swampy ground. Such grass is to be carefully avoided. The disease, he said, was contagious, but not infectious. Ground on which surra-infected animals had been kept can be made harmless by burning grass over it and by plowing and sprinkling it with lime, just as we did in Batangas during the surra epidemic about 1903. Animals dying of or killed on account of surra should immediately be burnt.

I was driven about at Saharanpur in a two-wheeled cart called a tonga. The springs attached to the tongue, taken in combination with the yoke working freely over the collars, take up the jar and make it a most comfortable vehicle.

REMOUNT DEPOT AT AHMEDNUGAR.

From Saharanpur I proceeded to another remount depot at Ahmednugar, a healthy station, at an altitude of about 2,000 feet above the sea. They usually keep about 1,000 horses here, of which about ten per cent. go to the cavalry and the remainder to various classes of artillery.

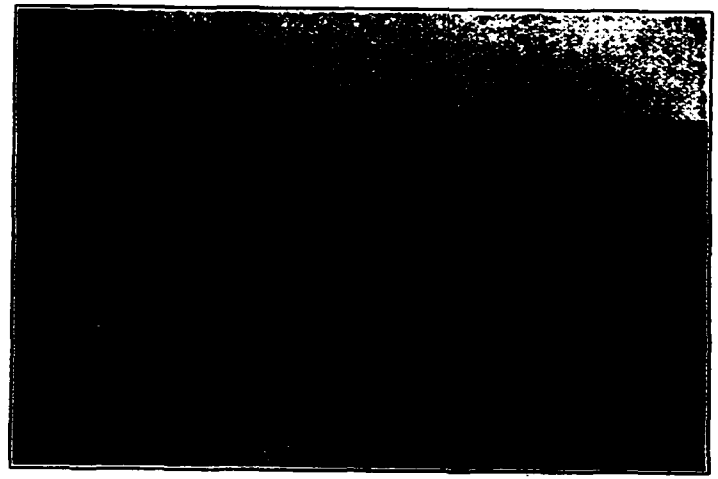
When first received the horses are put "at liberty" in a paddock for some months to get acclimatized. They are not groomed during this period, the force for these horses being but one "Syce" to every six to ten horses.

The length of time the horse is kept at the remount depot varies just as at Saharanpur, but I was told that if a horse was but four years old when received it was safe to say that he would be kept two years at the depot.

Before being drafted to a regiment horses are caught up and placed "on the lines" *i. e.*, in stables, for a number of months, being exercised on five days in the week by being ridden in the riding school or driven. While in stables the force is one "Syce" to every three horses. The stables are quite similar to those at Saharanpur—open stables of brick with clay stalls and with an abundance of room between horses.

The daily ration for horses kept up in stables is: Two pounds gran (a sort of pea), two pounds bran, one pound barley, one pound coolti, seven pounds dry grass, seven pounds karbi (millet). thirteen pounds green alfalfa.

Horses are secured here, as at Saharanpur, by means of a short rope attached to a peg at the front of the stall, and is thence secured to a hole in one end of a stick of hard wood about three and one half feet long, called a "dunda." A rope about two feet long from the hole or eye in the other end of the "dunda" is attached to the halter. The function



ARAB STALLION.

of the "dunda" is to prevent the horse from becoming entangled or caught in the rope.

A breeding establishment is run in connection with the remount depot, and I was informed that they were quite successful in the breeding of Arabs—not more than one in twenty-eight mares failing to have a foal. I noticed that one of their Arab stallions was slightly over fifteen hands in height, and was told that they did not care to breed them taller, for if they did the horse lost the characteristics of the Arab.

I was told that stumbling, though not to the extent of falling down, is a fault of the Arab. However, they are glad to get him, and have one regiment—the Fifteenth Hussars—at Muttra, mounted entirely on Arabs. There were about forty Arabs in the paddock when I visited it, but I had a better opportunity a few days later of seeing this class of stock in the Arab stables in Bombay, where I saw about one hundred fine stallions. Their characteristics to the casual observer are clean limbs, small, compact, well shaped hoofs, square croup and a tendency to have a "dish face." Average height about thirteen and three-quarter hands.

Among the novelties shown me here were:

1. A huttie, or grooming mitten. It is not unlike a large bath mitten, and made of coarse rope. In using it the hand is inserted and the horse is both hand rubbed and cleaned at the same time. It is not so searching in its action as a good bristle brush, but it costs only about two cents, is flexible, more compact and lighter than a horse brush, and easily carried in the saddle bags.

2. A "putta," which is simply a loosely braided one and one-half inch rope tied about the neck of a half broken horse before being turned loose in paddock. We have all seen how difficult it is to catch up a horse which has been running loose for a month or more.

This "putta" costs but a few cents, does no harm to the horse, and when about his neck is always an available help in catching him.

One of the largest importers in India of Australian horses is Baldock, of Bombay, whose stables I visited and where I was shown a number of Australian remounts.

He told me that the freight alone from Australia was nine pounds per horse, and in his last consignment he lost 30 out of a total of 400 shipped. This result he considered a greater loss than ordinary, however, for I recently shipped 600 horses from Australia to Manila with a loss of but seven.

LORD KITCHENER'S CHANGES.

Lord Kitchener is regarded as a great organizer, and usually secures from the government what he asks for.

Before his time the country was divided into districts or departments, as in our service, and there were five district commands as follows:

1. The Bengal or Eastern.
2. The Bombay or Western.
3. Madras.
4. Pemjant or Northern.
5. Burma.

On June 1, 1907, this system of administration was abolished and the military forces in India were divided into the Northern and Southern armies.

The Northern army since that time has been composed of:

1. The Peshawar division.
2. The Rawal Pindi division.
3. The Lahore.
4. The Meerut division.
5. Lucknow division.

The Southern army is composed of:

1. The Quetta division.
2. The Mhow division.
3. The Poona division.
4. The Secunderabad division.
5. The Burma division.

Before his time it was possible to concentrate in a month on the frontier not more than about 40,000 men in event of trouble. By breaking up a number of the smaller posts and establishing larger ones—particularly on the northern frontier—the dispositions now allow a concentration of 200,000 men on the northern frontier within a very limited period, say five weeks.

The advantage of the present organization was illustrated in the recent Mohmand campaign, when brigades were able to move out promptly with their own staffs.

PAY AND ALLOWANCES OF THE NATIVE TROOPER.

The trooper is expected to furnish his own mount and transportation, and the system by which this is done appears to a stranger to be rather complicated.

The trooper's mount and his (half) share in the pony or mule required by two men for their transportation will, it is calculated, cost 450 rupees ($144.00), 400 rupees being for the horse, and 50 rupees ($16.00) being for the half share in the transportation.

The trooper usually makes a deposit of 200 rupees ($64.00) and the remaining 250 rupees ($80.00) is entered against him on his account as a debt. This is taken from him by monthly deductions, so estimated as to cover a period of about four years.

When the debt has been fully liquidated, the man on discharge is entitled to receive the entire sum of 450 rupees ($144.00) back. In order to effect this arrangement without loss to the regiment, it is of course necessary to provide an insurance fund for the horse and pony. To these funds, which are called the "Horse and Pony Chunda," respectively the man contributes monthly—to the former about 3 rupees (96 cents) and to the latter about 8 annas (16 cents) approximately.

These assessments are calculated on the supposition that the animals will do eleven years service or thereabouts. The exact amount of eleven years would be $147.84.

In many cases, naturally, these expectations are not realized, but though on the one hand horses may fail early, on the other they frequently last longer than the estimated period. Then again it must be remembered that there is a further asset to the fund by the amounts realized in the sales of old and worn out horses. At any rate if these funds are prudently managed, that is to say, that if the regimental authorities when purchasing do not exceed the average price, they ought to remain on a sound basis.

In addition to such funds as have already been referred to, viz: the assami, "Horse and Pony Chundas," there are many others to which every man in the regiment is called upon to contribute. These may roughly be divided into two classes, the one from which the man received his money and the other for which he puts value at the time in some shape or form. Among the former are, as has been mentioned, the assami, and besides this there are the regimental fund, sometimes the tent and saddle funds.

The regimental fund was originally established with the object of providing capital for immediate expenditure. It amounted to a month and a half's pay from each rank. This capital is merely money borrowed from the men of the regiment, who on discharge receive back the whole of their contributions. The same usually applies to the tent and saddle funds, which are run on the same principle. For instance, in the saddle fund, a man pays the full price of new saddlery, though what he actually receives may be old. In addition he insures his property for wear and tear by contributing a certain amount monthly, calculated on the average life of the saddle. In case of discharge or the saddle being worn out, he either receives the full price back or a new saddle.

Among the funds to which he contributes and receives value in lieu of money are the forge fund, from which his horse is doctored and shod, the grass fund which supplies forage, the store fund, clothes and equipment and the syce fund for the pay of his servant.

His pay may be stated as 31 rupees ($9.92)—20 rupees ($6.40) for his horse and 11 rupees ($3.52) for his personal services; this latter, however, is subject to certain deductions or assessments. Briefly stated, it may be said that *the gov-*

ernment secures his services for about ten shillings a week or $126.00 per year.

The government supplies arms and ammunition.

The more one investigates the cost to the government of native troops, the more does it become apparent that their services are secured at a very low rate.

The native cavalry is foraged by the government granting to the regimental commander an allowance for this purpose. This he handles to the best advantage, frequently engaging in farming operations and raising the forage for the regiment.

When new country is opened up through means of irrigating canals, it is the practice to give grants of land to regiments stationed adjacent thereto, upon which they proceed to raise their own forage.

The greater part of the Indian army is growing to depend more and more on country breds for remounts, and when land is taken up along new irrigating canals by natives, the government stipulates that for every fifty-six acres of land the occupant shall keep a mare whose foals may be purchased by the government at the rate of twelve and one-half rupees for each month of the age of the foal up to eighteen months, when it would be worth 225 rupees, or $72.00. The government in such cases gives the services of a stallion free.

THE ARMY IN INDIA; A SUMMARY OF REGULATIONS, ORGANIZATIONS, ETC.*

By an Officer in the Indian General Staff.

THE command organized in 1895 divided the country, roughly speaking, as follows; the Punjab Command comprised almost all the country administered by the Punjab government; the Bengal Command, in addition to Bengal and the Northwest Provinces (now the United Provinces), took in Assam and parts of Central India and the Central Provinces; the Bombay Command included, in addition to the Bombay presidency, Rajputana, Baluchistan, Aden and the remaining parts of Central India and the Central Provinces; and the Madras command contained Burma, Hyderabad and Mysore in addition to the Madras presidency. A lieutenant general with a large staff of combatant and departmental officers was appointed to each command and was given powers to deal with many cases which had hitherto required the authority of army headquarters or the government of India.

In 1896 the amalgamation of the Bengal, Bombay and Madras branches of the Indian Medical Service, under a director general was carried out.

In 1897 the class squadron and company system was introduced into the Hyderabad contingent; sanitary officers were appointed to each command; and the Central India horse, the Bhopal and Merwara battalions and the Deoli and Erinpura Irregular Forces were transferred from the control of the Foreign Department to that of the Commander-in-Chief.

*Copy furnished for publication by Major S. H. Slocum, Second Cavalry, Military Attaché.

An additional native mountain battery was raised; the number of British infantry battalions in India was reduced from fifty-three to fifty-two, the establishment of each of the latter number being increased by twenty men; and battalions of native infantry were first lent to the Imperial Government for duty in Colonial garrisons.

A first class district, under the general officer commanding the Punjab Frontier Force, was formed, embracing the Northwest frontier from Abbottabad to Dera Ghazi Khan, (including the Peshawar district).

The double company system was introduced into the native infantry; a new native mountain battery was raised; three battalions of native infantry were raised for duty in colonial garrisons; Assam Gurkha battalion was delocalized; and the transport service was completely reorganized. A considerable change of frontier policy was inaugurated, as it was decided that all regular troops should be withdrawn gradually from Southern Waziristan, the Khyber, Samana, and from the Kurram and Tochi Valleys, their place being taken by local militia, and that movable columns of regulars should be maintained in frontier cantonments to support the militia in case of necessity. In this way waste of regular military force is obviated, and the interest of the local inhabitants in the maintenance of peace is aroused.

The native army was re-armed with the magazine rifle; the Commissariat Department was re-formed and re-named the Supply & Transport Corps; mounted infantry schools were established; a fourth battalion of native infantry was raised for colonial garrison duty; and accelerated promotion was sanctioned for the officers of the Indian Staff Corps, captains and major's ranks being attained after nine and eighteen years' service respectively.

An ambulance bearer corps of six thousand bearers was organized; three field howitzer batteries were added to the establishment; a corps of frontier garrison artillery was formed; the brigade division system for horse and field artillery was introduced, and ammunition columns were reorganized; a fifth battalion of native infantry was raised for colonial garrison duty; the Imperial Cadet Corps was established during the three years 1898–1902, four battalions of Hindustani Mussulmans were re-constituted; and two ordinary and one fortress (for Aden) companies were added to the Bombay Sappers and Miners.

The designation, Indian Staff Corps, was changed to Indian army; the whole of the regiments of the Indian army were re-numbered as a single army (an exception being made in the case of Gurkha battalions and the Corps of Guides) instead of by presidencies and irregular forces; Burma was made a separate district under a lieutenant general and was placed directly under Army Headquarters; the re armament of the mountain artillery was completed; and the enlistment of Mahsud Waziris into the regular army was authorized.

In 1904 on the conclusion of a revised arrangement with the Nizam of Hyderabad regarding Berar, the Hyderabad Contingent ceased to exist as a separate force; its cavalry of four regiments of three squadrons each was reorganized in three regiments of four squadrons each and its field artillery was disbanded. A pioneer battalion to be composed of Hazaras was raised; an Assam Gurkha battalion was delocalized; large additions were made to the mule transport maintained permanently and it was decided to increase gradually the native army reserve till it reached a strength of fifty thousand. During the period of 1904 thirteen Madras infantry battalions and the Madras cavalry regiments were reconstituted by the enlistment in them of Moplahs, Gurkhas, Punjabis, Jats and Rajputs.

In this year a large reorganization was inaugurated. This aimed at a more scientific distribution of the army during peace and at the mobilization of a field army of not less than nine divisions and eight cavalry brigades. Under it the Madras Command was abolished, and the Commands and Staff were reorganized.

The principle underlying this arrangement was that the army should in peace be organized and trained in units of command similar to those in which it would take the field. Each peace division (except Burma) should be able to place in the field one cavalry and three infantry brigades and should in addition, comprise such other troops as were re-

quired for the maintenance of internal order in the divisional area when the division itself was withdrawan for war. The scheme was estimated to take some years to work out as new accommodation was required in many cantonments. The organization shown above will undergo further alteration before the scheme is completed.

The peace combat staff of a division was fixed at two assistant and one deputy assistant adjutant general; of a brigade, under a brigadier general, at one deputy assistant adjutant general and one brigade major; and of a brigade, under a colonel on the staff, at a brigade major and a second class station staff officer.

At the same time a regular programme of increasing reserves and generally adapting mobilization arrangements to suit the larger field army was entered upon.

A Staff College was started in India to train candidates for staff employment; to be located ultimately at Quetta, it opened in temporary quarters in Deolali; a programme of extension of strategic railways on the frontier was initiated; a large scheme for the expansion of ordnance factories was started; and arrangements were made to re arm the whole of the horse and field artillery with quick firing guns.

At the instance of Lord Kitchener, who condemned the existing system of military administration in India as one of dual control and divided responsibility, the Secretary of State for India held an inquiry into the question early in 1905. On review of the whole question and on the advice of a committee assembled for the purpose, the government of the day at home decided that in future there should be two ministerial departments or agencies, through which the Governor-General in Council should administer the army in India. The most important, termed the Army Department, should be in charge of the Commander-in-Chief as extraordinary member of council, and should deal with questions of command, staff and regimental appointments, promotions, discipline, training, organization, distribution of the army intelligence, mobilization, schemes of offence and defence, peace maneuvers, war preparation and the conduct of war. The other termed the Military Supply Department in charge of

an ordinary member of council usually a military officer, should deal with the control of army contracts, the purchase of stores, ordnance and remounts, the managements of military works, the clothing and manufacturing departments, Indian Medical Service and the Royal Indian Marine. At the same time it was suggested that the Military Accounts Department should be transferred to the control of the Finance Department of the government of India. Owing to the resignation of the Viceroy (Lord Curzon) and the change of ministry at home, the inauguration of the new system was delayed till March, 1906.

In the above it has been impossible to detail anything like the whole of the many reforms and additions made during the last six or seven years. About five hundred British officers have been added to the regiments of the native army; a great deal has been done to improve the health and sanitary surroundings of the soldier; frontier communications have been much improved; a policy of rendering India independent in the matter of war stores of all kinds has been initiated and has made great progress by expansion of the various factories, etc.; much has been done to improve the armament equipment and mobilization of the army; the official regulations have been revised and simplified and the work has been decentralised to a great extent; special attention has been paid to the higher military education of officers; the annual grant for maneuvers has been increased; military grass and dairy farms have been started, and practically every army department has been reorganized.

* * *

There is little or no mention of volunteer or militia corps in the nineteenth century, and those in existence before that time appear to have disappeared gradually. The mutiny brought several volunteer corps into being, some of whom did excellent service, and the present volunteer force in India may be said to date its origin from that period. Till 1885, when the strength of the volunteer force stood at 13,368, they met with no great encouragement. Since that date it has been the declared policy of the military adminis-

tration to foster the movement. Grants for buildings, field days and camps of exercise have been made; wound and injury pensions for volunteers and pensions to their widows have been granted under certain conditions; the capitation allowance has been somewhat increased and small allowances towards outfit to officers have been sanctioned. Volunteers in India have been made eligible for the volunteer officers' decoration and the long service medal. Some new corps have been formed and the strength of the force has risen to about 33,000, including however, the reserve and cadets of whom about 31,000 are "efficients."

The Governor General in Council, subject to the control exercised for the Crown of the Secretary of State for India, is the supreme head of the army in India. The ministerial agencies through which the authority of the Governor-General in Council is administered are two: the Army Department and the Department of Military Supply.

The former of these is in charge of the Commander-in-Chief who is an extraordinary Member of the Governor General's Council, while an ordinary Member of Council, usually a military officer, presides over the latter. In addition, there is a Military Finance section of the Finance Department to deal with questions of army finance.

Under the constitution of the Government of India, the Secretaries to Government in the Army Department. the Department of Military Supply and the Military Finance Department. are the heads of these departments; they are responsible to the Governor-General in Council that the business of their departments is carried out in accordance with the authorized rules, and they have direct access to the Governor-General. They are each assisted by an establishment of deputy and assistant secretaries. Further, in this connection, the members of the Army Headquarters Staff perform two separate and distinct functions; one as members of the Headquarters Staff in all matters in the control of the Commander-in-Chief as such; the other, the function appertaining to departmental officers of the Army Department, which does not, however, carry with it any of the powers of a Secretary to the Government.

Directly under the Army Department is the Army Headquarters Staff; this is separated into the following divisions: Division of the Chief of the Staff, Adjutants General's Division, Quartermaster General's Division, Medical Division, Military Secretary's Division.

The Division of the Chief of the Staff, which is subdivided into two sections, (1) military operations, and (2) training and staff duties, deals with the following questions; military policy, organization, distribution, preparation for war, intelligence, mobilization, plans of operations, higher education and training, and maneuvers.

The Adjutant General's Division, deals with questions of recruiting, discipline, training, education and equipment of units.

The Quartermaster General's Division, which is subdivided into four sections, (1) general branch, (2) cantonments, (3) supply and transport, and (4) veterinary, deals with questions of accommodation, movements and cantonments, and with the organization, administration and training of the supply and transport corps (except the portion of it under the Department of Military Supply) and of the Army Veterinary Corps.

The Medical Division deals with all medical questions, except some concerning the administration of the Indian medical service, which is partially a civilian department, and is partly under the Department of Military Supply.

The Military Secretary's Division deals with appointments, promotions, exchanges and retirements of officers.

The Advisory Council consisting of the Commander-in-Chief and the heads of the several staff departments, discusses all questions of importance under consideration at army headquarters, thus coördinating the work of the different divisions and keeping the representatives of government, the Secretaries to Government in the army, and Military Finance Departments, informed of the progress of these questions; it also enables the latter officers to represent the views of government at an early stage in the dealings with any question.

Under the Department of Military Supply are the following army departments: The Military Works Services, The Ordnance Department, Indian Medical Service, The Contracts and Registration Branch of the Supply and Transport Corps, The Army Remount Department, The Army Clothing Department, The Royal Indian Marine.

The Military Works Services deal with the construction and maintenance of all military works and buildings.

The Ordnance Department arranges for the supply to the army of all munitions of war and a large part of its equipment.

The Indian Medical Service is partly under the Home Department of the Government of India; the Department of Military Supply deals mainly with the administration of the military portion of the service, consisting of officers, assistant surgeons and hospital assistants.

The Contracts and Registration Branch of the Supply and Transport Corps deals with the contracts for the supply of and with the registration for war of transport animals.

The Army Remount Department supplies remounts to all British, and a few native, mounted units, and arranges for the importation of all horses and mules required; it has also charge of government breeding operations.

The Army Clothing Department supplies the army with clothing.

The Royal Indian Marines, under a director, who is usually an officer of the British navy, arranges for the sea transport required for the army. It is not an army service, and is placed under the Department of Military Supply for administrative convenience.

Appointments are made by selection, and all staff emyloyments are tenable for three years, extensible for five years. It is with few exceptions a general rule that all staff employments are equally divided between officers of the British and Indian services. To qualify for staff employment an officer must be a Staff College graduate, or have qualified for promotion to major, and must have passed the higher standard examination in Hindustani. Certain appointments usually carry certain ranks; the appointment of Commander-in-

Chief carries rank of general; the command of the Northern, Eastern or Western command of the Burma division and the appointment of Chief of the Staff carries the rank of lieutenant general; command of a division, also appointment as Secretary to Government in the Army Department, as Adjutant General, as Quartermaster General, as Inspector General of Cavalry, Artillery or Volunteers, and as Director General of Military Works, Ordnance or Supply and Transport and twelve brigade commands carry the rank of major general. The following appointments qualify, if the recipient is a brevet colonel or a lieutenant colonel with three years' full pay service in that rank, for the rank of substantive colonel; Deputy Adjutant or Quartermaster General, Judge Advocate General, Deputy Secretary of Military Supply, Assistant Adjutant General or Quartermaster General, Military Secretary to the Viceroy or the Commander in-Chief, Deputy Director General (or Inspector General) of Ordnance, Military Works or Supply and Transport, Chief Engineer (Military or Public Works) Commanding Royal Engineer of a division and Superintending Engineer, Public Works Department.

The rules for command of a British unit are similar to those in force at Home; the tenure of command of a native regiment is limited to five years, extensible to seven years.

Officers commanding regiments are responsible for the training of their officers except in subjects such as musketry, signalling, gymnastics and mounted infantry, transport and veterinary training, for which special classes are held. Officers have to pass technical examinations before promotion to lieutenant, captain and major respectively, and before obtaining command of a regiment.

Entrance to the Staff Colleges at Camberley and Quetta (in temporary quarters now at Deolali) is gained by passing a competitive examination, or by obtaining a special nomination. No officer can compete unless recommended by the general officer under whom he is serving, and who has personally to test his capabilities as likely to make an efficient staff officer. He can compete for Camberly or Quetta at his option, as the syllabus and method of instruction in both

colleges only differ to the extent necessitated by climatic and local circumstances. At the Indian Staff College there is a commandant (a brigadier general) with six military professors usually lieutenant colonels or colonels, who form the teaching staff. The course lasts two years, and comprises theoretical and practical training in all military subjects. Twenty-four students are admitted annually, of whom approximately one-third are from the British service and two-thirds from the Indian Army. On graduating finally, an officer is entitled to the letters "P. S. C." after his name, and is qualified for staff employ. The actual nature of the staff work on which he is employed subsequently depends upon the report made upon his capabilities by the commandant and professors of the Indian Staff College. An officer at the Indian Staff College draws full Indian regimental pay and allowances; at Camberley, British pay of rank and allowances.

British officers with native regiments, in staff appointments open to the Indian army, and in army departments and civil employment to which engineer, artillery officers, medical officers have not necessarily to be appointed on their technical knowledge, are borne on one list called the Indian army. Although appointed primarily for military duty in India, any officer on this list can, at the option of the Governor-General in Council, be detailed for work of any nature.

A certain number of direct appointments to the Indian army are offered annually to candidates for commissions from the Royal Military College, Sandhurst, and are accepted usually by those passing out among the highest on the list. Officers appointed in this way are attached to a British regiment in India for one year before being appointed to a native regiment. Other vacancies are filled up by the appointment of officers volunteering from British regiments. No officer can leave a native regiment for staff, departmental or civil employment until he has three years' service and has passed the necessary examination in Hindustani and in professional subjects.

Promotion in the Indian army is regulated by a time scale. Unless an officer's promotion is accelerated or retarded specially, he attains the rank of captain after nine, of major after eighteen, and of lieutenant colonel after twenty-six years' service, respectively. Accelerated promotion may be granted to a limited number of lieutenants and captains annually for good service, and to a major obtaining command of a regiment or an appointment on the staff which qualifies for the rank of colonel. Promotions to the rank of general are made entirely by selection; the establishment of these for the Indian army is: Generals, 3; lieutenant generals, 5; major generals, 22.

Officers appointed permanently to civil employ are struck off the roll of their regiments, and, after ten years' absence from military duty, are borne upon a supernumerary list, on which they can rise, under the time scale, to the rank of lieutenant general, but no higher. The pay of officers in the Indian army on military duty consists of pay of rank plus staff pay, except in the higher appointments where a consolidated salary is given. Pay of rank never varies, and is as follows (monthly rates): Lieutenant, 225 rupees;* captain, 374 rupees; major, 640 rupees; lieutenant colonel or colonel, 827 rupees. Staff pay varies according to the nature of work on which an officer is employed; in a native cavalry regiment, it rises from 150 to 700 rupees; in a native infantry regiment, it rises from 100 to 600 rupees; and in staff employ, it rises from 200 to 1,000 rupees, till it reaches the consolidated scale, when an officer's pay and allowance can rise to the 4,500 rupees of a lieutenant general of a command, or the annual 100,000 rupees of the Commander-in-Chief.

Furlough to England up to a year, extensible to two years on urgent private affairs, is granted, if the officer's services can be spared, at any time in an officer's service; while thus absent, he draws special sterling rates of pay, which rise from £200 to £600 a year. If absent for more than two years from ill health, an officer is transferred to the temporary half-pay list. Pensions on retirement are granted after twenty years' service, and are as follows: After twenty years, £250; after twenty-five years, £365; after twenty-six years, £348; after twenty-eight years, £500; after

*A rupee is worth about 32 cents.

thirty-two years, £700; while major generals, lieutenaut generals and generals get pensions of £800, £900, and £1,000 a year, respectively.

British corps in India are organized on the same lines as those of the same branch serving at home, while their armament, equipment, and clothing, are identical, except for the differences necessitated by climatic conditions. Each unit has an establishment of native followers, such as lascars, bhistis, sweepers, syces, etc., and a proportion of these, as well as a limited number of officers' private native servants, accompanies the unit on field service.

Artillery batteries and ammunition columns have a certain number of enlisted native drivers; the number of these vary slightly in each kind of unit, but they are calculated on the principle that all "first line" vehicles should be manned by British drivers.

The strength of the different units is as follows:

	Officers.	N. C. O.'s and Men.	Total.
Cavalry regiment	29	598	627
R. H. A. or R. F. A. battery	5	157	162
Heavy battery	5	91	96
Howitzer battery	6	217	223
Mountain battery	6	141	147
Garrison artillery company	5	140	145
Infantry battalion	29	1,004	1,033

Although there is no objection to enlisting suitable men in India, practically all the recruitment and enlistment for the British forces in this country is carried out at home, under terms arranged by the War Office, who are responsible for keeping units up to proper strength. Units come to India under a regular system of reliefs and remain for about ten years if they are cavalry or artillery units, and about sixteen years if an infantry battalion. During this period the rank and file change frequently, as the average tour of service of the private soldier in India is a little over five years. While in India, all charges on account of these units are paid by the Indian government, who, in addition

pay the War Office a regular proportion of the cost to the latter of enlisting and training officers and men, and of the pensions, gratuities and other contingent expenses incurred by them.

In accordance with the recommendation of the Royal Commission in 1858, a definite proportion between the numbers of Britisn and native troops is still maintained. Originally this proportion was one British to every two native soldiers in Bengal and to every three native soldiers in Madras and Bombay, respectively. The proportion now, taking into account reserve and auxiliary forces, is about one British to two and one-half native soldiers throughout India.

Native cavalry and infantry regiments are practically all organized on the class regiment or the class squadron or company system. This means in the first case that the whole regiment is composed of one class, *i. e.*, Sikhs, Dogras, Gurkhas, Rajputs, Hazaras, Moplahs, etc., and in the second case that every squadron or company is formed entirely of one class, though there may be, and generally are indeed in the infantry, more than one squadron or company of each class in one regiment. The reasons for this system are to a certain extent political, as tending to prevent any such formidable coalition against us as occurred in the Indian Mutiny; they are also on the grounds of efficiency, for it is found that the class system is popular and consequently attracts a better class of men; moreover, it creates a reasonable spirit of rivalry between units.

All other regiments have class companies or squadrons, even though called "sikhs," like the Fifty-third Sikhs, or 'pathans," like the Fortieth Pathans.

Each cavalry regiment is organized in four squadrons, and has thirteen to fourteen British officers, in addition to a British medical officer, namely, a commandant, four squadron commanders (of whom one is second in command), an adjutant and seven to eight squadron officers. There are 625 natives of all ranks, including native officers; of the latter the risaldar major is the senior, and there are, usually, in addition, three risaldars and four ressaidars, each commanding a half squadron, and also nine jemadars; the non-commissioned

officers are called "daffadars," and the privates "sowars." All cavalry regiments, except the Twenty-sixth, Twenty-seventh and Twenty-eighth Light Cavalry, are what is termed sillahdar regiments. Broadly speaking, this means that every man contracts with the State for a fixed monthly payment for his own services, mounted and armed, and that, beyond this fixed monthly payment and the usual pensionary charges, the State incurs no pecuniary responsibility on his account. As a matter of fact, the State now supplies rifles and ammunition and gives compensation if a man's rations and his horse's food cost more than a certain sum.

Each infantry battalion is organized in four double companies (of two companies each) and has, usually, thirteen to fourteen British officers, in addition to a British medical officer; these are a commandant, four double company commanders (of whom one is second in command), an adjutant, a quartermaster, and six to seven double company officers. There are 912 natives of all ranks, including native officers; the latter are one subadar-major and seven subadars, each commanding a company, with eight jemadars; the non-commissioned officers are called "havildars" and "naicks," and the privates are called "sepoys."

A native mountain battery has six guns, and is divided into three sections. There are five British officers who belong to the Royal Garrison Artillery, and not to the Indian army, namely, one captain and four lieutenants; there are 135 native gunners, including native officers (of whom there are three), and non-commissioned officers and 234 native drivers, including non-commissioned officers.

A company of sappers and miners usually consists of two British officers and two non-commissioned officers of the Royal Engineers and 170 native ranks, including three native officers.

Recruiting staff officers are appointed for each of the principal classes and castes composing the native army, and recruiting is mainly conducted under their supervision, though many men are recruited through relatives and friends and join regiments direct.

Enlistment is for general service, within or outside British territories, and beyond sea if necessary; the age of enlistment is usually sixteen to twenty-five, and the standard of height five feet seven inches; in ordinary times a man may claim his discharge after three years' service.

Commandants of native corps have considerable disciplinary powers, especially in the authority which empowers them to hold "summary" courts-martial, of which they alone constitute the court, although other officers are required to "attend" such a court-martial.

Native regiments move in relief every three or four years, and as a general rule are located in cantonments within reasonable distance of the area from which their men are recruited. Thus men recruited in the Punjab are generally stationed in a cantonment of one of the first three divisions (Peshawar, Rawalpindi and Lahore); men recruited in Rajputana, Central India, the United Provinces and Nepal in cantonments of the Meerut and Lucknow divisions; men rocruited in the West of India and the Dekhan in cantonments of the Mhow and Poona divisions; and men recruited in Madras in cantonments of the Secunderabad division. At the same time all corps are liable to, and do serve in any part of India, and troops of all castes and classes are found serving on the frontiers, in Burma and in the colonial garrisons of Hong Kong, North China, Singapore and Ceylon. The principle of having local regiments for service in Burma, Baluchistan, and the Northwest frontier is gradually being discontinued and shortly the only localized regiments remaining will be those of Gurkhas.

Urdu (or Hindustani) is understood throughout the native army, although most classes have a language or dialect of their own, and British officers serving with native corps have, in addition to passing in Urdu, to pass a colloquial test in the language spoken by the majority of the men of their unit.

The pay of the infantry sepoy is nine rupees per month, and it raises, as he may get promotion, to 150 rupees a month of the Subadar Major. The cavalry sowar gets thirty-one rupees a month, and this amount rises to the 300 rupees a month of the Rissaldar-Major. All native soldiers

have to feed themselves out of their pay, but they receive compensation from the government when the cost of their food exceeds a certain limit. The cavalry sowar has also to feed his horse and to clothe and equip himself and his horse out of his pay, but he receives assistance from government in the provision of grass, and when the cost of grain exceeds a certain amount, and he is provided free with his rifle and ammunition. Extra pay, called good conduct pay, can be earned by the soldier, and rises from one to three rupees a month; in the case of the non-commissioned officer it is called good service pay and rises from one to four rupees a month.

Pensions after twenty one years' service, or if invalided after fifteen years' service, rise from four rupees a month for a private to thirty rupees a month for a Risaldar or Subadar-Major, and after thirty-two years' service from six to fifty rupees for the same ranks.

Pensions are also granted for wounds received on field service, and to the families of soldiers deceased during field operations or on foreign service.

It is open to all ranks of the native army to rise to the highest grade of native officer, and these on retirement receive the honorary rank of captain. Certain educational and technical military tests are required from candidates for promotion for the position of native officer is one of considerable responsibility. A certain percentage of commissions are given direct to native gentlemen who are recommended for these by the civil, and approved by the military authorities; before final confirmation in these appointments native gentlemen have to serve on probation for two years.

As in the case of the British service, the rank and file of the native army can earn a medal for long service with good conduct, while the native officer can earn the "Order of British India" for long, faithful and honorable service. For personal bravery there is an "Indian Order of Merit" in three classes. All of these medals and orders carry monetary allowances.

Most native units have a fixed establishment of reservists, to which men of over three years' service with the colors

and under thirty-two years of age may be transferred. The total sanctioned establishment of the reservists for the Indian army stands at present at about 30,000, but is being increasd annually, until it shall reach a strength of 50,000.

Reservists are trained annually or biennially at fixed territorial centers, where their arms, equipments and clothing are stored. On mobilization, they are called upon to rejoin the colors at the depots of their former units (or of one of the linked units) as required. A reservist receives two rupees a month when away from the colors, or when not up for training.

Artillery.—Heavy batteries of artillery are armed generally with a breech-loading 5-inch gun; the horse and field artillery are being reärmed with the 13½ and 18½-pounder quick firing gun, respectively, and mountain batteries have a 10-pounder gun.

Cavalry and Infantry.—The cavalry and infantry have the short Lee-Metford magazine rifle with bandolier equipment. In addition the cavalry also carry a sword and lance, or a sword. Each regiment with a place in the field army has also two Maxim machine guns.

Engineers.—The corps of sappers and miners have railway, bridging, telegraph, balloon and other technical units, in addition to the usual engineer equipment. There are also twelve battalions of native pioneers, with special pioneer equipment for engineering work.

The ordinary clothing for British and native troops for the cold weather is serge; blue, red, green, or drab, according to the regimental pattern. Khaki drill is the field service and usual hot weather dress for all troops, while white drill is worn by British troops on ceremonial and church parades, etc. British troops are supplied with clothing and necessaries by the Army Clothing Department, some of the clothing being made up regimentally; and the same agency supplies the native army, except the Sillahdar cavalry (who arrange for the whole of their clothing themselves), with serge clothing. For the rest of his clothing and necessaries the native soldier (except in the Sillahdar cavalry) receives a fixed sum on enlistment as kit money, and afterwards an

annual half mounting allowance, arrangements being made regularly for the supply.

The British soldier always receives free rations in this country, and these are arranged for by the Supply and Transport Corps. The native soldier makes his own arrangements for food during peace time, and receives compensation from government if the cost of his ration exceeds a fixed monthly limit; on field service he receives free rations, which are arranged for by the Supply and Transport Corps.

There is no permanently organized body of mounted infantry in India. There are mounted infantry schools at Sialkote, Ambala, Poona, Fategarh, and Bangalore, and selected officers and men are sent from the different regiments to undergo courses of instruction at these schools. From these trained men, who do annual repetition courses, the necessary number of mounted infantry battalions would be formed on mobilization. A mounted infantry battalion is 500 to 600 strong, is organized in four companies, and has a machine gun section.

One of the greatest difficulties in the case of a big war will be to obtain a sufficient supply of officers for the Indian army. The formation of an Indian army reserve of officers was sanctioned in 1894, but the numbers have never exceeded forty or fifty. The reserve is open to any officials and private gentlemen in India who are not military officers, to certain retired military officers and to volunteers. They must be recommended by the general officer commanding the district in which they reside; they must have attained a certain degree of efficiency in military training, and they are all liable to military service in case of necessity. They undergo no training, and have merely to report their whereabouts twice a year.

The Judge Advocate General and his five assistants are the advisers of the army on military law matters. They are recruited from officers of the Indian army.

The Principal Medical Officer, His Majesty's forces in India, is usually an officer of the Royal Army Medical Corps, and is responsible, under the orders of the Commander-in-Chief, for all military medical arrangements in India. Military medical duties in India are carried out by officers of the Royal Army Medical Corps and Indian Medical Service, by assistant surgeons and hospital assistants of the Indian Subordinate Medical Department, by nurses of Queen Alexandra's Military Nursing Service for India, by the Army Bearer Corps, and by the menial servants of the Army Hospital Corps, and those attached to native units.

Officers of the Royal Army Medical Corps, which is organized and administered under the orders of the Army Council come out to India on a five-years' tour of duty in regular relief. Their work in India is primarily the medical charge of British troops, although at times they have native troops also under their care. The fixed establishment of R. A. M. C. officers in India is at present 337. There is a Principal Medical Officer in each command and division and in some of the brigades; in the remainder of the brigades and in all stations, there is a Senior Medical Officer; all the military medical arrangements of the command, division, brigade or station are supervised by these officers acting under the orders of the general or other officer commanding. The appointments of Principal Medical Officer are divided equally between the Royal Army Medical Corps and the Indian Medical Service. Medical officers are not attached to British units during peace time, as all British troops are treated in station hospitals.

The Indian Medical Service is recruited for duty in India and is primarily a military service; but a very large number of its officers are permanently employed on purely civil duties, of whom a certain proportion, however, are available to return to military duty on mobilization if required. The head of the service is the Director General, Indian Medical Service, and his main duties are civil, for which purpose he is under the Home Department of the Government of India; but he is also the adviser of the Department of Military Supply on all questions relating to the military portions of the Indian Medical Service and the Indian Subordinate Medical Department. Each native cavalry regiment and infantry battalion has an officer of the Indian Medical Service who is in medical charge of the unit. In addition the Indian Medi-

cal Service maintains medical store depots at Calcutta, Madras, Bombay, Lahore and Rangoon for the supply of medical stores and equipment. All officers of the Indian Medical Service have at first to do a certain period of military duty, and in attaining the rank of colonel are liable to be recalled to military duty as Principal Medical Officers. The present strength of the Indian Medical Service is *727* officers.

The Indian Subordinate Medical Department is recruited and trained in India for duty in India with the army and in civil employ. The present establishment is 672 assistant surgeons and 932 hospital assistants, of whom large numbers are in civil employ, but of whom a certain proportion is available for military duty on mobilization, if required. The assistant surgeons in military employ do duty almost exclusively with British troops, while hospital assistants are almost always attached to navy units, of the smaller of whom they are sometimes in medical charge.

Queen Alexandra's Military Nursing Service for India is recruited in England for service in India and with British troops. The present establishment is four lady superintendents, fifteen senior nursing sisters and sixty-five nursing sisters. Nursing sisters come out under a five years' agreement which can be extended.

The Army Bearer Corps is organized in thirty-two companies of 100 kahars (or bearers) each under an assistant surgeon. There is a medical officer as staff officer of the Army Bearer Corps in each of the three commands, and there is one for the Secunderabad and Burma divisions whose duties are the administration and general superintendence of the bearer companies in his command. The main duty of the Bearer Corps is the carrying of dhoolis (a sort of covered stretcher carried by four men).

The Army Hospital Corps is organized in eleven companies, and comprises all the native menial servants on duty with British station hospitals, such as ward orderlies, cooks, bhistis, sweepers, dhobis, etc. Native units have establishments of these menials and have also one or two enlisted soldiers as ward orderlies.

Medical assistance to men in the fighting line (so to speak) is afforded by medical officers attached to units, British and native; unless a man's wound or ailment is trifling he is then sent to a field hospital; these are equipped with 100 beds each, and some accompany troops to the front while others remain at posts on the lines of communication; if a man requires lengthened treatment he is sent down to one of the nearest general hospitals, which are each equipped with 500 beds and are situated at the different advanced and other convenient bases; from here the man either returns to the front or is invalided to his home, proceeding possibly by hospital train and hospital ship.

The Supply and Transport Corps arranges at all times for the food of British troops and for forage for their horses, and for their bedding, barrack and hospital supplies and, on field service and in certain localities, it performs the same functions for native troops. The whole of the military transport maintained in peace is in its charge and it looks after the registration of transport animals. Part of the corps is under the Department of Military Supply with a Director General of Contracts and Registration at its head and separate staffs in each command and division. The remainder of the corps is under the Quartermaster General with an Inspector General at its head; with inspectors in each command; with an officer commanding divisional transport, and officer commanding divisional supply, and a divisional accounts officer in each division; and with various assistants at army and command headquarters and in divisions, brigades and stations. The present strength of the corps is 271 officers and 524 warrant and non-commissioned officers. The portion of the Supply and Transport Corps under the Department of Military Supply arranges for the contracts of supplies and for the registration of transport, while the part of the corps under the Quartermaster General arranges for the supply to troops of the various articles with which it deals, and is in charge of the transport maintained during peace. The greater part of the latter is organized in corps or cadres; the first are kept up at full strength and ready for mobilization by means of men from the transport reserve

and enlisted for the occasion and by animals hired or purchased on mobilization, a large number of which have been registered for this during peace.

The various cantonments in India are administered under the authority of the cantonment code by a cantonement committee composed of military officers. The secretaries to these committees are cantonment magistrates who are military officers; they are borne on a separate list and are held to be in civil employ. They carry out the orders of the cantonment committee and perform the judicial duties of the cantonment. Cantonment magistrates, of whom there are at present thirty-eight, with six assistant cantonment magistrates, are under the Quartermaster General in India, and to a certain extent (mainly in regard to their judicial duties) under local governments. The Quartermaster General has an inspecting officer of cantonments to assist him, who is selected usually from among the senior cantonment magistrates.

Officers of the Army Veterinary Corps come out to India for a tour of duty in the same way as officers of the Royal Army Medical Corps, and their duty lies principally with British troops. Some of them, however, are attached to the Army Remount Department and assist in supervising breeding operations. There is also a Civil Veterinary Service in India, appointments to which are made from the Army Veterinary Corps. Native veterinary assistants are trained at the veterinary colleges in India, and are appointed to native cavalry regiments, transport corps, etc., where their work is supervised by inspecting officers of the Army Veterinary Corps.

The Director General of Military Works, a major general in the army, is the head of the Royal Engineers in India. He is to a certain extent a staff officer, as he is technically adviser to the Commander-in-Chief, but he is responsible to the Department of Military Supply for the construction and maintenance of fortifications and other military works and buildings.

The present establishment of officers of the Military Works Services is 181, of whom fifteen are at present civilians

and the remainder Royal Engineers. There is no fixed scale for the subordinate establishment which, in addition to a large number of military warrant and non-commissioned officers, comprises a certain number of civilians. The officers are graded according to their seniority in the Corps of Royal Engineers, and the organization has been adjusted to suit the different army commands. In each command there is a chief engineer with a staff officer, in each division a commanding royal engineer, and in each independent brigade an assistant commanding royal engineer.

The present authorized strength of Royal Engineer officers in India is based on the war requirements of the army and is 392; the War Office, however, have not yet completed the establishment to this strength. There is no longer 'continuous service' for Royal Engineer officers in India, but they can qualify for an Indian pension after twenty years' service in this country.

They are eligible for appointments on the Army Staff in the Military Works Services, with the different corps of sappers and miners or submarine miners, and in the public works, survey and various other civil departments. Those in the public works and civil departments are liable to be recalled to military employ in case of war.

The Director-General of Ordnance, an officer of the rank of major general, is technical adviser to the Commander-in-Chief, but is responsible to the Department of Military Supply for the administration of the various arsenals and factories, from which the army and auxiliary forces (including Imperial Service Troops, Frontier Militia and Police) are supplied with all munitions of war and with most of their equipment. He has under his orders seventy-two officers (seconded from the Royal Artillery) and 500 warrant and non-commissioned officers in addition to many civilian engineers, mechanics, etc. The Ordnance Department is also responsible for the maintenance during peace, of the authorized reserves of munitions and stores of ordnance supply required for the field army. Under the Director-General there is an Inspector General of Factories who is responsible for the various manufacturing establishments, while the

arsenals are administered also under the orders of the Director-General, by Inspector Generals of whom there are two, namely, one for each of the northern and southern circles.

The Army Remount Department, which is under a director general, (an appointment which qualifies for the rank of colonel), with fourteen officers as superintendents, and eight veterinary officers, controls the breeding and the supply of horses for military purposes.

The Civil Veterinary Department controls horse, mule and donkey breeding outside the Punjab, Baluchistan, Sindh, the Bombay, Dekhan, and part of the United Provinces, inside which areas lies the work of the Army Remount Department. The principal source of supply of horses is at present Australia; Arabs are also imported, and likely young country-bred stock are bought and reared on runs. Mules for ordnance purposes are purchased locally, and mules for all purposes (to the extent that they cannot be purchased locally) are imported by the Army Remount Department. Mules for transport purposes are purchased locally by officers of the Supply and Transport Corps.

The Army Clothing Department has factories at Madras, Calcutta and Fategarh, and is under a director of army clothing, with five officers as assistants. The greater part of the clothing required for the army in peace time and all the special clothing required for the field army is manufactured in and supplied from these factories.

Grass and dairy farms are formed, or being formed, in all of the larger cantonments in India, under the control of generals commanding divisions. They supply grass to all government animals and dairy produce to all military services.

The Inspector General of Imperial Service Troops, a major general of the Indian army, has eleven inspecting officers, a deputy assistant adjutant general for musketry, an inspector of signalling, and eight assistant inspecting officers, all of the Indian army, to assist him in his work of superintendence of the training of the different Imperial Service Corps. The cost of this inspecting staff is paid by the Indian government, which bears no other part of the cost of the Imperial Service Troops, for these are absolutely under their own rulers, in whose territories they are recruited. Their armament and equipment is practically identical with that of our own native army, to whom they approximate in efficiency.

Since the days of the Mutiny the volunteers have had little opportunity of seeing active service. A mounted rifle company of the Rangoon volunteers served in Upper Burma in 1885, a company of the Calcutta volunteers took part in the Manipur expedition of 1891, Lumsden's Horse (a corps raised from Indian Volunteer Corps) took part in the South African War, and various corps have at different times been called out for military duty in aid of the civil power. The existence of volunteers in India is especially necessary in view of the different nationalities by which we are surrounded, and their value would be evident in case of a general mobilization of the regular forces for operations across the frontier. In these circumstances the security of a large part of the European inhabitants in India would depend on the volunteers, on whom we should also rely to a large extent to maintain the railway communications throughout the country.

All Europeans and Eurasians in India are eligible to become volunteers. The advisability has been mooted more than once of making service in the volunteers compulsory for all government servants and also for all European and Eurasian residents, but the question has not been pressed; at present all railways employees who are eligible, have to serve in their Railway Volunteer Corps, and in case of a general mobilization it appears that the greater part of the European and Eurasian residents would come forward voluntarily to enroll themselves as volunteers. All volunteer corps are under the orders of the general officer commanding the divisional area in which they are located. Junior officers are elected regimentally, but promotion to Captain and to ranks above captain have to be recommended by the local government. The Inspector General of Volunteers, an officer of the rank of Major General, is a regular officer serving under the Adjutant General; he inspects all volunteer

corps throughout India and generally looks after the interests of the force. Adjutants and sergeant instructors are detailed from the regular army to the different corps, as at home.

There are eighty-two volunteer corps in India, among whom are the Calcutta, Rangoon, Karachi and Aden Port Defence or Naval Corps with artillery and submarine and electric engineers, fourteen light horse or mounted rifle corps and seven garrison artillery corps. Of the 32,156 volunteers in India on 1st of April, 1906, 30,378 were 'efficients.' There is also a small volunteer reserve formed in reserve companies which numbers about 1,600.

Volunteers are armed with the Lee-Metford magazine rifle, and the various rifle meetings held in India and at home testify to their proficiency with it.

IMPERIAL CADET CORPS.

This corps, which was initiated by Lord Curzon, has its headquarters at Dehra Dun, and gives a military education and training for a period of two to three years to native noblemen. The numbers under training vary from twelve to twenty, and a certain number receive a commission in the British Brmy at the end of the course. There are at present four officers holding such commissions. Two are in command of corps of Imperial Service Troops and two are on the staffs of the major generals of divisions. There is a British commandant and a British adjutant to the corps.

Owing to the policy of withdrawing regular troops from across the frontier, the numbers of the frontier militia have recently been increased. During peace time they are under the orders of the local administrations (that is to say, the agent to the Governor-General in Baluchistan or the North-west Frontier Province), but when on military duty where regular troops are also employed, they come under the orders of the officer commanding the troops. They are officered by two or three British officers per battalion, they are armed with Martini Henry rifles, and they are equipped and trained on the same lines as the native army.

Nearly all the independent native states, whose number

is some 120, keep up bodies of armed retainers. The numbers of these forces vary, but they may be taken as aggregating approximately 90,000 to 100,000, of whom about three-quarters are infantry. They are of little military value for their armament, discipline and training are inferior except in Kashmir, Gwalior and Hyderabad. At the same time the 'personnel' in the states of the Punjab and Rajputana is generally excellent. In certain circumstances these so-called armies might prove a menace to the internal peace of the country.

Reprints and Translations.

GENERAL MISCHTSCHENKO'S SECOND RAID, MAY, 1905.

By Captain F. AUBERT, General Staff Austrian Army.*

DURING the pause in the operations following the battle of Mukden, the cavalry of the Russian right wing was concentrated near Siaotschensy. There it covered the front of the Second Manchurian army which was then entrenching itself between the Dun-Liaoho and the railroad. Two regiments were on reconnaissance service between the Dun-Liaoho and the Mongolian frontier. On May 12th General Mischtschenko received orders to report at the headquarters of the Second army where General Baron Kaulbars ordered him to start operations on a large scale against the Japanese communications to the rear. General Mischtschenko protested against that. He stated that the condition of his horses precluded large operations; that a raid would prove of value only should the offensive be resumed by either the Japanese or the Russians; that the Japanese left flank was well secured, etc., etc. General Kaulbars would not listen to these objections and stated that he had reliable information that the Japanese intended to attack very soon; he further explained that the raid was absolutely necessary to delay the Japanese a few days and allow the concentration of the Russian forces. He issued then the following orders to General Mischtschenko:-

*Translated from Kavalleristische Monatshefte, July, 1908, by Sergeant Harry Bell, Staff College Detachment.

"The enemy is concentrating in front of our position and has his forces so posted in the sector Kaiping—Fakumyn—Tsintsiatun that he can easily envelop our right wing. To us it is of the utmost importance to delay the hostile attack and to gain time to draw up our reinforcements expected to reach us between the 18th of May and the 2d of June. A means to delay the hostile offensive is offered by a raid against the Japanese communications to the rear, to destroy their stores and supplies and to interrupt traffic on roads and highways. The principal lines of communications of the western group of the Japanese army at the present time are the Liaoho from Inkou to Tuntsiakon, the Inkou-Sinmintin railroad and the highways from Sinmintin to Fakuyan, Kaiping and Tjeling. Large quantities of supplies are at Inkou, Sinmintin and Fakumyn. It will be your task to advance with at least two cavalry divisions, in any case with not less than one and one-half divisions, against the rear of the hostile west group and to delay the commencement of hostile operations by interrupting the hostile communications, especially the railroad."

The destruction of the railroad running to Sinmintin was later countermanded in a telegram as that road was neutral. This neutrality, however, caused the Japanese but little concern; for since the victory at Mukden they used it as their main line of supply and they also connected it with Mukden by a temporary field railroad.

On May 15th General Mischtschenko concentrated the following forces for the raid at Liaojanwopa:

Caucasian Cossack Division, twenty-three Sotnias and four guns.

Ural Cossack Brigade, eleven Sotnias.

Transbaikal Cossack Brigade, nine Sotnias and two guns, detachment of the Caucasian Cavalry Brigade, two Sotnias, two machine guns; a total of forty-five sotnias, six guns and two machine guns with about 5,500 sabers.

To increase the mobility of this detachment two guns and five ammunition wagons only, with 218 rounds per gun were allowed each battery; each trooper carried 250 rounds of ammunition and fifty additional rounds for each carbine

were carried on pack animals; but two days' hard bread and ten days' tea and sugar were carried; everything else necessary for subsisting the command was expected to be secured in the country. Each sotnia was supplied with two litters (to be carried by horses) and the hospital corps detachment had seventeen carts; no other vehicles, except the ammunition wagons of the artillery, were taken along.

The horses were entirely unsuited for an extensive raid; those of the Ural and Transbaikal Cossack regiments were totally played out by hard service and insufficient nourishment; the well mounted Caucasian Cossack Division had just completed a five weeks railroad journey, the horses were not yet used to the new forage and partly played out by two marches of about one hundred versts on an exceedingly bad road, partly through swamps and partly through sand; it reached the right wing of the army on May 14th and had not had sufficient rest for a new undertaking.

At 8 A. M., May 17th, the start was made in two columns. The left column, composed of the Ural-Transbaikal Cossack division and the Caucasian cavalry, twenty-two sotnias, two guns and two machine guns, marched for the present to Kaiping, with orders to turn to the west six versts from that town. The right column—twenty-three sotnias and four guns—was ordered to march from two to five versts west of the left column. All engagements with the enemy to be avoided; hostile fortified places to be left unmolested and circumvented; but in case of unavoidable contact in the open, especially with cavalry, the attack should be vigorously pushed—these were the general instructions given.

The dense screen thrown out by the Japanese retreated slowly in front of the advancing Russian advance guard; the right column did not encounter any Japanese during its march; the left column encountered the strongly fortified village Tschaubaopa, and circumvented it towards the west. Two Japanese dragoon squadrons were encountered, and retreated at a trot before the attacking Ural Cossacks. The march was about to be resumed when a message was received that the left flank guard had received fire from a village at about 200 yards distance, and lost eight Cossacks, whose

bodies had not been recovered. The officer delivering this report was told by General Mischtschenko: "I do not desire to hear of such an occurrence again; take two or three sotnias, or as many as necessary, recover the bodies, and take care that not a single Cossack again falls into the hands of the Japanese." Two new sotnias were sent to the flank guard, further losses were sustained, and the entire march was stopped to secure the wounded.

After the corps had covered forty five versts—and that at a walk—it bivouacked in and around Lidiaopa for the night. Its advance had been discovered at the very start by the Japanese. Therefore there was then no hope of material success in the raid except by increasing the rate of travel. In the bivouac the corps secured itself by a double line of patrols and pickets, so that daily eight to ten sotnias had to be utilized for outpost duties.

On May 18th the march was resumed across country in two columns, in the general direction halfways between Fakumyn and Kaiping, six reconnoitering squadrons preceding the columns by one hour.

Reports from the left column soon made it clear that the Japanese were reconnoitering the advance and were concentrating their infantry in all haste. The reconnoitering sotnias in front succeeded in surprising a small Japanese detachment in its bivouac, capturing a store house filled with rice and clothing; a lot of maps were also captured and ought to have been extremely useful, as the Russians possessed but a very incomplete and inaccurate map of the country to be traversed, but there was not a single Japanese interpreter with the Russians, and the maps could not be read.

One verst west of Santaitsy the vanguard of the left column was fired on. A short fire fight ensued, but soon the Japanese dragoon squadron evacuated the village, and the Russians did not succeed in overtaking it. In the village some vehicles were captured, and also a field safe. Shortly thereafter the left flank guard was attacked by a detachment of all arms; more hostile infantry was reported to be in front. Therefore General Mischtschenko decided to debouch in a

southwesterly direction. Bivouac was made at Tschandiaopa. The distance covered that day was about thirty five versts, again at a walk. During this march the right column encountered but weak infantry detachments and captured a few trains and supplies.

At 7 A. M., May 19th, the advance was resumed in a general southerly direction. The divisions changed places, so that the Caucasian Cossack division formed now the left column. After covering forty six versts, the corps, without a serious engagement, reached the town Tindiafanschin, and bivouacked there for the night.

Results of reconnaissance up to then were:

1. West of the Siminkin–Fakumyn road there were no Japanese forces.

2. Kaiping and Fakumyn were strongly held by the Seventh Japanese Division; in addition, infantry detachments secured the road between these places by holding the villages and the most difficult parts of the road.

3. There was no traffic on the Simintin–Fakumyn road, as erroneously believed to be the case.

4. The Liaoho formed the line of communications from Simintin to Schifusy, from there the Takudiasa–Kakumyn road.

General Mischtschenko then decided to advance on the 20th in an easterly direction to interrupt communication between Mukden and Fakumyn, south of Takudiasa. This line of communication was protected by a chain of hills, the commanding points of which (hills and villages) being about three to five versts distant from the road, but the covered and broken terrain did not only facilitate a covered approach on these points, but also allowed their circumvention. On the other hand, there was great danger of riding right into the hostile position and receiving fire from different directions. If the Russian corps desired to carry out the task which its commander had set himself, then it would have to pierce the hostile screen with all possible forces to reach the line of communications.

Without any apparent reason the left column remained behind of and lost touch with the right column; the latter,

north of Tschinsianpao, encountered a strong hostile infantry position, tried to go around it to the south, but was also fired on from Tschinsianpao. In spite of this, there was still a possibility to break through to the line of communications, for the advance guard regiment (the First Tschitinski Cossack regiment) continued, on its own initiative, the march in a southeasterly direction, reached the line of communications, captured and destroyed a Japanese supply column of 800 vehicles. The patrols of this regiment advanced as far as to Schifusy on the Liaoho, but being without support the regiment was forced to retreat by a Japanese infantry battalion.

In the meantime the right column had attacked Tschinsianpao by a few dismounted sotnias, captured the village which was defended by two companies of the Forty-ninth Japanese Infantry regiment, taking part of the garrison prisoners, the rest escaping. But after the village had been captured and the remainder of the right column came up, the success was not utilized for breaking through the Japanese lines to the east, but the corps continued in a southerly direction and became engaged at the villages of Donsiasa and Tasintun, where it sustained severe losses through two of the Caucasion regiments, which had so far not been engaged, making a mounted charge on infantry behind stone walls. The characteristic in these engagements, which were without any general interest, was faulty leadership — frittering away of forces, keeping strong forces in reserve, so that the engagements were costly in time and blood.

It appears that a continuation of the march in a southeasterly direction was abandoned during these engagements, for even before Tasintun was taken the main forces were put in motion in a southwesterly direction towards Siaofanschin. The taking of Tasintun and the capture of another company of the Forty-ninth Japanese Infantry was the independent work of certain sotnia leaders who did not want to abandon the task after it had been commenced.

The cavalry corps went into bivouac in and around Siaofanschin and Misctschenko called a council of war to ascertain whether or not enough had been accomplished and

whether it would not be best to return. As reasons for the return were given the small supply of ammunition (artillery) on hand, the obstruction of the movement by having to carry along so many wounded and prisoners, and the impossibility by being so burdened, to break through the fortified line towards the east. This latter was no reason at all, for why were not the wounded sent back under sufficient guard and the prisoners driven off into different directions? Another reason for the return was given, that is, that the cavalry regiments would be required and ought to be fresh in the forthcoming decisive battles of the Russian army. The council coincided with Mischtschenko's views.

On May 21st a reconnaissance party of three sotnias was sent from Siaofanschin towards Sinmintin; it found that the country was free of the enemy up to three or four versts north of Sinmintin, where the Japanese Fifty-fourth Infantry regiment held a strongly fortified position; the detachment then sent a few patrols towards the east and returned to the corps.

The corps took up the return march on the 21st of May via Tindiaopa and was not molested by the enemy on that or the succeeding day. On the evening of the 22d, Chinese reports were received stating that the entire line from Kaiping via Sinluntschuan to the Mongolian frontier was strongly occupied by Japanese detachments with artillery. These reports, besides causing apprehension of more losses, indicated a possible interference with the neutrality of the Mongols; also the march through the Mongolian sands was not relished. But the reports were exaggerated. On the 23d the corps circumvented "on neutral terrain," the Japanese left flank and reached on May 24th the starting point Liajanwopa, after having covered the 300 versts at a walk. The losses of the corps amounted to three officers and thirty-five men killed, eleven officers and 138 men wounded. The animals were completely exhausted and did not recuperate from that raid until the end of the war, although but little was required of them after the raid.

On May 26th General Linewitsch, Commander-in-Chief,

telegraphed to General Kaulbars, commanding the Second Army, as follows:

"I am in receipt of your despatch reporting the return of Adjutant General Mischtschenko with his brave Cossacks. I am much pleased therewith and congratulate you, General Mischtschenko, and all his men on the complete and glorious results achieved. I thank you personally for the inception of the raid and thank General Mischtschenko and his brave detachment for his gallant and well executed ride. I will bring the matter to his majesty's attention without delay."

To this telegram General Kaulbars added: "I also congratulate you with all my heart."

Of what consisted this complete and "glorious result" for which the leader and the troops were thanked in such an effusive manner?

Not considering the captured rice and tea sacks, the burning of vehicles, the temporary interruption of telephone and telegraph lines, the Russians consider that the cavalry corps carried out its task completely its task to ascertain if the Japanese intended to take up the offensive. The Russians also state that General Nogi, who commanded the Japanese left wing, could not think of a forward movement as long as the cavalry corps operated in his rear and interfered with his lines of communications.

To this we object: The cavalry troops had touched but slightly the area covered by General Nogi's army and did not gain any insight into the conditions of that army. The line of communications was reached only by accident, and thanks to the initiative of a gallant regimental commander, the weak guard which the Japanese had detailed for its protection was amply sufficient to cause the Russians to retreat. And in case the line of communications between Schifusy and Fakumyn had been destroyed, then the Japanese could have utilized the Liaoho as such.

The reasons for the miscarriage of the entire undertaking are to be found in the slow movements of the cavalry corps, which made it impossible to avoid contact with hostile mixed detachments. And, further, the absence of initiative and energy on the part of the supreme commander is very

apparent when compared with that of the Japanese line of communications detachments; it was also a great mistake to engage in useless combats with weak detachments. Finally, however, we must not overlook the fact that the cavalry corps had a task which was impossible from the very start, for, as above stated, the Liaojan-Mukden-Tjeling Railroad, the main line of communications for the Japanese army, was not at all vulnerable, as far as the Russian raiding force was concerned, and the Liaoho but little so.

CAVALRY ORGANIZATION.

From *The Broad Arrow.*

UPON no subject has such a wealth of criticism or such widespread controversy arisen, as upon the uses and tactical employment of cavalry in the field. Scarcely any two people are entirely agreed. The trouble is that no two people can find a common starting point from which to commence a discussion. As the question of the employment of cavalry is closely bound up with that of its organization, these must be considered together. The former naturally divides itself into two distinct parts, firstly, its strategical use, and secondly, its tactical employment. In considering first of all its strategical use, we can only attempt to come to any decision by accepting the principles of its employment as at present laid down, and then examining how its present organization is suitable, in the light of experience gained in the last two wars.

Before the South African War nearly every Continental nation, including ourselves, was influenced by the opinions of the great German General Staff. What they said upon military questions was always accepted. As a consequence, their views upon the employment of cavalry were those we all considered to be correct. Cavalry reconnoitering fifty and sixty miles to the front were to gain all the information

we could possibly want. Within seven or eight hours of the outbreak of a continental war, the headquarter staff was to be informed of the strength, movements, and probable intentions of the enemy. His mobilization was to be interrupted, railways destroyed, and telegraph lines cut, almost before he had realized he was at war. The collecting of this information, we were told, would probably be preceded by a great cavalry battle. Further, this umbrella-like screen was to prevent at the same time an enemy from gaining any information on similar points.

We spoke with wonder of the German and French frontier divisions, which were always ready to take the field at a moment's notice. As the war proceeded they were to cooperate on the battlefield, both by mounted and dismounted action. They were to clinch a victory and cover a retreat. They were to seize the strategical points and act against lines of communication. In a word, they were to be ever moving, and yet remain always mobile. It was with these guiding ideas that our cavalry went to South Africa. No cavalry officer, however, believed that men recruited from a closely populated and highly civilized country, and mounted as they were after the first month or two, on Argentine crocks, would be able at once to best the Boer riflemen, mounted on salted ponies. But the street corner critic did. The opinion of the latter was summed up in the lament, "How are the mighty fallen and the weapons of war perished." Every cavalry officer will agree that the results obtained by the cavalry in South Africa were disappointing. The information they were able to obtain was practically nil. Individually the trooper was no match for the Boer in cunning and self-reliance. He could therefore not be allowed to work alone or in pairs, as the Boer generally knew how and where to lay up for and capture him. We very wisely, however, recognized that the circumstances were altogether exceptional, and that, if we continued to give our attention to training in scout duties, there was no reason to suppose we were in any way inferior, or should be able to do less, than any continental cavalry we might be engaged against.

To sum up the tactical lessons, we practically said to the cavalryman: "We doubt whether your lance is any use, but we will leave you a few. Your sword used to be your most important weapon, your carbine only of secondary value. We will now give you a rifle, which will be your first weapon, your sword the second." In other words, we made him two-thirds mounted infantryman and one-third a cavalryman. We can now see what the Russo-Japanese War had to say to all this, and then how the divisional organization will be suited to the future use of cavalry.

The Germans told us our strategical deductions were correct, and when the war broke out we were told to watch the Russian cavalry. We should see that used in large masses it would break up communications, and that dispersed over great areas it would gain all the information required. The Russian cavalry then, highly trained in most cases, and with a world of military traditions and past deeds to give them confidence, commenced to reconnoiter according to sealed pattern. They met a few dejected troops of Japanese cavalry, badly mounted, bad riders, and bad horsemasters. These immediately bolted, and the Russian cavalry, agreeing that this was the game as it ought to be played, advanced to gain information. Unluckily a little further on they met half a company of Japanese infantry, and were immediately brought to a standstill. Concentrating a little they managed to push round its flanks, when they met a larger force of infantry supported by one or two guns, and they could get no further. On the other hand, the Japanese seemed to know everything, though they had apparently never pierced or driven in the Russian screen. A continental cavalry had met for the first time a mixed screen, and the elaborate spy system of the Japanese. There can be no question as to which was most useful, or which gained the most information. Part of the principal function of large bodies of cavalry was gone. A few Japanese spies and an officer's patrol or two had gained more information, and a few companies of infantry had prevented more being gained, than the elaborate system of reconnaissance and screening of great divisions. Can we expect any greater results from large bodies

of cavalry used in masses in European warfare if opposed by such a screen?

Take the function now of attacking hostile lines of communications, and compare Mishtchenko's great raid with 6,000 men organized in divisions to Colonel Nagamuna's with two squadrons. One could only remain out 100 hours, and during this time only covered 110 miles. It was unutterably slow, and accomplished nothing, The other was out for two months, covered over 1,000 miles, destroyed the railway six or seven times, caused the Russians to detach two brigades from their fighting line to hunt them, and generally got on their nerves in the most effectual manner. From a strategical point of view, therefore, the weight of evidence is against the use of large bodies of cavalry.

Turning to the best organization of cavalry for tactical purposes, it seems as difficult to justify the existence of divisions as it is in regard to its strategical uses. It is unnecessary to refer to mounted battle formations as there appears to be no doubt that the attack in three lines is the best, and that, therefore, the organization of the regiment in three service squadrons is suitable. It seems, however, very doubtful whether a cavalry division and suitable ground for its mounted action will often be found in the same spot. In some armies it has, however, been decided that information can best be obtained by small patrols and spies, and that dismounted action is the all-important function of cavalry in battle. It will probably be best to examine the action of cavalry at Mukden in order to discover whether it must necessarily be organized in divisions for this purpose. One of the chief reasons for Kouropatkin's defeat at Mukden was that his cavalry gave him no information regarding Nogi's flank movement towards Sinmintin. His cavalry ought to have been watching his right flank, which was *en l'air* in the valley of the Liao. He had at his disposal some five divisions of this arm. Probably less than one could have obtained the information required. To a certain extent, as has been shown above, the smaller the cavalry patrols, the more information are they likely to obtain. An officer's patrol can remain concealed where a brigade certainly cannot, and

it is seldom the business of a reconnoiterer to fight. Even had the Russians adopted the fan-like formation of the Germans for this reconnaissance a brigade would have been amply sufficient for the object in hand. They certainly would not have gained so much information as spies or patrols, but they would have gained some.

It has been said above, that when opposed to the modern mixed screen part of one of the strategical functions of cavalry is unattainable. That is to say, as it cannot pierce the screen it cannot obtain information as to the strength of a movement whose direction it may detect. But it can ascertain that a movement of an unknown strength is in progress. It is not all that is required, but it is something. It certainly seems that so large an organization as a division was not required even in this case, and had Kouropatkin detached a brigade forming part of a division there would have been a certain derangement in organization which would tend to show that organization to be unnecessary.

It is becoming more and more apparent, as the length of battle fronts increases, that a mobile reserve in the hands of the Commander-in-Chief is of paramount importance. Nobody can foretell with certainty, when holding a front of fifty or sixty miles, where the enemy's decisive attack will develop. If we have only infantry in reserve, wherever we place them they will nearly always be two days' march from any threatened point in the line. Their help will in nearly every case arrive too late. If Kouropatkin had had a force of cavalry in reserve he might have saved Kaulbars on his right from changing front to the west. Nogi's enveloping movement might have been arrested, at any rate until the long-suffering First Siberian Corps, which marched continually but never fought, had been given time to intercept him. The battle might have been saved. But though it must be granted that a large proportion of the reserve should consist of mounted troops it is no argument in favor of the divisional organization. Two self-contained brigades are more easily got under way and handled, than a division. It may not always be necessary to use a whole division, and with us who only possess one, it will seldom be possible to do so. The Japanese suffered from a dearth of cavalry, not from having organized what they had in brigades. It seems, therefore, with the evidence before us, that the very purpose for which we have organized a cavalry division is now unattainable. Incidentally it may be noted that this was again proved in this year's French maneuvers. No other duty, strategical or tactical, which can be assigned to this arm, requires so large and unwieldly an organization.

THE USE OF MACHINE GUNS WITH CAVALRY.*

By Major General MARCUS V. CZERLIEN, Austro-Hungarian Army.

THE machine gun has been in frequent use in at least two protracted wars in which it has had opportunity to demonstrate its worth. For our cavalry it is still a novelty and our personal experiences are not so easily replaced by those of others; therefore our peace maneuvers should serve for the accumulation of such experiments.

With this in view we shall take the last year's grand maneuvers of our First and Second Corps in Silesia as furnishing a good opportunity for a few brief remarks concerning the new war material under consideration during the momentary instances its uses were plainly perceptible.

The descriptions that we refer to of events occurring at that time are not sufficient to illuminate the progress of an entire episode; therefore we will confine ourselves to the following details only, which came under our observation during the employment of the reserve detachment of the Second and Third Cavalry Division on August 30th of last year (1906).

The detachment consisted of two squadrons of the Fifteenth Dragoons, one machine gun detachment, and an automobile mounting one Maxim machine gun; and this

* Translated from the *Kavalleristische Monatshefte* (August-September) 1907, by First Lieutenant Frederick J. Herman, Ninth U. S. Cavalry, for the Second Division, General Staff.

force had the duty of serving not only as the reserves for the scouting detachments and information patrols, but was assigned to screening duty and to block the line of the Stonawka between Hnojnik and Wolowetz. The duty was, therefore, decidedly defensive.

In the description of the action of the Seventh Cavalry Division in the November number of this *Journal* we find that this command received information towards noon of August 30th, that the road defile near Nieder-trzanowitz was occupied by two or three squadrons of the Fifteenth Dragoons and a machine gun detachment, and were preparing shelters there. The report was rather accurate and the detachment actually spent the night at the place where the enemy learned of their preparations. That the detachment was not surprised here must be charged to the management of the maneuver, as the application for permission to effect a surprise was not answered. Should one question us if such application was necessary we could only reply in the negative, as the 30th of August, the day for the acquisition of information was also that of minor warfare when surprises, ambuscades, etc., by day or night, as opportunity offered, could not have been excluded; on the contrary one must take these as a matter of course and arrange ones plans accordingly, as they belong most eminently to the war training of the troops. The Germans had night maneuvers with their cavalry during the present year (1907) and we will be obliged to do likewise.

In order to determine if a surprise has succeeded it is sufficient if the attacking party has approached the object of the surprise to within 200 or 300 paces without being fired upon and has given the signal "attack" or "storm" (charge); then it will be readily seen to what extent the attacked party is prepared to meet the surprise. This is the basis of the decision of the umpire who must accompany the attack. More cannot be done without provoking an impossible situation. But how will one develop the troop for modern war without becoming familiar with the frictions that one must reckon with in nightly undertakings? In former centuries night operations occurred more frequently; at Hochkirch we won a battle at night; at Podul, in known terrain, we did not.

In 1866, as a young captain of the General Staff, I was on duty with the bridge-head commando in Floridsdorf, and was in command of the observation post in Work No. 2 on Bisam Hill garrisoned by a weak battalion of the Twenty-fourth Regiment of Infantry. On the 19th of July, at about 5:00 o'clock in the afternoon, a terrible storm raged and one could not see for ten paces to the front; soon thereafter information was received in Work No. 2 from Work No. 1 at Langenzersdorf that the Prussians had entered Kornauberg. This was the same bad afternoon that the horses of nine cavalry regiments in Prater had stampeded on account of the storm. As under such circumstances an observation from Bisam Hill appeared impracticable, and as I did not wish to await what might follow like a mouse in a trap, I descended to Langenzersdorf, where the major of a dragoon squadron informed me that the Prussians had withdrawn from Kornauberg. If I desired to see anything I would have to go forward; so requesting a horse and an orderly I rode toward the enemy as far as Stockerau, which had also been evacuated. Toward 7 o'clock in the evening I found here the local mayor in his office and received from him the informatton that the two squadrons of the Deaths-head Hussars that had advanced as far as Kornauburg had retreated to Sirndorf and lodged themselves in the castle there without any disposition for security. I hastened back with this information and found before Langenzersdorf our Jäger (riflemen) on outpost, returned the horses and hastened to Work No. 2 from where I sent a telegraphic report to the bridge-head headquarters and suggested a surprise for the careless Death-head Hussars. For some time I received no reply, but after a while was advised by the Chief of Staff of the bridge-head commando that for such work as this no troops were to be had, as the troops needed their night's rest. Will such views be maintained for the future?

I have already stated that the duty of this detachment of the Second and Third Cavalry Divisions was purely defensive. But it appears that the blocking of the line of the

Stonawka on the 31st of August was not considered necessary any longer, for, according to the version of this maneuver in *Streffleurs Magazine* the detachment on this day took up a position about 1,800 paces in advance on the road toward Teschen with the machine gun detachment; and another with two squadrons 1,000 paces to the south of that of the machine gun detachment on the ridge of Ober-Zukan. The automobile, had on the day before, undertaken a successful reconnaissance, and appears not to have returned to the detachment as the enemy on this day advanced toward the line of the Stonawka from Teschen in several columns, the detachment was obliged to retire behind this line without having delayed him materially.

This would have been accomplished sooner if the crossings of the Stonawka had been occupied and held, than by an array in open terrain visible at a great distance.

According to this description, the detachment, instead of entering the woods, occupied a second position farther behind the Stonawka at the north corner of the woods, eastwardly of the hamlet Fifejdy, in open terrain, and was here attacked by the Twelfth Dragoons; the two squadrons were defeated, the "machine gun detachment got into a difficult situation and was ruled out of action by the umpire."

As a matter of fact, the principal point in the matter is not stated here, namely, what constituted the "difficult situation." If the detachment desired to take a second position —which was not a part of its assigned duty, as it was much too weak to take up the fight with the advancing division — it would have done better, perhaps, to occupy the eastern edge of the forest, near Fifejdy, with dismounted sharpshooters on both sides of the northern opening, with the machine guns posted near the opening; then the catastrophe would not have happened, and the Twelfth Dragoon Regiment would have gotten into some difficulty itself, as it would hardly have permitted itself to be led into a fire action in open terrain and within easy range of the horse batteries of the Third Cavalry Division. In connection with this second position, the detachment commander also had some excuse himself, as his orders contained this paragraph: "Before

strong forces of the enemy, the supporting detachments will retire upon their line of march and hold the corresponding cut-off on the Holczina." This disposition could only hold good for the 30th of August, as on that day the Holczina lay before the front of the Third Cavalry Division, but not on the 31st, on which day the Holczina cut-off was out of all consideration, as it then lay behind the place of assemblage of the Third Cavalry Division, near Toschonowitz. It could not occur.

It seems, however, that * * * the machine gun detachment had been firing upon the Twelfth Dragoon Regiment for ten minutes while the latter was coming down the slope, before it was attacked and taken by the latter. The fire effect of the machine guns against so large a target as a cavalry regiment in column would in such time have been considerable, as the four machine guns could in this time have fired 16,000 cartridges, which, almost without exception, would have reached the head of the column, which, owing to the many fallen horses, could have advanced no farther; but that a regiment so decimated could take up the fight with the fresh squadrons, and in the fire of the hostile horse batteries, is doubtful. This matter would be different had the regiment deployed a portion of its strength to attack the machine gun detachment in extended order, or had dismounted a half squadron and attacked by fire action from good cover, for the purpose of drawing its fire; but no such attacks in close order can succeed in actual warfare.

In time of peace, when the effect of its fire is not felt, and when the machine gun detachment is in position, under cover, or is masked, and one is not aware of the presence of the guns, it is very easy to imagine that one is not under fire, although in this instance this could not be the case, as at the time the machine gun detachment could have had absolutely no other target in its immediate front than the Twelfth Dragoon Regiment.

The introduction of the heliograph flash to indicate targets fired upon during peace maneuvers may perhaps be as necessary for the machine gun detachment as for the artillery.

It is stated upon good authority that a Russian machine gun detachment during the war in Manchuria inflicted heavy losses uqon the Japanese during a considerable period of time without being discovered by the latter. As this was finally accomplished by the Japanese, the detachment was annihilated in a few minutes. Machine gun detachments will, therefore, in war always take positions under good cover. For this reason they are not usually observed in peace maneuvers, and their fire from such positions should at least be indicated by a flag, which, while disclosing the positions of the guns, guarantees due regard for their fire effect.

The two squadrons of the Reserve Detachment No. 2, according to the description of the action of the Seventh Cavalry Division heretofore referred to, had already begun their retreat while the machine guns were limbering up, without even an attack upon the head of the Twelfth Dragoon Regiment; then crossing the Stonawka, by which the limbering and withdrawal of the machine gun detachment would have been protected, although at such times the machine gun detachment is defenseless and most urgently needs such protection. As such attack or resistance was not offered, the Twelfth Dragoons very properly and promptly seized their opportunity and captured the machine guns, which would not have been an easy task had the Reserve Detachment No. 2 taken up the fight with any degree of energy.

According to an article in the *Army Friend* (The maneuvers of the First and Second Corps in 1996), the retreat of the reserve detachment, No. 2 was the result of an order of the commandant of the Third Cavalry Division, who desired to assemble his scattered detachments prior to the decisive movement, which can be readily understood. But the order was received by the detachment at an unfavorable moment, or if this was not the case, its execution was too long delayed. In the first case it must have occurred to the commandant of the detachment No. 2, that such order, in view of the close proximity of the enemy could only be carried out by sacrificing a part of his command, which is hardly to be expected of a righteous cavalryman, and it is not understood that the order of the division commander so intended.

Otherwise the commandant, who must have observed the advance of the Twelfth Dragoons, should have begun the retreat before detachments of the enemy had crossed the Stonawka, if he did not desire to attack.

But in order to appreciate the tactical relation of the machine gun detachments in connection with the cavalry, it would be necessary to know exactly the time required to unlimber and prepare for action and to limber up and move off, as otherwise a safe time calculation can not easily be made.

We observed that the machine gun detachment of the Third Cavalry Division, norwithstanding its strong support was taken; whereas, that of the Seventh Cavalry Division whose support was only one squadron, was able to remain in effective action throughout the day; on the following maneuver days they were brought repeatedly and without mishap into action, but never so isolated as the horse battery division of the Seventh Cavalry Division on the 31st of August.

I have permitted myself occasionally, while in command of troops in detachment exercises, to allow the artillery to remain in position without support, only, however, to be able to make a stronger demonstration to the front but in such cases there were no scouting or reconnaissance detachments to fear. But it is otherwise with greater events, for then artillery and machine gun detachments cannot be left without support, or the reconnaissance detachments of the enemy will be given opportunities far beyond their reasonable expectations.

In the foregoing remarks I have confined myself to the description referred to without, however, guaranteeing that the progress of such events was exactly as described; therefore I cannot enter into a discussion of details connected therewith which in themselves would also have some value.

TRANSLATOR'S NOTE.

The foregoing article emphasizes the importance, above all, of the necessity on the part of the higher military commanders of a better understanding of the tactical relations of the machine guns to the other arms, as well as their protection, while in position or in going into or from positions for action, by appropriate supports. As the furnishing of such supports will always cause a weakening of the forces to which the machine guns themselves, at least in our service, are adjuncts, such service could perhaps be best rendered by the personnel of the machine gun detachments, which should be sufficiently numerous for the purpose.

In this connection it may be pertinent to remark that a combat and observation patrol, consisting of a non-commissioned officer, one horseholder, and two sharpshooters armed each with a Danish machine gun, sent to either or both flanks of the position of the machine gun detachment would give the fire effect of a dismounted squadron of European cavalry or of a half company of European infantry.

In the foregoing article the necessity for deployment of large bodies of troops advancing upon machine guns in position is made apparent; in actual service the losses of an European cavalry division advancing in close order upon a four-gun battery of automatic machine guns anywhere within 2,000 yards would be frightful.

THE ACTION OF THE FUTURE.

From *The Broad Arrow*.

THE next great war, and it may break out sooner than we either desire or deserve, will see considerable changes in the manner of attack and defense. All arms will find their parts in the drama modified. We need not insist on our readers that a campaign of the description of the Boer War—unless in the case of a second war against the same

foe—will not again take place. The deadly effect of the rifle in the hands of men trained to shoot for their living every day, will not again be a factor for consideration. The extreme mobility of an enemy accustomed to ride and to move over a vast country without artificial obstacles will not, in any European or Asiatic war, have to be taken into account.

The armies of the future will be made up of men untrained to war. The intelligence of the individual will be infinitely greater than of yore, and this fact will profoundly modify the course of war. The nation that, acknowledging the importance of this fact, will give all its energies in time of peace to developing the moral force of its naval and military forces, will carry off the palms of victory. This means, in a word, that the connection between officer and man must be rendered more real, more intimate. Demos has taken the scepter in hand. Discipline and democracy are not exactly harmonious notes. It will be the tact and firmness of the leader, combined with the superior intelligence of the rank and file, that will and must combine to find a solution of this apparently difficult problem. With us there should be less trouble than with most nations in solving the equation. In our army there has always been a paternal relation between the commanding officer and the men under his command. It is the company, squadron, or even troop leader, who must with us fully recognize how the fight of the future depends upon his intelligence and upon his exertions.

Cavalry will in the future, when employed against cavalry, find the *ultima ratio* in cold steel. There are, however, many instances, especially in the great plains of Europe, where the value of mounted men will depend as much upon their eyes and their ears, as upon their arms. It has been the fashion amongst some whose thoughts are vague, to declare that the day of cavalry is past. On the contrary the sun is rising on its brilliant future. The cavalry division of to-morrow, we may almost say to-day, will be a vast, self-contained agglomeration of human beings with one mind; that of its chief. There will be in its ranks carpenters, woodmen, blacksmiths, bridge builders, photographers, balloon-

ists, telegraphists and telephonists, swordsmen, soldiers and riflemen. For it must be remembered that whilst it is necessary to retain the force of serried impact as a reserve for breaking through at certain times; the enveloping duties of reconnaissance will fall more especially to the horseman. He it will be who will be charged with the duties of connecting the great units that spread over a vast extent of country, must when necessary combine in a frontal or a flank attack. Then will be the time when cavalry may hold strong bodies of the enemy, in order to allow time to the infantry to make its great turning movements. Something of this sort was attempted by the Russians on the only occasion when they nearly attained success in the Manchurian campaign. The reason that they failed to achieve victory was because the whole plan of operations was disjointed, and that central impulsion was wanting. On the 25th of January, 1905, General Gripenberg's army, consisting of the Eighth and Tenth Army Corps, and Mishtchenko's cavalry attacked Chenchiepu and Heikautai. On the Japanese side the force of the attack fell on two divisions and a brigade of cavalry. On the 25th the Cossacks appeared in a cloud in front of the Wukiatse defenses, and opened fire at a distance of 1,500 to 1,600 meters. This is an illustration of the nature of cavalry attack as it may often be developed. It is not too much to say that "riflemen" must be included in a cavalry division. The Cossacks, evidently relying on their numbers, pushed on, but the Japanese received them with such a rain of bullets that they retired. It was calculated that twenty sotnias with twelve guns were here temporarily repulsed by a few squadrons of Colonel Homda's cavalry. In spite, however, of the heroic resistance of the Japanese the Cossacks advanced and got round them. By 6 P. M., on the 27th of January, the Russians had practically turned the Japanese flank in the direction of Hsuierhpo, and were advancing towards Chukiawoping, and the line of the Taitseho. It was only by the most strenuous exertions that the Fifth (Hiroshima) Division protected the Eighth, that held on bravely to Samapao and Sonchiepao. The last attack made by the Russians on these villages was at 11 P. M. It seems probable had General Kaul-

bars, on General Gripenberg's left, offered hearty assistance to the latter, that the Fifth and Eighth Japanese Divisions would have been driven back, and the line of the Shaho, and even the railway at Yentai Station, might have fallen into Russian hands. The idea of the great cavalry "holding" attack on the Japanese left was good in its inception. The attack failed because it merely forced the Japanese troops from a position that was not assaulted by the comrades of the cavalry.

It is plain that not only will great exertions be necessary to instruct men in the art of war during times of peace, but that each arm will have to learn something of the principles that govern the attack in the other. At the commencement of a campaign in olden days it was possible to "make" soldiers in the little affairs that preceded the great battles of the war. In the future masses of men who have received but little training will be plunged, without preparation, into situations where causes of demoralization will arise that may result in annihilation. As the French General Tournier truly says: "Men must be taught and warned against the influences that will act against them morally, either in action or on the line of march, such as partial retreats, losses that may be borne without flinching, and above all, the moral effect of explosive projectiles." Lord Roberts, in his speech at the Liverpool Chamber of Commerce, says almost the same thing in other words. He warns us that if war should come upon us in Europe, or on our Indian frontier, we should have to deal with very different foes, with foes trained and armed in millions, from the Boers, who were neither highly trained nor numerous. He tells us plainly that we have not got an army of sufficient weight to turn the scales decisively against any foe that might disturb that *status quo* in Europe, as vital to our position now as it was in the days of Pitt. Without going into the question of universal training, we notice that the general gist of his lordship's remarks is that the moral is as necessary as the physical training of the soldier. In the days of democracy it must be that the citizen himself submits voluntarily to that training, for the natural instinct of the free man is to resent all command of restraint. It is pre-

cisely beceuse our natural instincts are those that are necessary to conquer, that we insist on the value of moral training. It is naturally the instinct of any creature, human or brute, to avoid danger. No man will out of pure gladness of heart place himself near an exploding shell This brings us to the action of artillery in action which will be next considered.

There is much to be said about the action of artillery, but we may first consider the part that will have to be played by the engineer. This *rôle* is so important, and the Corps of Royal Engineers is so relatively weak in numbers, that it seems a waste of energy and money to transfer its headquarters from Chatham. We are more concerned at present with the highly-developed state of field fortification, and the intimate alliance now existing between the engineer and infantryman. In the articles written by an officer of the Thity eighth (Russian) Division, copious extracts of which have appeared in our pages, this matter is insisted upon. Ignorant and untrained infantry, and this is exactly what the mass of our infantry, not Regulars, must necessarily be, needs instruction from the engineer. For that purpose we advocate if possible permanent coöperation in peace time between the two arms. The great battles in Manchuria have shown us that in the future, as cavalry will veil with a screen, engineers will protect the front of great armies with a wall, covering miles of ground. A glance at the maps of the battles will illustrate our meaning. At Liaoyang not only was the town itself carefully defended by semi-permanent intrenchments, but the whole Russian position was strongly intrenched. Trenches ran all along Shoushan, and the high *kaoliang* or millet, had been cut down in front of them. These trenches were of the character of field works of normal types, namely, infantry trenches for riflemen kneeling, with field shelters and traverses, while gun pits were prepared for artillery with shelters against plunging fire. On Shoushan more solid works were constructed, wire entanglements, *trous de loup*, and fougasses, presented serious obstacles to assault.

The defences around the town of Liaoyang consisted of eleven closed works, with parapets for the delivery of infantry fire, while traverses and bombproofs gave additional security. In front of these were deep ditches, wire entanglements, military pits, and fougasses, or mines charged with stones, were placed in front of the ditches. For a distance of 800 paces the *kaoliang* had been cut down half-way through, and woven and interlaced, like a hedge in England is treated by a hedger. This constituted a new and effective obstacle. The whole fronts of the Tenth and Seventeenth Russian Army Corps were protected by lines of earthworks. It is the engineer who can teach other arms to intelligently adapt and improve existing natural obstacles. The precise manner of doing this varies according to the climate, vegetation, and character of the ground. It would be presumptuous on our part to indicate the exact manner in which natural obstacles are to be improved. We have to inculcate principles, not to explain details. We plead for the provision of technical *matériel* by the authorities in time of peace in sufficient quantity. We doubt neither the brain power nor the bravery of the Royal Engineers.

Although we cannot insist too strongly on the necessity of training men during peace time, we also warn all ranks that overwork is detrimental. It is not only prejudicial to the men's health, but it destroys interest, affects the moral character of the men, and thus injures discipline. The training of our field artillery has been in the past left to the battery commanders, who have right well carried out both the letter and spirit of their orders. It is not news to our gunners to hear that the long range and rapidity of the modern gun, the hitherto anathematised division of the battery, the capacity of the gun for operating in cramped localities, the small effect produced even by excellent weapons in good hands upon earthworks or invisible objects, are the various cases to which they must look to regulate the effects of their fire. A truth of this sort can hardly be too often told. The Japanese showed us in Manchuria that artillery can do nothing without a thoroughly well-organized observation service. The whole front, it may be as long as from

Aldershot to Salisbury, or Dublin to Athlone, must be scouted by artillery officers or gunners gleaning information, which they must gather from other branches of the service, as well as collect themselves and transmit for information. The Staffs must remember to forward all information that they receive on to the commanding Royal Artillery officers. Commanders of batteries or brigade division must of necessity be often far from their commands in their endeavors to see as much of the ground as is possible in order to develop their initiative. In such cases they will only be able to communicate with them by telephone. The object of the artillery fight, when it begins, is to hold the hostile artillery under constant threat of a fire of all its own quick-firing guns, and thus to prevent it firing on moving objects or on the infantry.

It seems to us that field artillery would be immensely strengthened if the guns were provided with shields. The Russian reports agree in stating that it is impossible to annihilate gunners who are under shelter in trenches or behind shields, and that a battery on which fire is directed is compelled to cease firing and to seek such shelter. A judicious organization of observation makes it possible to retain batteries to act against hostile infantry. It will be no longer necessary, as we have before pointed out, to mass the artillery in the long continuous lines of Worth or Gravelotte. The enemy, we must remember, has efficient observers provided with Zeiss glasses, as of course we have, and will at once discover such long lines and inundate them with a rain of shrapnel. In fact the object of field artillery is now to kill men and horses, not to destroy walls or to set villages on fire, although these may be concomitant results of its fire. The last question we can now consider is the vexed one of changes of position in order to approach the objective. With long-range guns we think these should be few in number. A gun does not hit harder at 2,500 than at 3,500 yards. But it may be necessary to change positions in order to see. The advancing batteries should be taken from the reserve so that the other batteries may continue their fire. Of course small battery changes of position must be carried out

by hand work. It would be suicidal to bring up the teams for this purpose. Defense consists in invisibility, offence in protracted fire. It is only when the enemy has given way that all the guns must gallop forward to occupy the conquered position.

COMPOSITION OF THE CAVALRY DIVISION.*

THE last few wars have furnished a number of experiences on which to base a correct estimate of the required strength and composition of the cavalry division. The times are past when the main role of the cavalry division was to ride to the attack in battle. It is true that to-day as heretofore the profession and spirit of cavalry will call for any sacrifice, in which the cavalry seeks its duty and honor, to throw itself, in the heat of battle, on the hostile infantry and artillery if the situation requires it. That part of the duties of cavalry, therefore, remains unchanged and unquestioned, but other additional duties are required of it to-day. Through reconnaissance far to the front and on the flanks, the cavalry of an army has become more than ever the eyes of that army. It drives the hostile reconnaissance organizations, *i. e.*, the enemy's cavalry, from the field and thereby opens a road for itself for the purpose of gaining an unobstructed view of the enemy's situation, while through the destruction of the hostile cavalry, it robs the opponent of his means of reconnaissance. But still higher duties are set for the present day cavalry of an army. Bold raids against the flanks and rear of the hostile army, before and during the battle; against the enemy's lines of communications, and the obstruction and destruction of the same; the most manifold technical labors (crossing of streams, destruction of all manner of things, and establishment of telegraph and telephone lines); all these duties require the highest ability on the

* Translated from the *Austrian Cavalry Monthly* for September, 1908, by Sergeant Harry Bell, Corps of Engineers, U. S. Army.

part of the cavalry division. The saber, which heretofore was its only decisive arm, has been supplemented by the carbine, which latter has become of more and more importance and now almost indispensible on account of its accuracy and long range, and without it the cavalry would be helpless in many situations.

If we analyze the essential qualities which a cavalry division, organized in accordance with up-to-date views, must possess we find three elements:

1. Mobility, which will asure and allow independence;
2. Strong fire-power, assuring vigorous and quick effect when cavalry support is required in battle, and
3. Necessary technical means (bridge equipage; supplies to construct telegraph and telephone lines; ammunition, etc.)

During the Franco-Prussian War in 1870–71, the German cavalry divisions were of different strength, from sixteen to thirty-six squadrons. Consequently their achievements were varied. As soon as a battle ensued, the batteries attached to the cavalry divisions were invariably detached and sent to join the artillery lines. Not all of the cavalry was armed with carbines, and it was consequently often doomed to inaction; and if we take this fact alone into consideration we find that many sins of omission charged to the cavalry division, which seem strange to us, are accounted for thereby. Technical engineering work was at that time in its infancy; especially the throwing of bridges and building of telegraph lines. What a change has been wrought since 1871! In the Boer War the British came to consider the fire action as the main duty of the cavalry division; General French had attached to his division several cempanies of mounted infantry and numerous batteries. In the Russo-Japanese War, we see on the Russian side (just remember Mischtschenko's raid), helpless, cumbersome cavalry masses, loaded down with all manner of impedimenta, hindering their movements. Opposed to them were small Japanese cavalry divisions, numerically weak, to which as a rule but one battery was attached, and in a few isolated cases some machine guns. The Japanese divisions were quick and mobile, but weak. It has repeatedly been pointed out and needs no discussion here that

several *strong* Japanese cavalry divisions, suitably reinforced by artillery and machine guns, could have done excellent service by throwing themselves on the defeated Russian army, which retreated, totally routed, to the north after the battle of Mukden.

What should be the proper strength and composition of a cavalry division?

Opinions differ widely. Some maintain: If we attach still more artillery and machine guns to the cavalry then it will still more assume the role of protector to these latter and lose its value as a mounted arm. And if we load it down still more with ammunition and thereby lay more stress on the dismounted fire action, then we might just as well abolish the cavalry altogether and form it into a sort of mounted infantry. Other opinions hold: Cavalry, even the most courageous and best, imbued with the proper cavalry spirit and ready to sacrifiee itself in attack, is of no value if without sufficient fire-power.

It is true that an attack on shattered or weakened infantry may succeed, but the cost of success would be so great in lives lost that that cavalry would be useless for a long time to come. A few platoons of infantry, ably commanded by an energetic leader and holding a defensive position, are fully able to delay an entire cavalry division for some time and cause great losses in case the cavalry is not supported by its batteries throwing shrapnel and thereby clearing a road. We should not forget that the force of an attack by cavalry in a dismounted engagement must not be overestimated; else actual war may bring us sore disappointments. The addition of artillery, of course very mobile artillery, is necessary for the cavalry of an army. The old complaint that every large dismounted engagement has seriously effected the mobility of cavalry, is generally correct. Just remember what a hindrance the led horses of men killed or disabled are in a dismounted fight. Therefore, we must acknowledge the correctness of the opinion that the fire-power of the cavalry must be replaced or at least supplemented through the addition of mobile machine guns. To attach infantry detachments can only occasionally be of use, for how will infantry keep

up with cavalry? The latter would either have to wait for the infantry, thereby losing its main element, mobility, or the infantry would be separated from the cavalry, unable to keep up, and the entire object of the combination would be lost. We have tried to overcome the difficulty with cyclists; in France a plan is afoot to attach cyclist companies and even battalions to the cavalry division. This may be correct and useful in certain situations, but may also prove to be a hindrance and inconvenience; for instance, where there are no good roads or the weather is wet, then the cyclist company would be a hindrance and possibly more so than a company of infantry. So-called mounted infantry has its proper place only in colonial wars, where operations are carried on in a small way, and will therefore not be considered here. It is too slow to keep up with the cavalry. Cavalry, if well trained in fire discipline, can perform just as efficient service in fire action as mounted infantry.

From this it follows that an addition of horse artillery and machine guns within proper limits is not detrimental to the mounted duties of a cavalry division. To do without these auxiliary arms would be to abandon a force or power which the cavalry of to-day absolutely needs to make it equal to its difficult and manifold duties.

How strong should the cavalry division be in *cavalry* alone? All European powers, except France, which seems to be of different opinion, have decided, and correctly, to have three brigades of two regiments each. This has the advantage that, in battle, one brigade can be held intact at the disposition of the division commander. In two brigades of three regiments each this advantage would be lost and the brigade formation dissolved. It has been proposed to increase the strength of the cavalry divisions to four brigades, and this proposal was based on the fact that the present day utilization of the cavalry divisions carries in its wake the detailing of detachments for manifold duties, such as sending out reconnaissance squadrons, detaching men for message and relay service, for signal detachments and telegraph patrols, guarding the regimental baggage, etc. Even if economically used, several squadrons may be lost in this manner. Therefore the proposal to overcome this difficulty by increasing the brigades from three to four and to have the division thereby strong enough for all emergencies is not entirely unjustified.

On the other hand, the reason for making the cavalry division not stronger than three brigades is clear. The larger the command, the more difficult it is to quarter and ration the same. In the war of 1866, the massing of large bodies of cavalry on the Prussian side was most unsatisfactory, for there were very few villages which offered sufficient quarters; the cavalry had to bivouac and it is an acknowledged fact that continuous bivouacing plays havoc with horseflesh. If we have to separate the cavalry division into widely scattered villages, time and force is lost in concentrating it for resuming the march and the degree of readiness for battle is materially lessened thereby.*

It is well known that the cavalry division can carry but a limited amount of forage; German regulations prescribe the amount at one-third of a day's ration, which is to be immediately replenished by requisition on the country. To supplement and complete its forage, the cavalry division has to fall back on the country. Even if we admit that in most cases the cavalry divisions do not operate in exhausted parts of the country, it is clear that the difficulties of securing forage are increased the more troops are massed together. It will be the exception rather than the rule that forage columns can accompany a cavalry division.

We must also not lose sight of the fact that a cavalry division with its impedimenta has a marching depth of about 6,750 yards. Each addition lengthens this depth and consequently increases the time required for deployment for battle, a fact well worthy of consideration. The cavalry action is swift. The leader needs his regiments quickly. Who would therefore lengthen the column and increase the time required for deployment? We therefore maintain that three brigades of two regiments is the correct number; four brigades permissible.

*This argument has no weight in our service, where our cavalry are never quartered in towns or villages.—*Translator.*

How much *artillery* should be attached to the cavalry division? Two batteries of six guns or three batteries of four guns seem to be about right. Large or entensive artillery battles are not within the province of this artillery; it has not sufficient ammunition for that. The number of guns should not be increased, otherwise the whole would become heavy and cumbersome. Short and weighty action before attack; strong fire on a defile blocked by the enemy; hastening from one fire position to another in the pursuit, shoulder to shoulder with the cavalry—those are the duties expected by the cavalry division of its horse batteries. Three small batteries of four guns are preferable to two batteries of six guns. It is true that the number of guns remain the same, twelve, but there is a material difference. The smaller battery is quicker and can therefore be utilized to better advantage; it can be more readily attached to a brigade and sent off on a special mission, and the artillery battalion commander will still have two intact batteries at his disposal. That each of the batteries of four guns must have as much ammunition as the battery of six guns is self evident. The light ammunition column must be composed of the necessary number of vehicles in that regard and will have to carry a third more ammunition than at present. The cavalry division will be separated from the main body of the army for days at a time; how can replenishment of ammunition take place if the division has no means therefor? It has to take along a light ammunition column, even if it is cumbersome.

A battalion of machine guns will be sufficient, but according to our view, this battalion should be composed of no more platoons than there are brigades in the division; each machine gun platoon to consist of two guns and two ammunition carts; this would give six machine guns to the three brigade and eight to the four brigade division. Our present machine-gun platoons must be replaced by platoons the entire personnel of which is mounted. Whatever the artillery has to have should not be withheld from the machine guns, therefore the light ammunition column will also have to carry reserve ammunition for the machine guns.

We do not favor the *permanent* attachment of cyclists to a cavalry division. But this does not mean that for certain purposes the cyclists of an infantry division or of an army corps should not be concentrated and temporarily attached to the cavalry division, provided there are good roads.

We will now consider the question of technicalities. In this we start from two points of view:

1. Avoid every unnecessary loading down of horse and man.

2. Provide everything absolutely necessary to make the division as effective and as independent as possible.

First, the engineer detachment. We hold that only trained men, *i. e.*, men belonging to engineer organizations, should be utilized therefor, not cavalrymen who may have had some instruction in engineering. There are undoubtedly many such, but they belong primarily to the *squadron*. The main task of the engineer detachment is to perform certain definite and merely technical duties, for instance thorough demolition. It must be able to follow the cavalry everywhere and that quickly. We have experimented on a large scale in this respect. At one time engineer detachments were transported on vehicles, at another on bicycles; one is as little suited to war conditions as the other. Only well mounted troops should be attached to the cavalry division; therefore the engineers should be well mounted. Training of engineers should be in such manner that picked men may be attached to the cavalry in their second year of service and there learn to ride in addition to being drilled in their own technical profession. We need not expect fancy or trick riding of them, it will suffice if they can ride at trot and gallop and know how to care for a horse. The number of men thus trained need not be large.

Bridge train equipment (steel pontons), telegraph patrols, field signal detachments and sanitary detachments in our cavalry service are suitable for all purposes demanded of them in war. These matters we will, therefore, not touch on; they could not be better.

Does the cavalry division need special provision trains?

The German Field Service Regulations (par. 475) says on this point:

"The cavalry of an army (this means the cavalry division), as long as it is in front or on the flanks of the army, will in most cases have to rely on the country for its provisions. To carry them, supply columns formed of requisitioned vehicles with good teams are to be recommended. Oats and other forage should be carried on them mainly. Army headquarters may attach to the cavalry provision columns consisting of one-horse carts loaded with oats mainly."

We hold that the German method, to leave the arrangement of this matter to general headquarters according to its judgment, is correct. A permanent assignment of provision columns to a cavalry division is superfluous, is but an encumbrance which very often will hinder the mobility and interfere with its duties.

To conclude, we will consider the following. Nearly all armies have at their disposal a special divisional cavalry, which, as in the German army, consists of four squadrons. Where the divisional cavalry is numerically weak, as for instance in France, the army corps has a separate cavaly organization, the corps cavalry brigade. It is clear that not all infantry divisions and army corps can utilize their cavalry to its fullest extent when operations are on a large scale. In any case the bodies on the flanks and those in the first line will have definite and far-reaching duties, while those in the center and in the second line may have difficulty in finding suitable employment for their cavalry. Would it not in that case be better to concentrate the unemployed cavalry and attach it to the cavalry divisions for the time being for special duties? War at the present day cannot be be carried on by keeping to hard and fast rules and regulations. General headquarters will only then utilize the forces at its command at the proper time and place if it endeavors in each single case to bring the *mass* into play, at the decisive point, and with a definite object in view. The same is true in utilizing the cavalry. It follows, therefore, that we

should strive to make the organization of our army cavalry a flexible, pliant one. Cavalry divisions sufficiently strong and provided with everything necessary, but not overloaded, not clumsy, and helpless and, in case of need, reinforced by the temporary addition of cavalry not required elsewhere by the army corps. Conduct of war is, as Moltke says, a system of assistance of one body by another. So with the cavalry. It is but necessary that clearness and consistency, firm will and decisive action dominate this system; it will then lead to success.

CAVALRY PATROLS IN RECONNAISSANCE AGAINST ARTILLERY.*

FROM THE GERMAN OF MAJOR GENERAL V. WINDHEIM.

CAVALRY should know that an important branch of its reconnaissance duty is the ascertaining of the strength of the hostile artillery, and the details of its several positions which is of so much importance to our artillery. Very often a cavalry patrol, which has kept in close touch with the enemy, will have an *earlier* opportunity to gain an insight (from the flank) into the measures taken by the hostile artillery than the artillery patrols sent forward for that purpose, and the manner in which artillery is utilized to-day has made such latter reconnaissance more and more difficult.

Up to the present time reports sent in by the cavalry during maneuvers have been very deficient in giving information concerning the hostile artillery, if they contained any mention at all of it, and consequently were of little use in this respect to the commanding general or to the artillery commander. This branch of the reconnaissance service has been neglected in our cavalry training; and *practical* schooling in this is the only remedy. It can be done during the

*Translated from the *Militär Wochenblatt* of November 12, 1908, by Sergeant Harry Bell, Corps Engineers, U. S. A.

preliminary practice of the artillery regiments and brigades which precede the annual maneuvers.

A trial made this year has proven very satisfactory. Three lieutenants and three non-commissioned officers were detailed from each cavalry regiment of my brigade for that purpose, and a major of one of the cavalry regiments was assigned as instructor.

Before the commencement of the preliminary exercises this major received a copy of the general situation and a short synopsis of the exercises to be carried out each day; this from the artillery regimental and brigade commanders. Based on these, he had to sketch out short situations (of the enemy) for his command and inaugurate with his six officers and six non-commissioned officers proper reconnaissance against the hostile artillery positions. The command was as a rule, quartered together in one village; the village used for quarters being distinct and separate from those occupied by the artillery and designated in advance of the exercise, due regard being had to their corresponding to the tactical situation.

It was made the main duty of the instructor to keep a sharp eye on the patrols and cause them to conduct their operations as they would in actual war. The hostile artillery positions were at all times assumed to be operating in connection with the other arms. Inasmuch as in the artillery exercises, the other arms were not actually represented by flags, hostile infantry was always assumed to be in front and on the flanks of the artillery positions. And this was the main reason why an experienced higher ranking officer was detailed as instructor. It was part of his duty to impart proper information to the patrol leaders during the ride to the front and give instructions at the points chosen for actual observation. Stress was laid on the importance of having these chosen points at a considerable distance from the enemy, as would be the case in war, and the observations were taken through field-glasses only. Sufficient instruction was to be imparted to the patrols to not only observe the hostile positions from the front but also from the flanks.

In these exercises it was not of so much importance to carry out extensive patrol rides, nor advancing the different patrols at large intervals or distances, as the main purpose was to give officers and non-commissioned officers an opportunity to learn how to carry out a proper reconnaissance against hostile artillery positions and to teach them the proper method of sending back reports. Neither was there any objection made against having all or several patrols close together or even all of them at one and the same point of observation, where in actual war but one patrol would have halted. This was done to give the instructor a better opportunity to oversee the action of the patrols.

Both officers and non-commissioned officers were required to write down the results of the reconnaissance on message blanks; the number of messages sent and the time when sent was left to the discretion of the patrol leaders. All messages were criticised and discussed by the instructor and submitted the next day to the artillery commander for review.

The day before the beginning of the exercises the leader instructed the officers and non-commissioned officers in the following points, viz:

1. All *detailed* information concerning the hostile artillery increases the value of the messages for the commanding general as well as for the artillery commander. Such details are:

2. Front of the artillery position (points of compass or objects in the terrain).

3. What formation? (lurking position, position in readiness, firing position).

4. In the open? partly covered? entirely covered? (to be accurately designated by features in the terrain, such as windmills, hay or straw stacks, trees, farms, barns, etc.)

5. Where is the left, where the right flank of the position? (or report if but one flank can be seen).

6. Where are the limbers, where the caissons and ammunition wagons? (Formation.)

7. Howitzers or field guns?

8. How many batteries or guns have you counted? (Never report battallions or regiments.)

9. In larger commands, where are the reserves?

10. State it you perceive covering troops, and where.

11. In case of fire, give manner of fire, whether brisk or desultory.

12. In what manner and at what gait was change of position effected?

13. Take especial notice if single hostile batteries are used (especially during the advance of the hostile infantry.)

14 Observe that in changing position the pursuing artillery often takes the enemy's abandoned position.

15. Read the hostile flag signals.

16. Send in general report of the terrain (according to F. S. R.).

17. Report suitable points from which comparatively weak artillery can fire effectually on the hostile position from a flank.

18. Report to cavalry commander covered approach and favorable moment for attack.

19. A careful study of the map and terrain will give good information concerning the probable measures which the enemy may take and will lead to a correct guess of the position of his batteries.

20. Observation from high points (church steeples) is very advantageous.

21. Careful study as to when to send the first message and when the next.

22. Messages must be supplemented by sketches.

23. Messages must be sent in such time as to enable our artillery to profit therefrom. In general such messages must be sent at the gallop. They must be sent direct to the artillery commander.

24. If some especial important question can not be answered definitely in the first message, a notation thereof should appear nevertheless in the first message.

25. Reports as "hostile artillery officers are reconnoitering positions on the hills near X," or "with the six batteries reported behind hill at A are three batteries light field howitzers" may be of much importance to the commanding general.

The exercises were held on four consecutive days, the last four of the preliminary artillery maneuvers. At the close the patrols rode direct to the maneuver quarters of their regiments. The start was made together; one officer was charged with bringing the participants to the ground, in the same manner as he would as a patrol leader in war. All participants were encouraged to report to the instructor whenever their opinions did not coincide with those of the patrol leader. The position of all participants at the respective points of observation had to be in accordance with conditions in war; points of observation which in actual war could not have been taken were excluded.

Experiences gained and observations made in these exercises are as follows:

1. The exercises were of inestimable value to the officers and non-commissioned officers. The importance of early and detailed reports was made manifest to them and they learned to observe, undisturbed, artillery positions and report them properly.

2. The officer detailed as instructor should be made thoroughly familiar, and that in good time, with the intended course of the artillery maneuvers, to enable him to sketch out proper situations and to lead the exercises in an effective manner.

3. During the ride it is not necessary for the instructor to play the rôle of enemy always. He can occasionally take the position of umpire.

4. As a rule, it has been found best to keep all participants together in one party to insure correct procedure.

5. It is recommended to attach a few horse-holders, so that the non-commissioned officers can observe through their field-glasses and write their messages undisturbed.

6. In these exercises it is best not to attach too great importance to the reconnoitering of the march of the artillery, because the reconnoitering non-commissioned officer is liable to let his imagination run away with him if other arms do not accompany the artillery. However, the exercises

should and must be made profitable by the instructor giving information as to proper reconnaissance against mixed detachments.

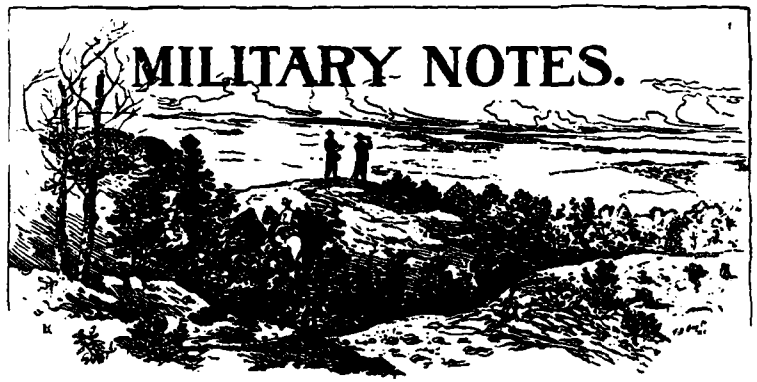
7. The flanks of the hostile position should never be designated as right or left, but rather in accordance with the points of the compass.

8. In maneuvers the artillery positions are more rapidly changed than will be the case in actual war. The patrol leader should be required to prepare his reports more quickly. We should also strive more and more to let a sketch take the place of a report.

9. Correct and detailed reconnaissance of artillery positions *from the front* will nowadays become more and more difficult. The presence of hostile artillery may often be ascertained only by the appearance of single observation posts.

10. It is exceedingly difficult and time-consuming to describe the hostile artillery positions so exact in accordance with features of, or objects in the terrain as to enable our artillery to effectively fire on them, using our report as a basis. The hasty searching for such terrain features and objects requires much practice and adeptness. They ought to lie within the artillery position itself or in its immediate vicinity. They also must be chosen in such manner that there can be no doubt about them on the part of our troops. If these terrain features are far from the position, when looked at by our troops, they are indistinct and may lead to mistakes.

11. The cost of carrying on these exercises is slight, as most of the cavalry regiments will already have begun their march to the maneuver grounds during the practice days of the artillery and consequently a part of the expenses can be charged to the general maneuver fund.



THE MACHINE GUN PLATOON.

A Reply.

IN the July number of this JOURNAL I published an account of a contest between two machine guns and a platoon of cavalry; the platoon of cavalry numbering twenty-two men, which is the strength of the Machine Gun Platoon.

The results of this test were as follows: The cavalry went into action quicker than the Machine Gun Platoon, and at a range of 1,000 yards fired as many shots in the same space of time and made four times as many hits on the "L" target.

The conclusion I drew from this test was that it indicated average results, and that under ordinary circumstances the fire of a platoon of cavalry would be superior in effectiveness of fire to the Machine Gun Platoon.

It was also concluded that the Machine Gun Platoon as compared with the platoon of cavalry costs more, is more of an impediment to free movement, is slower in getting into action, is more liable to get out of order or break down in

action, and is more exposed to hostile fire. That a single bullet would wreck a machine gun, and that two bullets placed properly would put the entire platoon out of action.

These conclusions have been attacked, but I have seen little in the arguments of my opponents to change my opinions given above.

The following additional objections can be made to the machine gun detachment·

1. Its individual strength is unavailable for many of the more important duties of the cavalryman, such as sentry duty, outpost duty, scouting, reconnoitering.

2. In action, it is claimed that its nerves are the nerves of a machine, and therefore, much firmer than the nerves of a soldier, resulting in more accuracy of fire. But it can be shown that its nerves are the nerves of its gunner, who on account of the exposed position of the gun is more of a target for hostile bullets than the prone skirmisher. The lack of nerves of the cannon in the naval battle of Santiago did not prevent the percentage of hits from falling to three per cent.

3. A great difficulty with the Machine Gun Platoon is the problem of ranging. While the effect of its fire can be seen at close ranges, at the longer ranges it can only be seen when the falling bullets throw up dust. In wet weather, or when firing into thick damp sod, marshy ground, or thick brush, it is difficult in the extreme to discover the fall of the bullets. And further, while an error of fifty or hundred yards in the distance is of little consequence at the shorter ranges, it is fatal at the longer ranges—the rain of bullets falls in front of or in rear of the object aimed at, and at the same time the fall of the rain of bullets is invisible.

4. The machine gun will add infinitely to the difficulty in solving the question of ammunition supply. Where are we going to find cartridges to supply this weapon, filling the circumambient atmosphere with bullets? If every bullet had a billet it would be well enough; our enemy would disappear quickly; but there is more repulsion than attraction between bullets and men. One is reminded of the talk about mitrailleuses at the beginning of the Franco-Prussian War. "Why, the Prussians have not a chance," said the French, "we will sweep them from the earth with our mitrailleuses." And in a short time the Prussians had a park of over 900 mitrailleuses captured from the French.

5. By the organization of the regimental machine gun platoon the regimental commander becomes a commander of artillery as well as infantry. A complexity in the command of the regiment in action is introduced, which is dangerous and would be absent were the machine gun made a special arm.

* * *

In 1878, when stationed on the Rio Grande, I saw Light Battery "F," Second Artillery, under the command of that superb soldier, Brigadier General E. B. Williston, then a captain. This was a battery of six machine guns (Gatlings), and was organized for service against the Mexicans, with whom we then feared a conflict. Williston, who had the reputation during the Civil War of being one of our most dashing light battery commanders, had his machine battery in a fine state of efficiency and, incidenially, expended many thousands of rifle cartridges in target practice. But he informed me, after this practice was completed, that at ordinary ranges he thought he could, in the same space of time, put more bullets into a target, using a Napoleon brass twelve-pounder, than with the machine gun.

And this prompts the question: How much, and in what way, is the machine gun battery superior to a mountain battery?

They are both equipped in the same way, carrying the guns on mules. What is their comparative volume and accuracy of fire, shrapnel against bullets, at 500, 1,000, 1,500, 2,000, 2,500 and 3,000 yards? What is their comparative efficiency in action?

Take into account that the mountain gun fires with certainty, the machine gun is forever getting out of order.

Take into account that the burst of the shrapnel can always be seen and the aim is then corrected; but the fall of the machine gun bullets can seldom, at the longer ranges, be located.

Take into account that the range of the machine gun is less than that of artillery, and that the machine gun is helpless under the fire of artillery at artillery ranges.

Take into account that the projectiles of mountain guns are effective against walls and material obstacles used for shelter, as well as against the ranks of the enemy.

Taking all these things into consideration, would it not be better for cavalry regiments to be associated with artillery rather than machine guns?

Our cavalry regiments are large, and properly; we need the three battalion organization for dismounted fighting, in which we are virtually transformed into the best quality of infantry. But for the independent operations of cavalry, for fighting against other bodies of cavalry we will need artillery. I believe that the best kind of horse artillery could be made of mountain batteries, provided the personnel of such batteries were mounted.

* * *

Where and how is the regimental machine gun to be used in action?

Is the machine gun commander, like the battery commander, to be given a certain amount of discretion, or will he be moved along with the firing line?

The machine gun in the attack of a position can not be used in front of the skirmishers or firing line, for it will suffer from their bullets. It can not be used in rear of these skirmishers, for they will suffer from its bullets. If the machine gun battery is on the firing line, it will disclose the position of the firing line and hamper its movements.

In the attack of a position, how shall we formulate the movements of a machine gun battery?

Remember, it must be in no general terms—the machine gun platoon, used independently, has endless possibilities of annoyance to the rank and file of the advancing regiment. There should be no opportunity for misunderstanding, unless, indeed, the regiment is to wait on the machine guns; furnishing, so to speak, an escort during the fight.

There is no problem in war more important than the proper dispositions for the infantry attack of a position. It is the crisis of all preparation, all training. The problem is how to bring up, with the least possible loss, to "rushing distance" in front of the enemy's entrenchments a sufficiently large number of men to take them by assault. This is done by the successive advance of a number of echelons, scouts, firing line, company supports, reserves, second and third lines, etc. Firing is not always an indispensable part of this advance, but concealment is. The men must hug the ground, they must in every way attempt to conceal their advance, their position, from the enemy. Fire should only be used to keep down the return fire of the defenders, and only when such return fire becomes destructive. The regiment forms a part of a brigade—in our service regiments are too small to alone accomplish an important attack. Where does the machine gun come in in this advance? Is it on the line, in front of the line, or behind the line? What business have mules, horses, or even men standing and carrying heavy guns and tripods on a field of battle like this? Will they not supply the target the enemy is looking for?

The fact is, the value of the machine gun has long since been discovered to be in the defensive. As a defensive weapon it is admirable. It is admirably adapted to strengthen a line of battle of an army fighting a defensive action. It should be used like artillery, to reinforce the weak points of the line. To accomplish this it would be, like artillery, a special arm. Time was when regiments had regimental cannon detachments to increase their fire. But cannon never attained an important rôle on the field of battle until they were taken away from regiments and used independently.

JAMES PARKER,
Colonel Eleventh Cavalry.

Pinar del Rio, Cuba,
November 5, 1908.

USEFUL FORMS.

Below are given a few of the blank forms which the undersigned has found useful in troop administration.* Some of these forms are in quite general use. Others are original and their use has extended in some cases to other troops of the regiment. The use of some is so general and their utility so apparent that no extended reference will be made to the bunk card, the pass lists, the bill of fare, and the extra duty list. With reference to the others, a few words may be explanatory.

The daily detail list is a great aid to the first sergeant. The list contains all the daily details usual and so arranged that a mistake in making one out can be observed and corrected at once. Everything is presented to the eye and omissions will suggest themselves at once. The soldier who looks at the bulletin board cannot fail to determine what special duty will be required of him during the next twenty-four hours.

The report of the non-commissioned officer in charge of quarters is one of the most valuable of them all. Its great usefulness lies in the fact that it is a daily automatic check upon the number of arms that should be in the hands of the men. Should one disappear there is no question as to the non-commissioned officer in charge at the time of the disappearance. Other matters of importance are also reported by the non-commissioned officer on this form. This form is made out after reveille and is placed on the troop commander's desk by orderly hour.

The clothing list will also be found useful. By its use, only a few minutes are required to find out what clothing is necessary in the troop. A reference to the list suggests to the eye of every man that of which he may be in need. A little supervision will insure that the man reports his wants. There is thus less liability of an omission and, besides, the lists submitted are uniform and easily transferred to the clothing lists sent to the quartermaster. This form was

* Owing to the space required and the extra cost of setting up the forms, the blanks are omitted.—EDITOR.

made before the recently adopted system of keeping clothing accounts came out. The principles on which it is laid still apply by a slight rearrangement of some of the items found near the bottom of the list.

The deserter's letter should produce good results if handled correctly. The idea is that once every few, say three, months, a letter will be sent to the home, place of enlistment, or other likely point, for every deserter from the troop for whom the statute of limitations is not yet operative. The result will be that some men will be caught, whilst others will be kept on the move so much as to have a discouraging effect on other would-be deserters.

The value of printed forms should be apparent. They are neater, the data required is always presented in a systematic manner, and omissions are less liable. Many troop commanders have systems of their own on many subjects. These in many cases would be more effective if there were a printed form therefor, instead of any irregular form that the troop clerk may make up and which is never twice alike.

The subject of expense for paper and printing is often deterrent. Even with a regimental printing press to do the work at reduced prices the printing bill will be on the average a dollar or two a month. If the troop possess some form of duplicating apparatus, the expense for making blank forms will be greatly reduced.

The mimeograph has been used with varying degrees of popularity. Not much is heard of it now. The Neostyle has had quite a run, but the makers restrict its use by the great cost of operation. One of the best devices for duplicating in a small way and with small expense is the Daus Tip Top Duplicator, made by the Felix F. Daus Duplicator Company, 111 John street, New York City. This comes in four sizes, but the one suitable for troop use (No. 1) has a printing surface of 8¾ x 13 inches, list $7.50. Each apparatus includes a 5½ yard roll of negative paper, which can be used indefinitely, and ink of two different colors. Black, blue, violet, red and green colors can be reproduced. One hundred and fifty copies can be made from each original if the original has been made by hand, or fifty copies if the

original has been made with a typewriter. The typewriter ribbon must be one specially made for this apparatus. The quality of the work turned out by this duplicator is infinitely better than that reproduced by a mimeograph and is also superior to and of more utility than a Neostyle.

With a duplicator in the troop, there are many useful purposes which it can serve. Besides blank forms, matter of all kinds can be struck off. It will be particularly useful in connection with non-commissioned officers school. Subjects are often taken up for which there are no text books or for which the existing text books are not adapted. The necessary data can be written out and run off on a duplicator in almost no time and with little or no trouble. Take, for example, the subject of security and information, there is no text book available in sufficient numbers which presents the subject in the best form for instruction of non-commissioned officers. A résumé of the subject covering the important points can be written out by the troop commander, run off on the duplicator, and distributed. Take also the subject of guard duty, the duties of privates can be run off in sufficient numbers so that each man will be given a copy and when troop school is held therein the men will be found to qualify much quicker. And so on, new forms of application will suggest themselves with increased use.

HOWARD R. HICKOK,
Captain Fifteenth Cavalry.

From "*Arms And The Man.*"

Metal fouling has become a greater nuisance with the 1906 ammunition than ever before. The use of very fine graphite is recommended as a preventive. It may be used by applying to the bore of the rifle by means of a rag on the end of a cleaning rod. Sperm oil may be used with the graphite if the latter is too dry to adhere to the bore. Another method of using the graphite is to put a small quantity in the shell with the powder, so that after each discharge a coating of graphite is left in the barrel.

In a test of graphited ammunition made at the Springfield armory, 3,600 cartridges were opened, the bullets graphited with Acheson No. 1340 graphite and returned to the cartridge cases. The bullets were knurled by rolling them under a file and then rolled in graphite between two blocks of soft wood.

After firing 3,600 rounds no signs of metal fouling were visible.

A new bullet for the Springfield rifle has been brought out by the Peters Cartridge Company and was tried at Camp Perry in July. The following is the description given of the bullet:

"The bullet, on which patents are pending, is unique in that its base accommodates itself to all sizes and conditions of bore and is a perfect gas check. This is made possible by the uniform (cone-shaped) cavity in its base into which the jacket is crimped. By reason of the graduated thickness of the walls surrounding the cavity, in conjunction with the outward pressure of the propelling gases, the base is rendered so flexible as to readily accommodate itself in and out to any unevenness in the bore, whether caused by exigencies of manufacture, enlargement by wear or adhesion of the bullet jacket, commonly known as nickeling or metal fouling, thereby ensuring a more perfect gas check than the ordinary form of solid base. The effect of the metal fouling on the accuracy of the ordinary solid base bullet through gouging channels in the jacket for the escape of gas and its consequent erosion of both the jacket and rifle barrel does not exist with the new Tewes-Peters bullet, the flexible base of which rides over the nickeling much in the same manner as does a rubber tire over the unevennesses of a road.

On October 2, 1908, Captain K. K. V. Casey, Delaware National Guard, made a test of the new telescopic sight for the Springfield rifle on the range of the National Guard of the District of Columbia, in the presence of General Drain,

President of the National Rifle Association, and Major Thompson, Ordnance Department U. S. A.

Captain Casey fired twenty shots at an unknown distance which was afterwards determined to be about one mile. His first shot was a ricochet three and the other nineteen were straight hits.

In his report Captain Casey states that the telescope is placed too far to the rear thus making it difficult to use. In his firing he moved the sight two and one-half inches farther to the front than its normal position. The wind guage and the elevating device were found to be very satisfactory. A number of suggestions for the improvement of the telescope were made by Captain Casey.

The shooting was done on ground covered with golden rod and daisies which effectually concealed the shooter, yet with the telescope he could see the target when it was impossible to use the service sight on account of the intervening growth.

"Certainly the telescope sight proved this, that any company officered by men who knew how to handle the service rifle and the telescope sight would be doing incalculable damage to an enemy's esprit and forces. And it proved this much more: That an officer who knew how to handle the military arm of his country could, with the piece equipped with this telescope sight, get the range of the enemy so accurately that guess work would be needless. And what a company of American sharpshooters would do, once the range were given them and verified by their own shooting, is left to the imagination of the readers.

C. E. STODTER.

Problems.

PRIZE PROBLEM NO. 8.

The Editor Cavalry Journal:

DEAR SIR:—The committee selected to examine the solutions of Prize Problem No. 8 has the honor to report that it finds the solution signed "Phi Gam" worthy of the prize. This was the only solution submitted to the committee.

The solution has been considered under the assumption made by the author that the hostile column continued its advance towards Frenchman, but until that fact became apparent, it might have been better to watch the crossings near 15 and Frenchman with two troops at each place and to hold the bulk of the cavalry, say two squadrons, at some central position, such as Bell Point, from which it could quickly reinforce either flank.

The cavalry commander took an unnecessary risk in sending so small a force to destroy the bridge on the Millwood road.

The solution places the bulk of the cavalry squarely across the enemy's path and apparently overlooks the desirability of utilizing positions flanking the enemy's line of advance, as being the usual and, ordinarily the best way for cavalry to delay a much superior column of hostile infantry.

A. E. SAXTON,
Captain Eighth Cavalry.
LEROY ELTINGE,
Captain Fifteenth Cavalry.
MATTHEW E. HANNA,
Captain Third Cavalry.

In accordance with the above report, the prize for the best solution of Prize Problem No. 8 has been awarded to First Lieutenant John S. Fair, Ninth Cavalry.

PRIZE PROBLEM NO. 8 (A DELAYING ACTION).

SOLUTION.

1. COLONEL A'S ORDERS AND INTENTIONS.

Upon receipt of Lieutenant E's message, Colonel A will at once send a report to the Commanding General of the Blue army, south of Leavenworth, giving in full the information he has obtained. Colonel A will then issue the following orders and instructions:

(*a*) To Lieutenant F: "An officer's patrol (Lieutenant F and four men) will proceed toward the Rock Island bridge, observe and report any movements on the part of the hostile force of 150 men on guard there, and send word without delay whether that force is mounted or dismounted. The regiment is marching towards Frenchman to delay a hostile force of infantry marching south on the Kickapoo-Frenchman road."

(*b*) To Lieutenant G: "Lieutenant G with six men, supplied with explosives, will proceed rapidly to and destroy the wagon bridge that spans Salt Creek on the Millwood road west of 15 and then rejoin his troop. The advance guard of a column of hostile infantry marching south on the Kickapoo-Frenchman road has reached Plum Creek."

(*c*) To Lieutenant H: "Lieutenant H with nine men, supplied with explosives, will proceed rapidly to, and destroy the wagon bridge that crosses Salt Creek on the Atchison Pike near Frenchman, and immediately afterwards the two railroad bridges spanning Salt Creek between Frenchman and Hund Hill. He will then rejoin his troop. The advance guard of a column of hostile infantry, marching south on the Kickapoo-Frenchman road has reached Plum Creek."

(*d*) To The Advance Guard Commander: "The Advance Guard will proceed at the trot towards Frenchman via Sheridan Drive, Prison Cemetery, Hancock Hill, Bell Point, F, and G. The Advance Guard Commander will keep his force concealed from the observation of a column of hostile infantry now marching south on the Kickapoo-Frenchman road. I will join the advance party and accompany it to Hancock Hill where reports will be sent to me until further orders."

(*e*) "Lieutenant Colonel B, and Majors C, D and E, will report to me at once on Hancock Hill. Captain X will take command of the main body, close up to within four hundred yards of the advance guard and maintain that distance. He will send reports to me on Hancock Hill until further orders."

After issuing these orders Colonel A, accompanied by his adjutant, will ride rapidly forward to the advance party and hasten with it to Hancock Hill. Here, when his second in command and his squadron commanders have joined him, he will issue the following orders:

HEADQUARTERS SEVENTH CAVALRY, BLUE ARMY.
HANCOCK HILL, 1¼ MILES N. W. OF FORT LEAVENWORTH, KANS.

FIELD ORDERS, No. 2. — 2 April, '08, 6:35 A. M.

1. FORT LEAVENWORTH has been abandoned by the enemy, except 150 men at the ROCK ISLAND BRIDGE head. A force of hostile infantry is marching south on the KICKAPOO-FRENCHMAN ROAD, the leading element of its advance guard being now 500 yards south of 17.

Our army has crossed the MISSOURI RIVER six miles south of LEAVENWORTH and is now engaging the enemy.

2. The regiment will rapidly take up a position just south of FRENCHMAN to stop the further advance of the enemy towards the SOUTH. The role of the advance guard as such now ceases.

3. (*a*) Major C with the First Squadron and the Machine Gun Platoon, will occupy (dismounted) a position facing north from the western edge of the vineyard, 400 yards north of BAKER, through GAUSS to the foot of the northern end of SENTINEL HILL and prevent the enemy from crossing SALT Creek east of FRENCHMAN.

(*b*) The Second Squadron will proceed rapidly via G and crossing the upper waters of the tributaries of SALT CREEK, will occupy (dismounted) a position facing north along the south side of SALT CREEK, from the stream on the west side of the vineyard north of BAKER to the foot of the northern slope of HUND HILL. The enemy will be prevented from crossing SALT CREEK or moving west on the ATCHISON PIKE.

(*c*) The Third Squadron will constitue the reserve and will proceed to the vicinity of the CURRAN house and halt under cover of the woods. Four reconnoitering patrols of one non-commissioned officer and three men each,

will be sent out at once by the commanding officer of the Third Squadron, to reconnoiter thoroughly the roads leading to the south and southwest.

4. I will be on SENTINEL HILL.

A.

Colonel, Seventh Cavalry.

Verbally to Lieutenant Colonel B, and assembled Squadron Commanders, and later to the Advance Guard Commander. Copy to the commanding general, Blue Army from Sentenial Hill.

Colonel A intends to fight a delaying action. He will compel the enemy to deploy a sufficient force to dislodge his dismounted troopers, and then when it seems to him impossible longer to withstand the attack of superior numbers, he will rapidly move to another position, where he will repeat these tactics. If the Red force attempts to avoid him by marching east on the Millwood road or making a detour towards the west, Colonel A has his Third Squadron in readiness to oppose any advance by the Millwood route, and should his enemy select the other alternative, while the infantry column is toiling across country towards the southwest, he can, by reason of his superior mobility, quickly give up his chosen position and confront the enemy in another place.

2. Colonel A's reasons for his orders.

Having been sent out from his winter quarters at Weston to prevent reinforcements from being sent to the enemy from the north, and knowing, as he must, that the streams are likely at this time of the year to have much water in them and to be difficult to cross, Colonel A will have provided his command with explosives for destroying bridges. The two wagon bridges and the two railroad bridges having been destroyed, the enemy will be compelled to seek places where the streams may be forded or devise some other means of crossing. This will be very difficult, because every movement on the part of the Red forces can be seen by the Blue commander, and steps taken to thwart every enterprise of the enemy.

From Hancock hill the country to the west and all the movements and dispositions of the enemy are plainly visible. It is a thousand yards from Plum creek to 17. By the time Colonel A reaches Hancock hill the point of the

hostile advance guard should be moving a little south of 17 if the enemy keeps on towards Frenchman. The commander of the Blue force will be able to judge pretty accurately from the formation of the advance guard whether or not the direction of march of the Red column will be changed at 17. The enemy will, very probably, continue on toward Frenchman, because the Kickapoo-Frenchman road leading to the Atchison pike is the best and most direct route to the south, where the rest of the Red army, only six or seven miles away, may be needing reinforcements badly. To turn either to the right or to the left at 17 would necessitate leaving a good road for a poorer one—a direct route for a circuitous one. Colonel A's orders are issued on the assumption that the Red infantry continues its march towards Frenchman.

The high steep banks and deep mud bottoms of Salt creek and its branches; the impossibility of surprising the enemy, since he is in his own land; the open country along his line of march, and the overwhelming superiority of the Red forces, all, cause Colonel A to decide not to attempt to use mounted action. When he is forced to retreat, the nature of the country will be an obstacle to a rapid pursuit by the enemy, and there will be many opportunities for the employment, on the defensive, of a force of the strength of a regiment. These circumstances and the instructions he has received will compel Colonel A to act on the defensive and fight dismounted. This decision, however, does not give all the initiative to the enemy. When the occasion presents itself the mounted reserve is ready to take the offensive, mounted or dismounted, in the true cavalry spirit.

3. A blue print of a tracing showing the position Colonel A expects his troops to occupy at 7:15 A. M. is appended hereto.

"*Phi Gam.*"

NOTE.—It is not believed that the expense of reproducing the blue print mentioned is warranted, especially as the positions of the squadrons can be located from the orders given and from the following:

The First Squadron faces nearly northwest, two troops being located on the northwestern slope of Sentinel Hill between the 900 and the 950 contours; one troop near and in front of the Gauss house and the left troop in the vineyard 400 yards northwest of the Baker house, with the machine guns on its right in the northeastern edge of the vineyard. Their led horses are shown near G, between the Moore and Flint houses.

The Second Squadron is posted, as stated, with its right troop across the railroad and in front of the railway bridge nearest the Frenchman's; one troop is at the other railway bridge and the other two troops are on the left at the foot of the northwestern slope of Hund Hill. Their led horses are in the valley east of Hund Hill, about 500 yards in rear of their line.

The Third Squadron is posted along the road about 200 yards east of the Curran house, its center being at the point where Sheridan's Drive turns to the southeast.

EDITOR.

PROBLEM NO. 10.*

(*See Map of Fort Leavenworth published in the Cavalry Journal for July, 1907.*)

Situation.

A Red force of all arms is in the vicinity of Atchison. A Blue separate brigade, with cavalry and artillery attached, is marching north from Kansas City, along the west bank of the Missouri River and expects to be joined at Leavenworth, during the afternoon of October 14th by other Blue forces marching from the east through Missouri. The country is friendly to the Blues.

The Blue brigade camped the night of October 13–14th about fifteen miles south of Leavenworth and resumed its march at 7:00 A. M., October 14th. All the cavalry, one squadron under Major A is in advance with orders to reconnoiter to the north and west of Leavenworth and to drive back small parties of the enemy. The Blue brigade intends to stop at Leavenworth for the night, October 14–15, and await the arrival of its reinforcements from the east.

When Major A reaches 68 at 11:00 A. M., he receives the following message, sent at 10:45, A. M., from a patrol on Atchison Hill:

"At 10:30 A. M. I met a hostile patrol at the bridge over Salt Creek at Frenchman's and fell back to this point. A column of hostile cavalry can be seen approaching on Atchison Pike about two miles west of here. No infantry in sight."

Major A gallops ahead with the advance guard commander to Avenue Hill, reaching there at 11:05, A. M. and finds the situation as follows:

The support (two platoons) of the advance guard is under

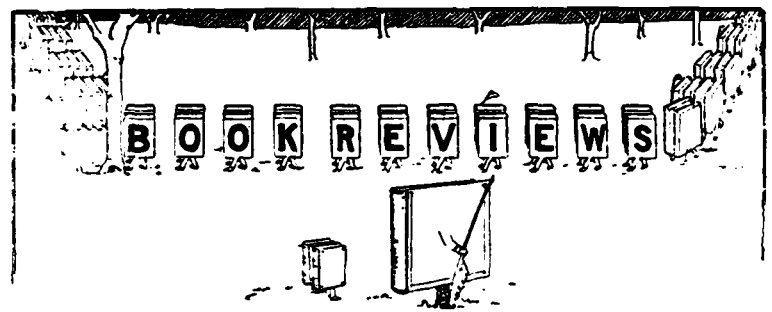
* In accordance with the notice published in the October number of the CAVALRY JOURNAL, the Executive Council has concluded to give no more prizes for the best solutions of the problems published, but to return to the former custom of publishing a problem in each number of the JOURNAL and the corresponding approved solution in the following number.

cover at 62; the advance party (one platoon) is engaged in the woods along the 62–14 road, just north of the railway spur leading to the stone quarry near 20; their led horses can be seen under cover west of the road; the enemy's fire appears to come from the road junction at 14, (Atchison Cross) forty or fifty led horses can be seen moving on the road up the hill from the road junction, the main body of the Blue cavalry (three troops) is approaching the support; one platoon of the advance guard troop has furnished patrols, some of which are covering the roads to the west of 60 and to the north of Leavenworth.

The infantry, when last heard from at 10:45 A. M. was five miles in rear.

Required:

1. Major A's estimate of the situation.
2. His orders.



Topographical Survey g and Sketching.*

This excellent volume covers in compact form the subjects of Topographical Surveying and Rapid Topography or Sketching from a military standpoint.

The author was for a number of years the senior instructor in the Department of Engineering at the U. S. Army Service Schools at Fort Leavenworth, Kansas, and is largely responsible for the development of the modern methods of military surveying, which are described in this volume. These methods consist of such modifications of and additions to the art of surveying as were necessary to adapt it to modern military requirements, and have had the test of time and the approval of experience. Although military topography is still undergoing development, this volume presents the subject as it has been developed up to the present time.

It is a fact that is perhaps, not generally appreciated that there is no field of human endeavor in which surveying is of more importance than in the conduct of military operations on either a large or a small scale. Such operations cannot

*"TOPOGRAPHICAL SURVEYING AND SKETCHING," by Major Thomas H. Rees, Corps of Engineers, U. S. Army, 1908. Price, $2.50. For sale by the U. S. Cavalry Association.

be successfully carried out except with the aid of suitable maps, and since such maps can seldom be obtained beforehand to the extent required, a knowledge of surveying is of first importance to all military men, since they are certain to be called upon to map new and unfamiliar country in a very short period of time, and under great difficulties such as are not encountered in civil work. Military surveying has therefore become a new and distinct branch of the general subject.

Although as stated in the preface nothing new is added to the principles of topographic surveying, yet a perusal of the text will show that the manner of applying some of these fundamental principles, and the treatment of the subject in the light of military requirements, present some distinctly new features.

The author apparently realizes that a knowledge of surveying instruments and their use constitutes only a portion of the art of surveying, and, therefore, sets forth clearly the observations to be made and the methods to be followed in the field in order to obtain accurate results in the least practicable time. Those branches of surveying which are distinctly civil and find no application in military operations, such as municipal, mine, county surveying, etc., are omitted whereas distinctly military requirements are fully covered. Some features of this work not ordinarily embodied in civil text books on surveying, are as follows: Information required on maps for various military purposes, scales and and scale problems, adaptations of various scales to maps for different purposes, relation between scales and contour intervals in military mapping, map reading and map problems. The hasty methods of topography described under the head of "Sketching," are, of course, entirely different from all other ways of surveying. The author's precision of expression is very great, and his reasoning can be followed with little mental effort.

The descriptions of the instruments, their use and adjustments are particularly good, and cover the more important of the regular surveying instruments, as well as those used in military topography, such as the aneroid barometer

and clinometer. The method of marking the stadia rod to automatically correct for the constant of the transit is new and apparently applicable to any kind of stadia measurements.

The principles underlying rapid topography being the same as for any other topographical surveying this portion of the subject, under the head of "Sketching," is dealt with in a brief but thorough manner. The various sketching methods for individual work as developed thus far at the Service Schools are briefly described. The methods of combined sketching as recently developed, are not covered, it being probably intended that on this subject the text should be supplemented by the work on "Individual and Combined Military Sketching," recently issued. It is to be remarked that proficiency in miltiary sketching cannot be attained by the study of a text book. The author well states the fundamental principle of sketching when he says: "In all methods of sketching the chief reliance is placed on the ability of the sketcher to draw free-hand on the paper what he sees on the ground." This ability can be attained only by practice. The following opinion of the author will probably be heartily indorsed by those who have had experience in sketching. He says: "Many different designs of sketching cases have been devised in an effort to provide an instrument that will do all of the work and replace skill on the part of the sketcher. In this latter purpose they generally fail, and the more elaborate designs are discarded by the sketcher as he acquires skill. The experienced sketcher prefers the simplest of means to aid him in his work."

The subject of map reproduction, photography, lithography, etc., although of great importance and intimately connected with the subject of sketching are not properly a part of it and are not covered in the text. These methods are being so rapidly developed at the present time that a text book dealing therewith would require constant revision to keep it up to date.

The drawings and plates are limited to those necessary to an elucidation of the text. Their execution is not up to the standard of a good draftsman, and they have not been

well reproduced. They may serve a good purpose, however, as indicating a reasonable standard to which the average military topographer who is not an expert draftsman should aim to attain. Arithmetic and trigonometry and many tables which can be found readily elsewhere, are wisely omitted.

The book is better suited to the requirements of garrison schools and individual study by officers of the army, than any other yet published.

Russo-Japanese War.* The Yalu

Starting with 1856, when the American Commodore Perry forced Japan into signing a treaty of commerce, after she had for centuries declined to take part in any international trade, the first chapter of this work is given to a description of Japan's development into a modern state. The great Korean question from that date on is explained, the troubles arising therefrom and the ultimate war with China, the chagrin of the Japanese at being deprived of the main fruit of the war, the Liao Tung Peninsula, and the determination of Japan to be secure against such coalitions in the future as that of France, Germany and Russia. Hence we find the Anglo-Japanese Alliance, the careful training of men and the reserved attitude during Russia's attempted absorption of Manchuria, and her advances toward Korea. The immediate events before the war seem to be handled with frankness and candor and show the utter absence on the part of Russia to even feebly realize what a power Japan had become. It would seem to be the opinion of the Germans that Japan was ready at any time after 1902 for the conflict, for at that time she had completed the strengthening of her army and navy and believed herself to have an ascendency over Russia's Far Eastern forces. So from this time on we see a more determined diplomatic stand on the part of Japan, and only utter imbecility can explain

*"THE RUSSO-JAPANESE WAR—THE YALU." By the Historical Section of the German General Staff. Translated by Karl von Donat. 1908. Hugh Rees, 119 Pall Mall, London, S. W. Price, 10s. 6d., net.

the actions of Russia at this time. Kuropatkin's history of this time may offer some explanation of the reasons of this imbecility and also serves to bring to mind the great factor of moral force, where a war is being carried on near home by one country and far away by the other. Even in these days of increased means of intelligence it still seems powerless to force upon countries the true state of affairs on the opposite side of the globe. Here the Americans can ponder, and if happily any of them realize they may be asleep, we may be thankful and hope they will wake up their indifferent brothers.

CHAPTER TWO.

Chapter Two is devoted to a description of the topography of the theater of war and the Siberian Railway. One will seldom see a language picture of the physical characteristics of a country that is plainer, and military men will read this chapter and learn much of what topographical description means. The roads of Korea, the character of the coast of that country and of the Liao-Tung peninsula, the mountainous country to the north, is so well explained that one could sensibly expect nothing of the Japanese except what was done.

The unfinished condition of the Siberian Railway and the desperate efforts, successful beyond all dreams of the Japanese, are vividly portrayed and are striking evidences of what the Russians can do when pressed. In addition to all this, the population of the different districts is given, with the territorial extent, and also what amount of provisions could be drawn from them, showing what amount of transportation was saved to Russia and Japan.

CHAPTER THREE.

This chapter deals with the opposing forces at the outbreak of the war. We can unquestionably take the estimates as about correct. They nearly coincide with the most reliable statistics so far published and one will not go far wrong in his study of this war if he accepts the numbers

here given and works out his problems and solutions on this basis. We copy the following as the peace organization of the Russian land forces in the Far East at the outbreak of the war:

1. Field Troops—84 battalions, 1 machine-gun company, 35 squadrons or sotnias, 25 batteries, 8 companies technical troops; roughly, 86,500 men.

2. Fortress Troops—1 fortress infantry battalion, 4¼ garrison artillery battalions, 1 garrison artillery detachment, 5 companies technical troops, 1 fortress telegraph detachment, 1 fortress balloon detachment; roughly, 7,800 men.

3. Railway Troops—20 companies; roughly, 5,300 men.

4. Troops Guarding Railway—Frontier guard of the Trans-Amur district, 55 companies, 55 squadrons, 16 batteries; roughly, 30,000 men. Later it is stated that very few only of the Frontier Guard had occasion to coöperate temporarily with the field army.

Where these troops were stationed is also given and a map with the distribution accompanies the work.

The arms are also described, and we find that as far as the artillery is concerned the reported superiority of the Russian gun was overcome by its being so new and having quite a number of defects, some of which it was claimed were due to bad construction. A short amount of space is given to training and the old Dragomirow's (Dragomiroff) drill regulations. Tactical students will be glad to get even this description. There is the following regarding cavalry in this connection: "The principles of Russian regulations for the employment of cavalry in action need not be discussed here in detail, since, apart from a few European regiments, no trained cavalry, or what we should consider as such, was employed on the theater of war. This explains the failure in the most important branch of cavalry training, the strategic and tactical reconnaissance. The Cossacks, with few exceptions, were unable either to read or write."

We copy the following from pages 64 and 65 for the benefit of those who think the army is over educated: "The artillery being in the process of re-arming, its practice was at first not up to the standard. It was not sufficiently trained

in fire tactics and in coöperating with the infantry. Coöperation with the various arms was altogether poorly developed." * * * "But the training of staff officers of superior commanders, too, was not up to modern requirements. Generals and staff officers who have not become intimately conversant already in peace with the conditions governing the movements of masses, must be at a loss when confronted by them in war. Improvising anything at such a moment is then as good as impossible."

In this chapter we also find further discussion of the Siberian Railway and the transport of troops before the completion of the road around the south of Lake Baikal.

The peace organization ot the Japanese Army, in imitation of the German, is given in Appendix 2. Before the outbreak of the war it was, according to Japanese statements, 6,993 officers, 152,664 men, 22,015 horses, and 720 guns. A short space is given to the recruiting system, and we find the Japanese recruited largely from districts for each organization, except the Guard Infantry, which was recruited from the whole country.

The number of men missing was said to be very small. The deficiency in horses was made good as much as possible by purchases abroad. Greater difficulties were caused by the lack of officers, since, besides the regular officers, there were but, roughly, 3,400 Reserves and Landwehr officers. The gaps in the corps of officers were partially filled by giving commissions to non-commissioned officers and by an early promotion of war-school pupils. The regulations for admission of candidates for a commission had to be twice given a wider range in the course of the war.

This work states that the Japanese underrated the force of Russia in the Far East at the outbreak and they also underrated the carrying capacity of the Siberian Railway, which last is not at all surprising, for no one could even anticipate the mind of a Khilkoff.

CHAPTER FOUR.

This chapter is devoted to the events at Sea up to the death of Admiral Makaroff and to the landing of the First Japanese Army. This is rather a short chapter and is so full of meat that one can hardly epitomize. I simply give the margin headings:

Japan opens hostilities by sea.

The first troops of the Japanese Twelfth Division are landed at Tsche-mulpo.

Further naval events before Port Arthur.

The Japanese Guard and Second Division are transported to Korea. The Twelfth Division begins its advance on Pyong-yang.

Renewed attacks on Port Arthur. Futile sortie of the Russian fleet. Death of Makaroff.

We find here some reason for all the seemingly useless attacks on Port Arthur. And we also see that landing an army is after all not quite so easy a task as one would suppose. We are somewhat struck with the inactivity of the Russian cavalry in not more energetically opposing the landing in Korea, or at least in not more vigorously opposing the advance of the first Japanese units. The Japanese expected to find the Russians near Anju and were expecting the first battles of the war to take place along the line of the river that flows through or near that town. But when we strike the Russian point of view later on we learn why it was decided to make the Eastern Detachment only a delaying detachment and one not to oppose vigorously the Japanese advance.

The last two chapters of the book, extending from page 118 to 248, deals with the movements in Korea and the action on the Yalu. It is hardly necessary to state that this is the best description of these events that has appeared. All other works on these subjects are so many primers compared to this, but this itself is so simple that it might well be called a primer. But though it is simple, it is complete and contains the information that military men want. The maps accompanying the text are splendid, and while the

names are long and tiresome, think of Korean and Chinese names receiving a German translation, yet the text references can all be found and the movements of the various units can be traced.

And many things heretofore perplexing are somewhat cleared up, such as Mitschenko's withdrawal and the uselessness of Madritow's raid. One of the most striking things in this campaign is the remarkable success the Japanese had in keeping the Russians in the dark as to the crossing place of the Yalu. This stream is no mere child's bathing place, but it is a mighty river, and all the dangers that attend an army in crossing a large river in face of the enemy were present all the time with the Japanese. Their great success was largely due to the fooling of the Russians as to the exact places of intended crossing. The worthlessness of the Russian cavalry could hardly be more plainly shown than in the operations before the Japanese reached the Yalu and the fact that during the time the Japs were making preparations nothing of any consequence whatever was done by the Russian cavalry to inform the Eastern Detachment Commander where the Japs might be expected to cross. And what little information was furnished seems not to have been received with much assurance of accuracy by the commander, he having found, probably, how little he could expect, and distrusting that.

The tactical formations in the battle of the Yalu are quite completely given, and I quote from page 219 as to the deployment of the firing line:

"At 7 A. M. the Japanese began their forward movement. The deployment of a firing line with one or two paces interval was carried out as prescribed by the regulations, which had been modeled after the German; the companies did not retain any supports, however, but extended at once their three sections. The Twelfth Division had in its first line two battalions of each of the Forty-seventh and Twenty-fourth, as well as a battalion of the Forty-sixth Regiment; the other battalions of these regiments followed in second line. Its reserve, formed by the Fourteenth Regiment and the Engineer company, followed behind the right wing at a

distance of 1,330 yards from the firing line. (The distance of the second line from the first is not given in yards, but the map shows it to have been divided into several parts and following the first line at different distances.) The artillery fired from their position on the eastern bank of the Ei-ho. (The artillery of this division occupied a position on the left of the firing line as it reached the river. As the Japanese were in greatly superior force, and had a river in front of this position, and as the right of the Guard Division connected with the left of the Twelfth, there was no danger in this advanced position for the artillery.) The deployment of the Guard and Second divisions has been made in a manner similar to that of the Twelfth Division."

There are many lessons to be learned from this battle, and students will clearly see the great mistake of Colonel Gromow in not informing the other wing commander of his withdrawal and its direction. For when Kaschtalinski started to withdraw he soon found his left entirely unsupported and the Japanese there. This compelled the action at Hamatan and it seems Kaschtalinski did well to get away as he did.

We are given quite an insight in this account of the supervision exercised by Kuropatkin over the course of events. We quote the following telegram from Kuropatkin to Kaschtalinski, before Sassulitch took over the command:

"Take the most energetic measures to get in touch with the enemy; organize reconnaissances across the river. Order small enterprises against the enemy and alarm him. Pay high sums to native spies. Report to me at least twice daily, even if nothing has happened. Repair the road to Fenghuangcheng. Carefully think out all orders for defense and retreat, so that no trophies may fall into the hands of the enemy. Get into communication with Madritow."

The following are the remarks of the German compilers upon this and similar instructions:

"From this telegram, as well as from the subsequent directions, orders, instructions, inquiries, and remarks, and which almost daily reached the Eastern Detachment in large

numbers from Army Headquarters at Liao-yang, a clear idea can be formed of how much the leaders, who were in touch with the enemy, must have been influenced in their resolutions by Headquarters. This constant interference with the authority of subordinates, even right up to the commanders of divisions and corps, which is brought to light here, and which did not mind to order about even individual battalions, batteries, and sections of batteries, was the cause, as can be gathered from the next few paragraphs, that the leaders of the Eastern Detachment did no longer venture to order the smallest alteration on their own initiative; but, by reason of this tutelage from Liao-yang, always asked permission first by telegraph from Army Headquarters. No wonder that in this way also the self-reliance and initiative of the inferior grades, as well as of the private soldiers, were reduced to a very low level, especially when, as in the Russian Army, there is in itself little inclination to act spontaneously. This could not be otherwise than fatally felt throughout the campaign."

Of course there are duties of subordinates that should not be interferred with unnecessarily by commanders. We hear the expression once in a while that such and such a colonel is trying to be first sergeant of the troops or companies. And it is quite true that there are many men who can never, intellectually, rise above a certain grade. Some men are born captains or majors and not anything higher. But in all this matter of interference with subordinates it seems to me there are two sides. That little vexatious interferences are deadly, there is no mistake. I can illustrate such interference in no better way that by quoting Field's characterization of the Sultan Abdul Hamid, in his work on "The Greek Islands and Turkey after the War."

"On one occasion a foreign ambassador was introduced, who found the Sultan preoccupied, his brain weighed down with care. The first words that fell from his lips indicated how he felt the burdens which rested upon him, to which the ambassador replied with respectful sympathy that the affairs of state which oppressed His Majesty must indeed be overwhelming. Thus drawn out, the Sultan mentioned the

problem which at that very moment vexed his imperial mind, it was a regulation to be made in regard to the cafès in Constantinople. If this be true (and I have it from an authority I cannot question), it gives the measure of the man. It shows a mind which delights in petty details, and is incapable of rising to public affairs. The Empire may be going to ruin, corruption may prevail in every department of the government, whole provinces may be desolated by famine, yet this master of all must occupy his lofty intellect with the regulations of cafes and dancing girls. Such a man might be a major-domo or a Lord-chamberlain, but is utterly incompetent to a position which is one of the most august in the world. "(Woe unto thee, oh land, when thy king is a child!)"

"The Unfortunate Commander," a title that history is attaching to Kuropatkin and to which I have had occasion to refer before in the JOURNAL, was possibly a better Chief of Staff than a General. But we should not forget that attention to detail is necessary at times, most times, I believe, except in cases where the stress of mighty events is too great. Then subordinates must be trusted and if found wanting removed by court-martial, death or by any other means that promptly places the right men in their places.

We believe there is too much criticism in our army of commanders who pay attention to details. They may have found from their experience that such is necessary. And with volunteer and inexperienced troops in time of war there is more need than ever for attention to small matters. And we firmly believe that when the history of our own times shall properly record the acts of the last ten years, General Otis, who was constantly receiving this criticism, will stand the colossal figure of American history at the opening of the Twentieth Century. I recommend the careful perusal of the report of General Otis in the War Department Report for 1899, to every officer in the army, and if, after laying down the report, a most high estimate of that man's wonderful power is not reached, I will be mightly mistaken.

It is true, in the telegram quoted above from Kuropatkin there is little except what a subordinate should do, and if

he did not do this much he would be a proper subject for court-martial. But we know from our study ef the Russo-Japanese War upon what reeds Kuropatkin had to lean. Small wonder he was worried, though I must admit the present book has given me a better opinion of Kaschtalinski than I previously maintained.

Of course this is the most authentic work that has yet appeared, and as far as that is concerned is unquestionably the most authentic work on the subject that will ever appear. For the Germans know more of the war than any other people, except the Japanese, and the Japanese are never going to tell. It will be impossible for any other people to compile such a work for no other attaches secured as much information as did the Germans in the far East, and no other general staff has such a competent historical section.

To begin with it is understood that there is a historical section of the Great German General Staff whose men are carefully selected on account of their ability to write history, men whose lives are spent in that pursuit, who are trained to compile facts and applying to the facts the general rules of evidence, deduce the truth as no other set of men can. Then again it is to be remembered that the Japanese system is modeled after the German, and to do all this modeling required many Japanese officers to receive their education in German schools. These German educated Japanese were to be found at every division headquarters, and when Germany came to send her attaches for observation it was carefully arranged that to every division headquarters should be sent an attache that was a class-mate of the German educated Japanese official that was at that particular headquarters. So the German attaches found old friends and class-mates at the division headquarters, with whom they could converse in German and with whom they could while away a leisure hour, when one chanced to come along, talking over the boyhood systems of instruction. Now it should be understood that I do not say for one instance, that the German attaches received officially any more information than did the attaches of any other nation, but it would take a credulous person indeed to believe that in the conversations between old class-

mates in the spare moments after lunch, or while waiting for reports under some tree, nothing was given to the old time friends except what was given out officially to all attaches.

Then it is believed that the Russian army was imbued with the idea that Germany was particularly anxious for Russia to win and so there would be less tendency to strictness with the German attaches than with those of England, decidedly an ally, or those of the United States, whose country was furnishing much of the sinews of the struggle. So to the Germans we must look for the most reliable and authentic relation of the events of the great war, and we are assured by this first installment, up to and including The Yalu, that we are not wrong in our expectations. Military students know what the German account of the Boer War is, and to them nothing more need be said than the fact that the same thing is being done in the history of the Russo-Japanese War, and that the first section has now appeared.

No officer can afford to be without this account. And if his financial condition does not allow of heavy purchases or even light ones on the subject of the last great war, yet this one book he should have above all others. The rest are but primers compared to this.

In the past the CAVALRY JOURNAL reviewed most of the books on the Russo-Jasanese War as they appeared, and a recommendation was made in each number as to which books were considered the best for purchase by officers of moderate means. If I may be so bold as to repeat the work that was formerly done, I would give as my own independent views the following works as valuable and of value as they are numerically mentioned:

Of Primary Importance:

First. The German Official Account of the Russo-Japanese War. (First volume now ready from the press of Hugh Rees, London. Price, 10s. 6d)*

*Of course it is expected our officers keep the reports of our own attaches and no comparison of these valuable works is made with any of the publications above given.

All of the above have been reviewed in the JOURNAL, publishers and prices given.

Second. The War in the Far East. Military Correspondent of the *London Times.*

Third. A Staff Officer's Scrap Book. General Ian Hamilton.

Fourth. Port Arthur; The Siege and Capitulation. Ashmead-Bartlett.

Fifth. The Battle of Mukden; The Battle of the Sha Ho. Von Donat's translation from the *Militar Wochenblatt.*

Sixth. Lessons on the Russo-Japanese War. De Negrier.

Seventh. For Comparison, The Chinese-Japanese War. Vladimir.

Eighth. On the Causes, The Russo-Japanese Conflict, Asakawa: Also *McClure's Magazine*, September and October, 1908, containing Kennan's translation of Kuropatkin's Book. The three succeeding numbers of *McClure's* may contain more matter of import to the student of strategy and tactics.

Of secondary importance are such as the following:

General E. E. Wood's compilation; The Work of Asiaticus; The Truth about the War; Chasseur's Work; Wrangel's Cavalry.

WHITE.

Studies in Applied Tactics.*

During the past year the library of the cavalryman has been enriched by at least three notable translations of foreign books, and to these another has now to be added.

The book is written on the applicatory system of instruction first introduced by General von Verdy, and generally recognized as the most valuable method of imparting a knowledge of the art of troop leading. Those who have followed the Second Division with General von Verdy in his "Studies in Troop Leading," or those who have ridden with the cavalry in "The Cavalry Division" will need no further guarantee of the value of this new book than the statement

*"STUDIES IN APPLIED TACTICS." By Lieutenant General von Alten, translated by Major C. H. Barth, Twelfth United States Infantry. Franklin Hudson Publishing Company, Kansas City, Mo. Price, $2.00.

that it is an exceptionally worthy example of the von Verdy system.

The text is divided into two parts, the first dealing with reconnaissance, the second with cavalry outposts, marches and combined outposts; the same situation or story continuing through the whole.

The book is written as though it were the story of a real campaign in East Prussia. A Blue army in friendly territory is presumed to be moving eastward from the Vistuia River against a hostile Red army from the East. The left wing of the Blue army, with which the story deals, consists of an army corps with one regiment of Divisional Cavalry attached.

The story begins with the sending out of a troop of the attached cavalry regiment (which is used as independent cavalry) and the forming in turn by this troop of its own network of patrols. Each patrol is taken up in turn, each encountering different conditions and so teaching a different lesson. This patrol meets hostile troops from the start, that patrol is more fortunate and penetrates the hostile screen gaining a glimpse of the infantry columns in rear, etc. Just what the patrol leaders, lieutenant or sergeant should do under the presented conditions becomes a problem which the reader should solve for himself before reading what he actually did do. By reading on he will he able to determine for himself from the subsequent events whether his solution was as good as the author's or not. There is hardly any phase of the conduct of patrols which is not covered in some one of the many situations considered, whether it be feeding and watering, message writing and sending, map reading, combat or simply the conduct of the patrol on the march.

One reads on in this interesting book as though it were a fascinating novel, but gains the while a fund of useful knowledge ordinarily available only in war itself.

Next the problems of the troop commander are presented in a similar manner. He must send out his patrols and keep in touch with them, difficult in peace maneuver, infinitely more so when the "Fog of War," poor maps and a worthy enemy must be considered. Again the reader feels the fascination of the story growing on him but now in a broader way, for the details and difficulties of the patrol leader seem insignificant whem compared with the perplexities of the troop commander. And these in turn lose their importance when the scene shifts to the side of the colonel with his greater responsibilities. With him we read the messages which earlier in the book we saw the patrol leader write and dispatch; and with him, after a hard day's work, we go into camp and establish camps and outposts for the night.

The first section of part two is devoted to the arrangements of independent cavalry seeking to pass the night far in advance of the army and near the enemy. Camping and putting out an outpost at a maneuver is one thing, camping and establishing outposts after a hard day's work over an extended front is another and quite a different thing as the reader discovers. When, where and how to feed and water, what to do with the horses of the pickets, how to get food and forage to the detached troops, to secure the needed rest for man and horse and at the same time to protect the regiment from the alarms or the attacks of an enterprising enemy now in contact, these and the many other problems and duties which fall upon the fatigued officers and which, so easily overlooked in a war game or maneuver, are so insistently present in service, are told in the same interesting story-like way; the lessons being grasped almost unconsciously.

In the second section of part two the author considers the arrangement of troops and the protection on the march of an army corps which had to look out for hostile cavalry on its front and flanks. The third section deals with the halt of the army for the night, the posting of its outposts composed of both infantry and cavalry and is not less interesting in its way than the portions already considered.

Taken as a whole, the book is one of surpassing value and it should be read by every cavalryman. It is unusual in that the troop non-commissioned officers may read it with interest and with profit, as well as the troop, squadron and regimental commanders. Every page is a lesson and the

whole is a stirring story of imaginary but intensely realistic cavalry operations whose interest never fags.

The maps which accompany the text are far from good and their imperfections and short comings detract much from the value of the book. It is to be hoped that another edition will be accompanied by a more worthy set of maps. Many readers will regret that the German cavalry organizations of the original were changed by the translator to our own familiar troops, squadrons and regiments, but on the other hand it is probable that quite as many will count this in favor of the book.

H. E. E.

Tactical Decisions and Orders.*

The author assumes for his general situation, the pursuit of a recently defeated Red army, and covers in detail the movemems of a Blue infantry division, (German organization), reinforced by a cavalry brigade detached from the main Blue army, to pursue a similar force of the enemy, which has become separated from its main army in the general retreat.

The operations of the Blue division are followed through eight days, during which time it pursues the Red division, attacks and defeats it, pursues again, is stopped, makes a flank march paralleling a similar march by the enemy, changes direction, and successfully attacks.

The author also goes over to the Red division for a period of two days, envolving the occupation and defense of a position, and withdrawal therefrom.

The decisions and orders of the Blue commander form the principal considerations of the text, though the decisions, orders, etc., of the higher subordinate commanders, particularly the commander of the cavalry brigade, are frequently entered into in great detail.

The analysis of the various reports received, by the division commander, his deductions and consequent decisions

*"Tactical Decisions and Orders, a Study in Troop Leading." By Albert Buddecke, Captain German General Staff. Third revised edition, 1906. Translated by Captain A. L. Conger, 29th U. S. Infantry. Franklin Hudson Publishing Co., Kansas City, Mo. Price $1.25.

and orders, form the most instructive portions of the book. The scheme for carrying along the movements from day to day is excellent and contrives to make the situations unusually realistic, interesting and instructive.

Particular attention is given to the subsistence and ammunition supply of the division, and the management of the numerous trains and supply columns are carefully worked out. The operations of the cavalry brigade furnish very interesting situations.

While the book appears particularly adapted to the use of officers preparing themselves for general staff duties, it should prove very valuable to all officers who have progressed in their studies through the handling of a detached brigade.

A guide map on a scale of 1 : 1,000,000, and a detailed map on a scale of 1 : 100,000 are furnished. The paper on which the latter is printed might be of a more substantial quality. The book has 231 pages, is well bound, and is printed in large type on fair paper.

G. C. Marshall, Jr.,
First Lieutenant, 24th Infantry.

Robert E. Lee, The Southerner.*

In the introduction the author expressly disclaims any intention "to undertake to discuss critically the great campaigns which Lee conducted or battles which he fought," but gives rather, as his aim, to speak of "Lee, the man."

In so far as he adheres to his main design the work is excellent and the author gives us many interesting and some new anecdotes of Lee, the chapters on his "Early Life" and "Lee as College President" being particularly of interest.

It is to be regretted, however, that apparently in spite of himself, the author is drawn into the realms of military controversy and attempts to defend Lee's greatness as a military commander against any and all comers. For the military

*"Robert E. Lee, The Southerner." By Thomas Nelson Page. Charles Scribner's Sons, New York. Price $1.35, postpaid.

man this is unnecessary; as Lee's skill and good judgment are better known and understood by him than, apparently, by Mr. Page. The effect upon the non-professional reader of this part of the book is difficult to conceive, as the congeries of glittering generalities, presented in the guise of descriptions of campaigns, is at once dazzling and baffling to the imagination.

As an example, the following references to the campaign on the Peninsula in 1862 may be quoted:

"Lee's first act [upon taking command of the army after Gen. Johnson was wounded] was one which should dispel the illusion that Lee was great only in defensive operations."

The facts being that Lee's first act upon taking command was to disengage his troops from an assault on the left wing of the Union Army, south of the Chickahominy, ordered by his predecessor in command, and ordered them to return to their entrenchments in front of Richmond, where the bulk of the army remained inactive for more than three weeks.

"Massing his troops suddenly on the north side of the Chickahominy and calling Stonewall Jackson to meet him at a given point at a given hour, he fell upon McClellan's entrenchments and rolled him back to the upland plain of Malvern Hill."

This characterization of the "Seven Days Battle" is rather unique. Ropes says, vol. ii, p. 205: "The movement of the Army of the Potomac from the Chickahominy to the James was not the result of the Confederate attacks on it; the movement was dictated by the absolute necessity of establishing a new base of supplies. * * * The marching away of the Federal Army after each engagement was not because it had been beaten; it was simply going on with the movement to the James."

"Was he [Lee] acting on the defensive or offensive when again, dashing upon him on the entrenched uplands of Malvern Hill, he swept him back to his gunboats, and shattered at once his plans and his prestige?"—pp. 96 and 97.

Ropes says of this battle, vol. ii, p. 203: "The failure of the Confederates was complete. * * * The Confederates lost over 5,000 men killed and wounded.

It is difficult to realize that both authors are describing the same events, but in this case it must be said that Mr. Ropes' description is in accord with the facts, not Mr. Page's.

This book cannot but suggest that though thirty-eight years have elapsed since the death of Lee, no adequate military biography of him has as yet been written, though there are many who understand well his genius and his comprehension of the art of war, and though we are to-day, Northerner and Southerner alike, equally proud of him as of Grant. That our author has had no such biography or history to which to turn to find the military facts he sought for the purposes of his narrative may, to a certain degree, excuse him for his errors. It should, however, cause our foremost military writers to consider and awaken to their responsibility.

A. L. C.

Military Primer.*

In the book's preface, the authors thus define the sphere of usefulness which this book is designed to fill. "This book is in no sense a textbook for advanced students of military science, but a book for the beginner, designed to teach the cadets of the Military Academy * * * the objects (*sic*) of the profession for which they are preparing themselves."

In spite of the limited audience with its special and peculiar surrounding conditions to which the authors address their work, the chapter on Loyalty, Obedience and Discipline might well be placed in the library of any military student because of the clear and impressive statement of the importance of these traits in the soldier.

The chapter on map reading and orientation deals with a subject of such importance that one cannot but wish, in reading the book, that the treatment had been made simpler and more practical so that the beginner—and the book is written for beginners—might learn to *read* a map rather than learn to *study* one.

In dealing with patrols, advance guards and rear guards, the authors have taken a step, or rather a long stride in the right direction by introducing examples of the conduct of such bodies in concrete cases to illustrate the formal rules which are quoted from the Field Service Regulations and

*"A Military Primer." By Captain Francis C. Marshall, 15th Cavalry and Captain George S. Simonds, 22d Infantry. Price $2.25, postage paid.

other authentic sources, but it is to be regretted that they did not follow the same system of instruction as that used at Leavenworth, since in an army as small as ours, there should be a coördination of instructional methods rather than a divergence, and these same cadets must look forward to the time when they will, as students in the Service Schools learn that the strength and composition of an advance guard cannot be determined satisfactorily without some reference to the terrain and to the enemy.

The latter part of the book—dealing with outposts and the independent cavalry, not only has no place (considering the character of the discussion accorded them) in a "Primer," but fails as a presentment of the subject. It is to be hoped that future editions of the book will omit these last two chapters and many of the problems which close the work.

The press work and maps are excellent, but the size of the book—10¾ inches by 13½ inches, is extremely awkward for anyone except, perhaps, for the cadet for whom the book was written.

H. E. E.

Military Law Examiner.*

The seventh edition of the Military Law Examiner has just been brought out by Gale & Polden. There is little to add to the review we gave of the last edition in our October number, 1906. It is necessary in such books to keep them constantly up to date, and this can only be done by successive editions. That such a work possesses value is attested by the fact that successive editions pay.

As stated in our last review we do not at all agree with the author in his views of questions and answers. He calls attention to the *manner* in which the answers are framed, stating that a long answer is usually a wrong one. This may be true of the general run of examiners who have to mark papers, especially as the majority of people are constituted

*"The Military Law Examiner." By Lieutenant Colonel Sisson C. Pratt, Royal Artillery, retired. Gale & Polden, London. Price, post free to any part of the world, 4s. 6d.

lazy. But the proper examiner should never weary in reading answers as long as they are not too far-fetched. If in answering a question, a person has time to go somewhat deeply into the subject, it should not militate against him. If I ask a man what a treaty is and he gives me a good statement, such that it could be incorporated into a treatise, I do not believe the answer should be cut as being too long. The trouble with examiners is just what the author indicates, a laziness and no inclination to do any more than they have to. Such examiners should be gotten rid of and men put in their places who are not afraid of a mass of papers even if it does take some hours more to mark papers than they think it should.

It is true there are men capable of answering questions with much greater brevity than others, some men can say in four lines what others will take ten to express, and generally speaking the four line answer of such men will be by far the best. But these men are few. And while brevity is to be recommended in general, yet there is great danger in dealing with the majority of officers, that while brevity is the soul of wit, we shall find too much brevity and too little wit.

Autobiography of Sir Harry Smith.*

The autobiography of Sir Harry Smith has gone through many editions in England without it being barely known in America. Sir Harry may quickly be oriented by Ladysmith, who gave name to the town and siege in South Africa, where both their names will long live from the days of the Kafir wars. He ranged wide like so many lucky Britishers who fought all over the world in the fifty years round about the time of the Iron Duke, while, like Lord Wolsey's "Story of a Soldier" and Roberts' "Forty-one Years in India," his narrative is delightful in its simplicity and personal touches, at times his doings and adventures are quite Charles O'Malley like; again one won-

*"Autobiography of Sir Harry Smith." John Murray, London, and Brentano's. Price, $3.15.

ders if Brigadier Gerard is not riding and slashing. But Marbot is the real prototype; and both are true types of their own countries and telling the truth in spite of the smile that will often come when the long bow is pulled a bit.

Sir Harry "scrawled over his life at full gallop," one crammed full of soldier doings from subaltern to general, with ribbons for Montevideo and Buenos Ayres, the Peninsula, Bladensburg and Washington, New Orleans, Waterloo, campaigns in France, South Africa, India and British America.

But to Americans his experiences as A. G., both to Ross at Bladensburg and Washington and to Pakenham at New Orleans, are of liveliest interest. The soldier man will be a bit surprised over his criticisms of the troop leading in these fights, and then after Bladensburg follows fast: "Suffice to say we licked the Yankees and took all their guns, with a loss of upwards of 300 men, whereas Colborne would have done the same thing with probably a loss of forty or fifty, and we entered Washington for the barbarous purpose of destroying the city. Admiral Cockburn would have burnt the whole, but Ross would only consent to the burning of the public buildings. I had no objection to burning arsenals, dockyards, frigates, barracks, etc., but well do I recollect that, fresh from the Duke's humane warfare in the South of France, we were horrified at the order to burn the elegant houses of parliament and the President's house. In the latter, however, we found a supper all ready, which was sufficiently cooked without more fire, and which many of us speedily consumed, unaided by the fiery elements, and drank some very good wine also."

The fine spirit and generous nature of the soldier stand out throughout the book, and his loyalty and admiration for his chiefs is not the least of his good points.

Notes on Staff Rides.*

This little book explains fully and in a very concise and compact form what a Staff Ride is and how it should be conducted. While it is intended for beginners, it contains much valuable information for the more experienced and especially for him whose lot it is to organize a staff ride.

The regimental or tactical tours, as described in this book, are similar to the terrain exercises as conducted in our service schools; and differs from our tactical rides, as we call them, in that the latter are nothing more than a one-sided war game with the maps replaced by the ground and the director playing the part of the enemy.

Section XI, on reconnaissance, is a handy addition to the book and will greatly assist an officer detailed to report on any of the several subjects mentioned therein.

The size and shape of the book are such that it can be carried in the pocket. D. K. M.

Notes Made in Peace and War.†

The author in the course of his distinguished career, followed the injunction "when found, make a note of" and he presents the result in a very entertaining way. The notes cover a wide range, from thoughts on ethical questions to practical considerations, such as the effect of loss of sleep on the nerves. Many of the notes are illustrated by anecdotes, mostly drawn from the author's experiences in India, in the Soudan and South Africa. The following few selections from the Notes illustrate the character of the collection.

(8) To send us reinforcements.

Remark of an old private, when the C. O. had joined the fighting line, where he was killed: "Why, the Colonel was in the line just like one of us. We didn't want him

*"Notes on Staff Rides and Regimental and Tactical Tours for Beginners." By Major T. E. Fowle. Gale and Polden, London. Price, 2s, net.

†"Lessons From One Hundred Notes Made in Peace and War." By Major E. A. H. Alderson, C. B., p. s. c., Gale & Polden, London. Price, 2s. net.

there, we wanted him back behind to send us reinforcements."

(13) Never "give away" a subordinate.

At a maneuver, a brigade commander, referring to a certain contertemps, said: "This was the fault of my staff officer." The director commented, "Here the G. O. C. blamed his staff. This cannot for a moment be permitted. He alone is responsible."

(34) What are the secrets of influence?

The Bishop of London says:

1. Absolute straightness.
2. Absence of "side."
3. Sympathy."
4. A sense of humor.
5. Faith.

The author adds:

6. A high ideal.

(54) The army means its officers.

(68) Justification of departure from orders lies not in success, but in the considerations of the case.

There are appendices on orders, communications, writing reports and memoirs and the "Estimate of the Situation."

The book is well worthy of a place in a military library.

Visual Training.* The author of this handbook, an instructor in the Musketry School at Hythe, presents a brief synopsis of the English method of treating this important subject. He first indicates the approved methods of teaching recruits quickly to distinguish objects, cultivating the faculty of observation and increasing the recruit's vocabulary and training him in methods of correct description. One feature of this is an ingenious method of describing the exact location of an indistinct object with reference to landmarks. A uniform

*"Notes on Visual Training and Judging Distances in Relation to Musketry." By an Instructor at the School of Musketry at Hythe. Gale & Polden, London. Price, 6d.

system for doing this is very desirable and the one described appears well adapted to the purpose.

A summary of the matter included under the head "Judging Distance" is as follows:

(*a*) Train men to recognize a short unit of measure.

(*b*) Explain causes of under and over estimation, also effect of light and background.

(*c*) Demonstrate the appearance of fatigue men in different firing positions at distances from 100 to 600 yards.

(*d*) Men to estimate themselves, giving reasons for each estimate.

(*e*) Estimate from service positions, visual training and judging distance combined.

(*f*) Time for calculation decreased. Rifles carried, estimates put on sight.

(*g*) Judge on fatigue men, firing blank.

(*h*) Judge on features of ground likely to contain an enemy.

(*i*) Commence judging distance and observation marches.

Under (*d*) above five methods of aiding the estimate by reference to other known or easily recognized measurements are given. As an example, sighting through the bore of the rifle at a man standing.

Competitions in judging distance are a feature of the course at Hythe and the method of conducting them and keeping the records is described.

A "Ready Reckoner" table included in the book should prove very convenient in making up the records.

The book is decidedly worthy of the attention of our officers.

Hints on Etiquette and Dress.* The title is fully descriptive of the contents. The Mess Etiquette, much more rigid than with us, is perhaps the most interesting part of the text. Compliments, Official Correspondence and Dress constitute the remainder of the book. The book will furnish valuable hints

*"Hints on Etiquette and Dress." By an Adjutant. Gale and Poden, London. Price, 6d., net.

for an officer who anticipates being brought into social relations with English regiments and may possibly save him some embarressment. G. E. S.

Military Law Made Easy.*

The indefatigable publishers, Gale and Polden, have brought out the fourth edition of Military Law Made Easy by the no less indefatigable author, Lieutenant Colonel Banning. Colonel Banning is a Barrister-at-Law of the Middle Temple, and has been for ten years instructor in Military Law at the Royal Military College, Sandhurst. He has here presented a useful handbook and one of moment to military students and candidates for promotion.

The permitting of the use of books at examinations, in the English Army, does not detract from the importance of this work, for candidates must know their way through official books, and the author invariably gives his references. The issuing of orders necessarily requires the keeping of text and hand books up to date, and so we have this edition. This is something we must come to in our own service. Things move rapidly these days and it becomes almost impossible for an officer to keep up in every branch of the profession. Those well qualified by study in special subjects can do scarcely better work than compiling short useful handbooks upon our various subjects. Of course our Manual for Court-martial is so useful a book that we do not feel the need of others works in the subject of Military Law as some armies do, but a book of procedure, such as our manual essentially is, could well be supplemented by private works upon the subject that should be of use to the profession.

*"MILITARY LAW MADE EASY." By Lieutenant Colonel S. T. Banning, Late Royal Munster Fusileers. Gale and Polden, London. Price, 4s. 6d.

Administration, Etc., Made Easy.*

We have here the eighth edition of another one of the Made Easy book. As we have already reviewed this book (see July JOURNAL, 1905), we can do no better than to quote what we said of the previous edition.

"This book embraces in one small volume a vast store of information for the British army officer on the subjects named in the title. The text is compiled from a large number of reference books, with a view to assisting officers for promotion. A short list of questions is appended to each chapter, while an appendix contains a much longer list with answers. These questions are those given in previous examinations. The American officer who is interested in the subject of British administration, organization and equipment will find in this text a brief but clear statement of what has hitherto been regarded a complicated study. The chapters on Mobilization, Transport, Supplies and Ammunition Supply are especially interesting. A text, prepared on these lines, treating the subjects from an American point of view, and brought up-to-date, would be very valuable to officers of the United States Army.

How to Become a Drill Instructor.†

This little book is decidedly novel and fully bears out the author's claim that it is not in any sense a compilation from military text books. It might almost be called a treatise on mental philosophy. In remarkably well-chosen language the author discusses the mental and moral attitude the young non-commissioned officer should hold toward his duties as instructor; points out the dangers of discursive and unsystematic study, and describes his method of taking notes in study, a method which undoubtedly is a

*"ADMINISTRATION, ORGANIZATION AND EQUIPMENT MADE EASY." By Lieutenant Colonel S. T. Banning, late Royal Munster Fusileers. Gale and Polden, London. Price, 4s. 6d., net.

†"HOW TO BECOME A DRILL INSTRUCTOR." By Sergeant Major F. Fergucon, Seaforth Highlanders. Gale and Polden, London, No. 2 Amer Corner, Paternoster Row, E. C. Price, 1s. 6d., net.

good one, but hardly necessary in the study of the manuals used in our service, since these are all fully indexed.

Nearly half the sixty-two pages of the book is devoted to an analytical study of the art of memorizing. The principal of association of ideas, either by contrast or resemblance, is applied to various concrete examples taken from English service manuals, and it is convincingly shown (as various other systems of mnemonics have previously shown) that association of ideas is the greatest possible aid to memory.

Several pages on the art of compiling and delivering lectures, which it appears is sometimes a function of the non-commissioned officer in English organizations, closes the book.

The chapter on memory culture gives the book its chief value. The principal discussed is obvious and of long-standing recognition, yet no doubt many men of N. C. O. rank have never heard it formally stated or the value of its methodical application shown. G. E. S.

Fifteen Decisive Battles.*

This book was received too late for an extended review in this number of the JOURNAL. As will be seen from the complete title, it is a new edition of the old and familiar work of this same title to which has been added accounts of the battles of Quebec, Yorktown, Vicksburg, Gettysburg, Sedan, Manila Bay, Santiago and Tsu-Shima-The Sea of Japan. The book will be reviewed fully in the following number of the JOURNAL. E. B. F.

*"THE FIFTEEN DECISIVE BATTLES OF THE WORLD FROM MARATHON TO WATERLOO." By Sir Edward Creasy, M. A. New edition to which are added Quebec, Yorktown, Vicksburg, Gettysburg, Sedan, Manila Bay, Santiago and Tsu-Shima-The Sea of Japan. Harper & Brothers, New York and London. 1908. Price, $1.25.

Editor's Table.

"All the pure and noble arts of peace are founded on war; no great art ever rose on earth but among a nation of soldiers. * * * There is no great art possible to a nation but that which is based on battle. * * * When I tell you that war is the foundation of all the arts, I mean also that it is the foundation of all the high virtues and faculties of men. It is very strange to me to discover this; and very dreadful—but I saw it to be quite an undeniable fact. The common notion that peace and the virtues of civil life flourished together, I found to be wholly untenable. Peace and the vices of CIVIL life only flourish together. We talk of peace and learning, of peace and plenty, and of peace and civilization; but I found that those were not the words which the Muse of History coupled together; that, on her lips, the words were peace and sensuality—peace and selfishness—peace and death. I found, in brief, that all great nations learned their truth of word, and strength of thought, in war; that they were nourished in war, and wasted by peace; taught by war, and deceived by peace; trained by war, and betrayed by peace; in a word, that they were born in war, and expired in peace."—*John Ruskin.*

CHIEF OF CAVALRY.

As stated in the October number of the JOURNAL, the Executive Council considered it wise to go on with the work of securing signatures to the petition for a Chief of Cavalry, notwithstanding the fact that a quasi chief had been selected and appointed. The controlling reason for this decision was the opinion entertained by the Council that it might thereby give the War Department powerful support in its effort to place the cavalry on a high plane of efficiency. The signed petitions up-to-date (December 11th) reveal the practical unanimity of opinion among cavalry officers concerning this important matter, and indicate clearly that the Council in thus acting did not misjudge the wishes of the Cavalry Association.

Since the last regular meeting of the Association in Jan-

uary, 1908, the Council has been guided in this matter by the instructions it received from the Association at that time. By the selection of a colonel of cavalry as an inspector, an element that did not exist at the time of the meeting referred to, was introduced into the situation, thus placing the Council in a quandry as to whether it should continue to carry out the instructions of the Association, or should defer further action until after the next regular meeting in January, 1909. As stated above the Council finially decided to proceed with the circulation of the petition.

After the publication of the October JOURNAL a number of cavalry officers suggested to the Council that the presentation of the petition at this time might interfere with the efforts that the War Department is making in this matter of a Chief of Cavalry. Thus the Council was again called upon to consider whether or not it was advisable to depart from the instructions it received from the Association. The Council takes it for granted that the purpose of the Association from the beginning of this movement has been to strengthen the hand of the War Department, consequently it believes that any action that may embarrass the War Department in its efforts to adjust the proposed office of Chief of Cavalry to our scheme of army administration will meet with the disapproval of the Association. The Council has therefore decided that further action regarding a Chief of Cavalry is now unnecessary and it trusts that its action will be approved by the Association at its next regular meeting in January, 1909.

The establishment by the War Department of an office wherein is to be placed an official with duties similar to those that the JOURNAL has advocated for a Chief of Cavalry must meet with the approbation of the cavalry service. The JOURNAL will be a firm supporter of the new official. If, after the experiment of a non-legislative detail of Chief or Inspector of Cavalry is given a thorough trial, it be found that this official cannot have the supervision and control deemed essential to such a position, we hope that steps will be taken to procure the enactment of a law authorizing such an official along with all the authority needed by so important a position.

BOOK DEPARTMENT.

The Association has received the manuscript of a work entitled "Horses and Riding," by Captain Edward L. Anderson, the author of "Modern Horsemanship" and "Curb, Snaffle and Spur." This will be published by the Cavalry Association in the near future, and, possibly, it may first appear, serially, in the CAVALRY JOURNAL and afterwards in book form.

It will be illustrated with about forty half-tone plates from photographs, showing the various breeds of saddle horses, together with some of the thoroughbreds ridden and trained by the author. Many of these illustrations are unique and all are of value and interest.

As "Curb, Snaffle and Spur" is out of print, there is not now any good book on riding published in this country. It is believed that the publication of this work will be timely and that there will be a demand for it from not only our cavalry officers but from horsemen generally.

Captain Spaulding's book, "Notes on Field Artillery" is having a good sale and the demand for it is increasing. The reviews and notices of this work, both at home and abroad, are very favorable and all state that it is, as the title states, for officers of all arms. Those officers who try, and all should, to keep up with what is going on in the other branches of the services, which is so essentially necessary for intelligent coöperation of all arms, will find in this little book all that any officer, from the commanding general down, should know as to the powers and functions of modern artillery, excepting, of course, the trained artilleryman, who should go deeper into the technicalities of the subject.

Attention is called to the review of a new book, entitled "Topographical Surveying and Sketching," by Major Thomas Rees, Corps of Engineers, that appears in this number of the JOURNAL. This book has been adopted as a

text book at the army service schools at Fort Leavenworth and has also been adopted as the standard authority for the army. See G. O. No. 191, current series War Department.

Flattering notices of Captain Sargent's "Campaign of Santiago de Cuba" still continue to be received, especially from abroad. A prominent general officer in our army writes of it as follows: "Your 'Campaign of Santiago' is the best book I have read on the subject, and I have read about all that has been written on this campaign. I wish every army officer would read it. It would interest the old ones and instruct the young. I hope it will have the success it deserves."

THE ANNUAL MEETING OF THE ASSOCIATION.

The annual meeting of the Cavalry Association will be held in Grant Hall at Fort Leavenworth on Monday, January 18, 1909, at 8 P. M. The proxies already received are more than sufficient in number to constitute a quorum, although none have been received as yet from several cavalry garrisons in the United States. The representatives of the Association at these garrisons who have not sent in their proxies are requested to do so without delay.

A hasty glance at the proxies received from the regular members indicate that all of the proposed amendments to our constitution will be adopted almost unanimously; there being but a few scattering dissenting votes to certain of the propositions.

ARMYTOWN.

An article which appeared in the October 3, 1908, number of *Collier's*, under the above title, by Major Charles McK. Saltzman, Signal Corps, U. S. A., has attracted much attention and has drawn forth several very favorable comments in the army papers and other periodicals.

It sets forth so well the army side of that much discussed

"*Canteen*" question that it fully deserves all the favorable notices that it has received.

The following quotations are from it:

"Our town, which we might call 'Armytown,' is a community such as is described above. Most of our people are healthy young soldiers far from home and who, contrary to the general prevailing opinion, work hard every day. The majority of our people are abstainers, but we are of the people and have our quota of drinkers always with us. These drinkers of ours have been a source of great anxiety not only to the officials of our town, but even to the National Government.

"Conditions in our town are different from those in other towns. Armytown has no saloons, stores, theaters, skating rinks, or other places of amusement such as are found in other towns. The Government found that almost every evening, when the duties of the day were completed, our young men with their red corpuscles and their blue uniforms hied themselves to the nearby village in search of amusement, hilarity and excitement. The Government also found that there existed among the people a social prejudice against the soldier man in his blue uniform. It found that, although society lauded him in story and song when war-clouds appeared on the national horizon, it did not want to meet him socially at parties, balls, receptions, etc., during the every-day life of peace times, and that it even excluded him from many places of public entertainment. In fact, the Government found that our young men, feeling this discrimination, were gravitating toward the village saloons and dives which welcomed them and gave them an exciting evening's entertainment, even though it sent them home to our town late at night much the worse for wear. The Government found that at many of the Armytowns in the country, all like ours, a large number of low saloons and dives were being built just outside the Armytown limits, for the amusement of our young men.

"Since many of our men persisted in visiting the neighboring grogshops with the most evil results to themselves, the Government finally permitted the officials of our town

to establish an ideal saloon in Armytown, with a view to remedying this wretched condition of affairs. To keep our men at home, it built a club-house with an amusement-room, a reading-room, a bowling alley, a gymnasium, a writing-room, and other adjuncts of a man's club. It called this club the "canteen." From this club-house it barred whisky and all other virile intoxicants, but in one room, for the use of those who insisted on drinking the vile liquors of the village grogshops, it authorized the sale of beer.

"Stringent rules were prescribed, regulating the conduct of this bar, and the rules were backed up by armed soldiers who could be called from the nearby guard-house on an instant's notice. The rules had the effect of Federal law, and the authority behind them was the strong arm of the United States. In this Armytown saloon there was no drunkenness or disorder. Our saloon was regulated—regulated by the strongest power in this land.

"Even the most rigid prohibitionists of our town were pleased, and said that the experiment was a great relief from the horrible conditions which formerly prevailed. The fringe of grogshops and dives just outside the limits of the Armytowns throughout the land, which had lured young men to their destruction for years, began to disappear. Their trade was lost, and the young men who had previously patronized them now spent their evenings in the canteen gymnasium and reading-room.

"But the rum-sellers and divekeepers of the neighboring village were not willing to be thus deprived of their revenues without a fight. This quiet, orderly canteen worried them, and they agitated the question as to whether it was right for the Government to permit the sale of beer on a Government reservation and thus tempt young men. 'No,' said the divekeepers, 'these canteens have a bad influence and should be closed.' So the grogshop men and the divekeepers joined hands and fought the canteen for several years with little success until they were suddenly, to their great wonderment and stupefaction, joined by an unexpected ally.

"The W. C. T. U., a noble organization of Christian women which has always endeavored to labor for the betterment of mankind, took up the crusade against the Armytown canteen. These combined influences abolished the canteen in our town.

"So we are back where we started in Armytown. Each evening hundreds of our young men leave Armytown and saunter over to the resorts which have reappeared just outside our town limits. The records of the Armytown police court tell the rest of the tale."

THREE MILLION YEARS OF THE HORSE.

In the *Baltimore Sun* of November 15, 1908, a writer states some "high browed scientist" has claimed that from recent discoveries, the horse has been on the earth for three million years or more. He says: "It is also asserted, claimed or averred that this collection of fossils in the American Museum of Natural History shows 'three million years of horse history.' How they figure it out is not explained. But the creator of the department or vertebral paleontology does tell the thrilling story of how a battery of paleontologists pursued the elusive bones through all the wild West, through the Bad Lands of Montana, Wyoming and the Dakotas and at last ran them down and captured them. The curator asserts with confidence and satisfaction that the investigators have proved that the horse is distinctly "America's contribution to the world's history."

Therefore, we know that before horse-racing was known in any other quarter of the world the American horse trotted a heat now and then on the Western plains. He must have run, cantered, capered, loped and paced even in the prehistoric ages, before man began to bet on him.

The superb animals which have recently been put through their paces at the New York Horse Show might go up and take a look at the bones of their ancestors. It might give them confidence in the future to realize that long before automobiles began to honk, before trains ran screaming

and smoking through city and country, the horse was doing a steady business over good section of the world. It might inspire them to believe that, in spite of multiplication of machines, there is a great future for the horse, as there has been a great past.

There will *never be a* "horseless age." The *man who loves* a horse cannot show the same *affection and esteem* for anything on *earth made of* steel and wood. The crowds that flock to see horses on the track and in the show ring are only a small fraction of the lovers of the horse. For, whether his lineage can be traced back three million years or three thousand, the horse from earliest history has been man's best friend; and it may be thousands of years more before man bars him from the pastures of the world.

THE ARMY AND NAVY GAME.

The Philadelphia *Public Ledger* has the following to say editorially, regarding the great game of football which resulted in a victory for the army team this year:

"The annual football game at Philadelphia betwixt Uncle Sam's proteges of the future's 'far-flung battle lines' and the future's serried squadrons on the sea is quickening to the dullest imagination. It means so much more than a team of eleven men from the military school competing with eleven men from the Naval Academy. When West Point plays Annapolis, it is the entire United States Army pitted against the entire American Navy. The army as a whole, the navy as a whole, exults in victory or is dejected in defeat. For a day the mills of government at Washington well-nigh cease to grind; grizzled veterans doff the mask of potentous official solemnity and "root" for one side or the other, as though the chalk lines were international boundaries in dispute. They like to believe that Wellington said Waterloo was won on the playing field at Eton, and in the mimic warfare of the well-fought field before them they behold the counterpart or the grim reality.

"Philadelphians are glad that Franklin Field has been chosen, as in the neutral zone, for the settlement of their amiable differences, by soldier and sailor. They are glad, not from sordid and selfish considerations, but because the money of the visitors is freely in evidence, and the tavern keeper and the florist, the railroad and the garage, are reaping a golden harvest. But they like to see upon our streets the stalwart and prepossessing specimens of young American manhood, who are fitting to become the country's defenders in after years. What a spectacle is that afforded by "the army and navy crowd!" The loveliest woman on God's footstool are those 'whose bright eyes rain influence' upon the twenty-two contestants, and among the onlookers as well. No doubt the play's the thing and the player all in all, and yet in one of these great football games the hypnosis of the crowd 'the multitudinous throb and resurgence and thrill,' the singing and the cheering, the music and the flowers and the beauty of the women—all these, whoever wins or loses, go very far to make the 'crowded hour of glorious life' in a great and memorable day.

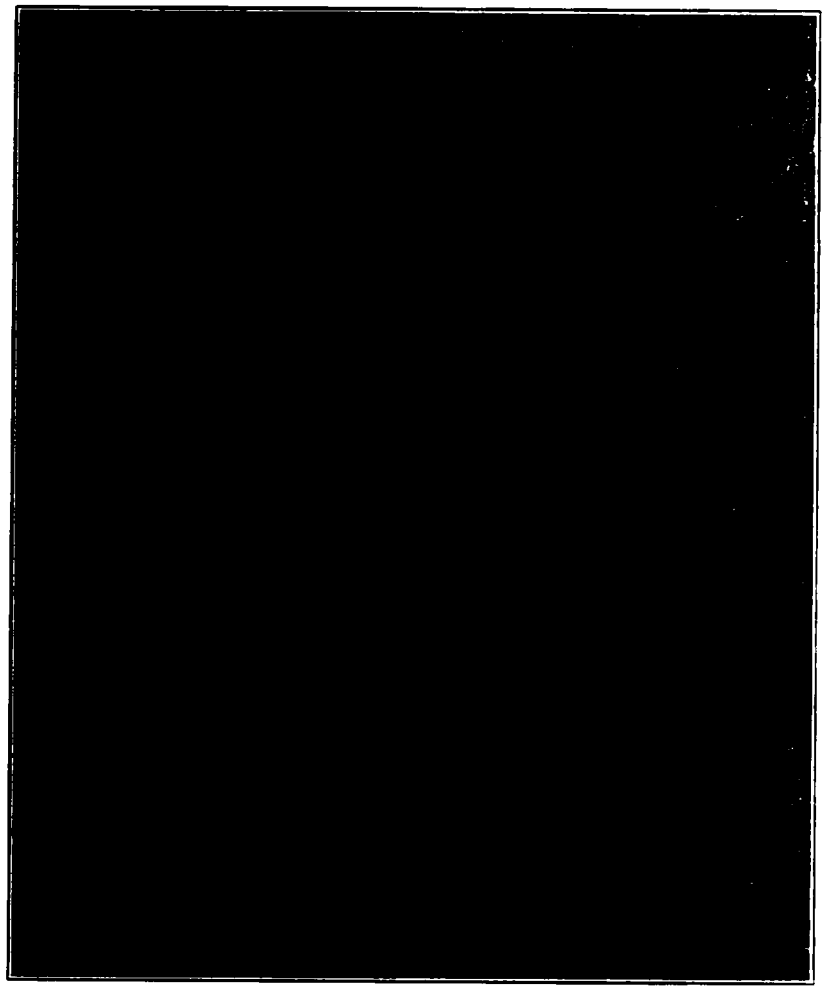
"It may with reason and in all sincerity be urged by the opponents of the sport that football is a rough, if not a brutal game; that in the heat of the encounter Alphonse does not defer to Gaston as he should, and that it is unmannerly in one young man to throw another to the ground and sit upon him. Nevertheless, the game continues to find favor in the eyes of a few even of the high-minded and right-thinking men and women. They believe that the game inculcates self-control and fortitude. These things are as much a part of the training of a second lieutenant or a midshipman as logarithms or calculus, gunnery or navigation. In war time it is the warrior not the molly-coddle who is wanted. And until the day when the nations of the earth shall convert swords into ploughshares, spears into pruning hooks, it is just as well to remember what is, after all, the primary business of West Point and Annapolis.

"The final score of the game and the army's hard-earned victory by almost the closest possible margin show how evenly matched were the luck and pluck, the brain and

brawn, that entered into this contest of worthy foemen. The spirit of militant offense and dogged, stout-hearted resistance augurs well for the country if ever the times that try men's souls should recur, and the mettle of our warriors and seamen should be put to the test again, not upon the gridiron in a game with a leather ball, but on the battlefield by land and sea."

ABRAHAM K. ARNOLD.

LATE COLONEL FIRST U. S. CAVALRY.
LATE BRIGADIER GENERAL U. S. VOLUNTEERS.
FIRST PRESIDENT OF THE U. S. CAVALRY ASSOCIATION.



THOROUGHBRED.
(From the Hersbury Breeding Farm.)
Photograph by MAX [illegible], Hersbury.

JOURNAL

OF THE

United States Cavalry Association.

VOL. XIX. APRIL, 1909. No. 72.

HORSES AND RIDING.

BY EDWARD L. ANDERSON.*

CHAPTER I.

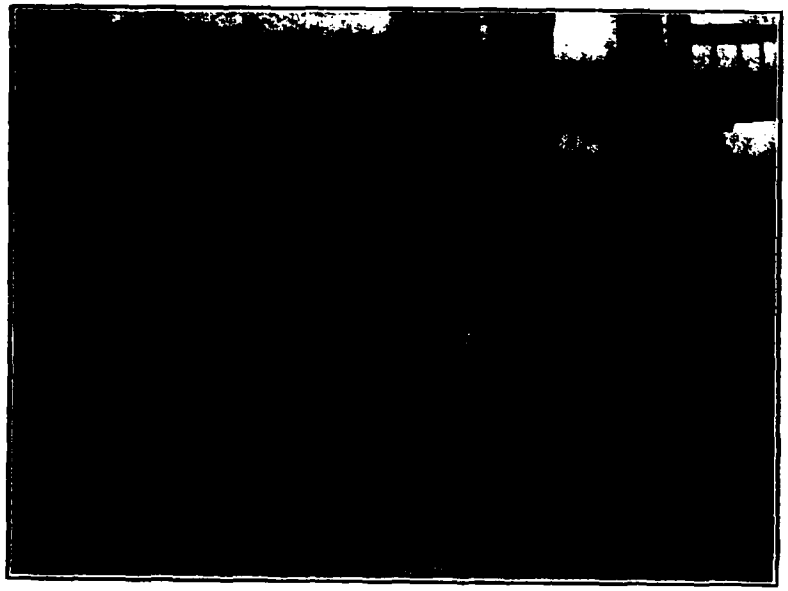
BREEDS AND FAMILIES OF HORSES SUITABLE FOR RIDING.

M. AUREGGIO, the authority on this subject in France, says that the Italian cavalry officers are better mounted than those of any other country. The chargers so highly commended are Irish weight-carrying hunters, and cost from $400 upwards. But there is no such breed or even family by which to identify these horses. They are for the most part nearly thoroughbreds; but, until a strain is established, an excellent result of a cross is really an accident, and the good qualities of an Irish hunter are due partly to the judgment of the breeder, partly to climate, and partly to early training given them in leaping and in climbing obstacles, not to speak of discretion in buying. At home they are never well trained saddle horses; but in the hands of Italian horsemen they soon become thorough chargers capable of wonderful exertions in crossing a cramped or difficult country, and

*Author of "Modern Horsemanship," "Curb, Snaffle and Spur," etc., etc.

there is no better horse for heavy weights than the best of one of these fortunate chances.

Occasionally the thoroughbred makes a horse that may be suitable for any purpose, but the blood horse has not the agility and pliancy that should characterize the perfect hack, hunter or charger and it is too apt to trip in the walk and in the slow trot. The writer has trained a number of thoroughbreds and usaully found them docile and submissive,



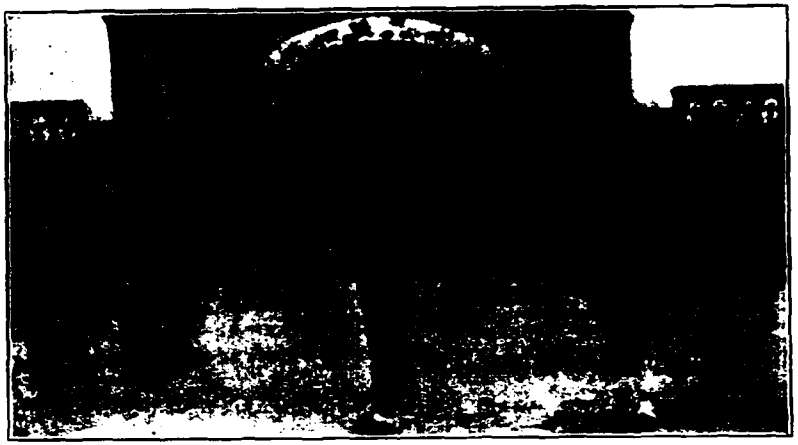
ENDORÉ. ANGLO-NORMAND.
Property of Raoul Balliere, Caen, Normandy. The finest horse in France for Cavalry.
Photographed by the Author.

even such as have been taken from the racing stables; but their strides are too long and too close to the ground for safety, although collecting the forces of the extremities temporarily overcomes these faults in the hands of a competent rider. M. James Fillis and the ecuyers and stallmeisters of the riding academies may select the blood horse, but this is written for general riders, and not for the skillful.

Although there is no rule regarding the shares of strains

in the Anglo-Normand beyond the requirement that it shall have at least half of the blood of the thoroughbred, and many have a very liberal half, it may be accounted as a distinct breed owing to the homogenity due to what horsemen call the prepotency of the Normand side. The large horse represented by the photographs of this work is an Anglo-Normand from the stud farm of Annecy. The Anglo-Normand is the handsomest of the large horses and has many admirable qualities.

The *Tarbais*, or horse of Tarbes, was originally a cross of the Arab upon the horse of the *Midi*, which was in itself



ANGLO-ARAB.
Purchased by the Italian government.
Photograph by the Author.

largely of Eastern blood, the product being a small animal of great stamina and activity. But the present *Tarbais* of the government farms has a large infusion of the English blood horse, although in the south of France the smaller horse, Tarbais, Anglo-Arab, and even the Arab, is held in high estimation. The horse I rode for the gallop-change, the halt in the gallop, etc , is registered in the stud book as Anglo-Arab qualifié; that is, it had some of the strains in its veins of the old stock of the south of France as well as those of its English and Eastern ancestors.

The more highly bred of the typical Hungarian horses are nearly thoroughbred with a dash of Eastern blood introduced more recently than the similar strain that is in the make up of the English race horse. The Hungarian is held in high esteem for light cavalry and for riders of medium weight. It has great powers of resistance against changes of climate and against long continued fast work, for which reasons it is generally considered the most valuable of the smaller breeds. A cavalry officer who has had a very wide experience with horses of many varieties told me that he

ANGLO-ARAB. (*Qualifié*).
Property of the Author. Photograph by the Author.

preferred horses of this breed to any others, and that while they were at first difficult to train they became very trustworthy after they had given submission.

The *Barb* was formed originally by a cross of the horse of northern Europe, introduced by the Teutonic invaders, upon the horse of northern Africa. It was long celebrated for its docility and for its hardiness. These qualities are said to be retained by the very "mixed" lot that are still called Barbs, into which Arab and English strains have been introduced more or less. Of course there have been, from very early

times, numbers of desert bred horses, or of their descendants, brought into Africa, and many of these have been kept more or less pure. I feel rather certain that the "Barb" ancestor of our race horse was one of these Arabs.

In Algiers the French government has endeavored to re-establish the best form of the horse of northern Africa by

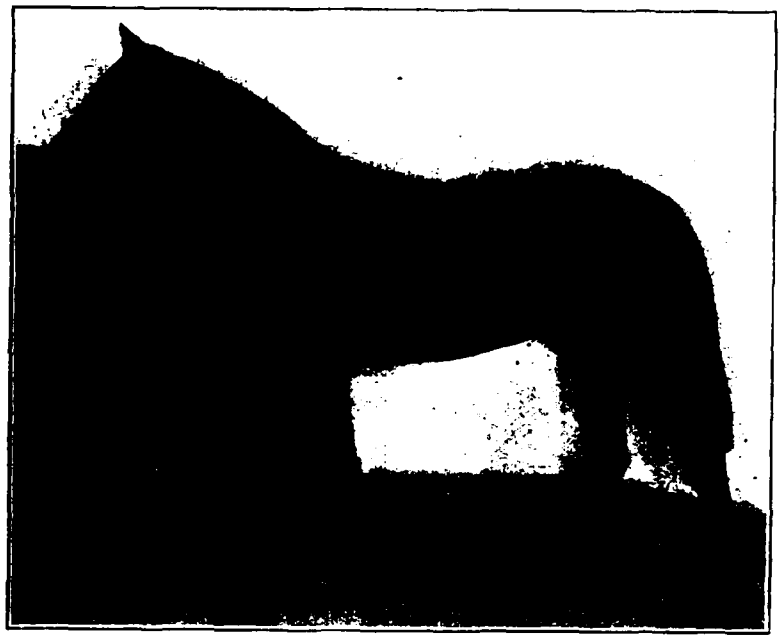
HUNGARIAN
From the Zechy Breeding Farm. Photograph by the Author.

forming breeding farms and by arranging a stud-book in which the pedigree may be entered and preserved.

For grace, beauty, temperament, and every other good quality that a riding horse should possess there is no breed, family or strain superior to the Denmarks of the Blue-grass region of Kentucky. They may not have the speed of the

blood horse, the resistance of the Barb, or the stamina of the Hungarian, but for confidential use they are incomparable. The inbred Denmarks, and the highest authorities say that a saddle horse cannot have too many strains of the celebrated ancestor, must be nearly thoroughbred with, almost eliminated, crosses of the Canadian pacer and the Morgan trotter.

It will be seen that nearly every horse that is held in high consideration in Europe or in America has a very large pro-

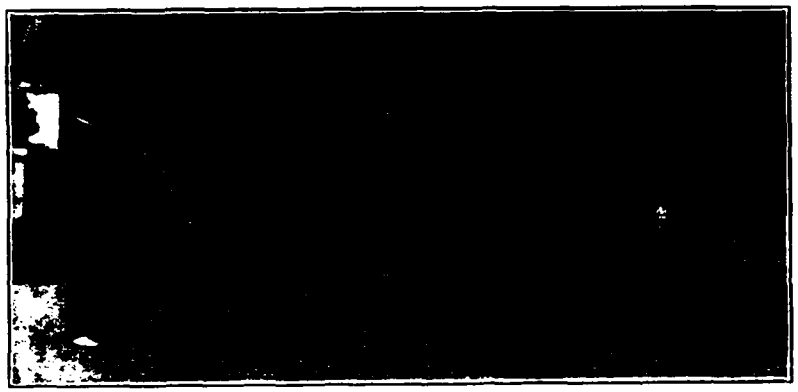


BARB. AMOURANIA.
Algerian Stud Book. Photograph by J. Delton, Paris.

portion of the blood of the thoroughbred, and it is certain that no other breed has such power of transmitting its good qualities, or has so many good qualities to transmit. The writer is not prepared to say that the race horse is deteriorating in the efforts of breeders to produce "sprinters" for short distances, but such competitions as the three and four mile heat races in which Lexington, Asteroid, Kentucky and

many other horses of the middle of the nineteenth century took part are no longer favored, and it might be difficult to find rivals should one of the old four-milers reappear with "Uncle Anson" responsible for its condition.

As every thoroughbred must trace its ancestry back to one of three eastern horses, Darley's Arabian, Byerly s Turk or Godolphin's Barb, and has in fact the blood of all three in its veins, it is self-evident that the desert horse has had much to do in bringing a refining influence upon some coarser but more useful breed that had existed in England previous to



PURE BLOOD ARAB MARE. KAHLIFA II.
Registered in French Stud Book. Seventh in descent from the tents of Nedj.
Photograph by the Author.

our history of the matter. But whatever may have been the true origin of the thoroughbred, it has been for more than a a century the noblest race of its species, and it is infinitely superior to any horse that has ever appeared in the Orient.

It remains to be said, however, that any strong horse may be made, by schooling, a very agreeable riding horse, even when it has slight defects in conformation, for such may be nullified by careful handling. Indeed the most perfectly formed horse must be rough and awkward under a rider until it has been given, or has acquired an artificial bearing

suitable to the unnatural conditions of carrying a burthen and of having its impulses checked, hampered and harassed by bit and spurs.

AMERICAN SADDLE HORSE. STERLING CHIEF.
Property of Colonel J. T. Woodford. Photograph by the Author.

CHAPTER II.

A FEW GENERAL REMARKS UPON RIDING.

I accept, without reservation, the saying of that fine horseman, Colonel Vigier von Steinbrugge, that no one may be considered a rider who does not understand the principles of Baucher. But Baucher's meanings are often so obscure as to require explanation, and, further, in his later writings he carried theories too far for practical use.

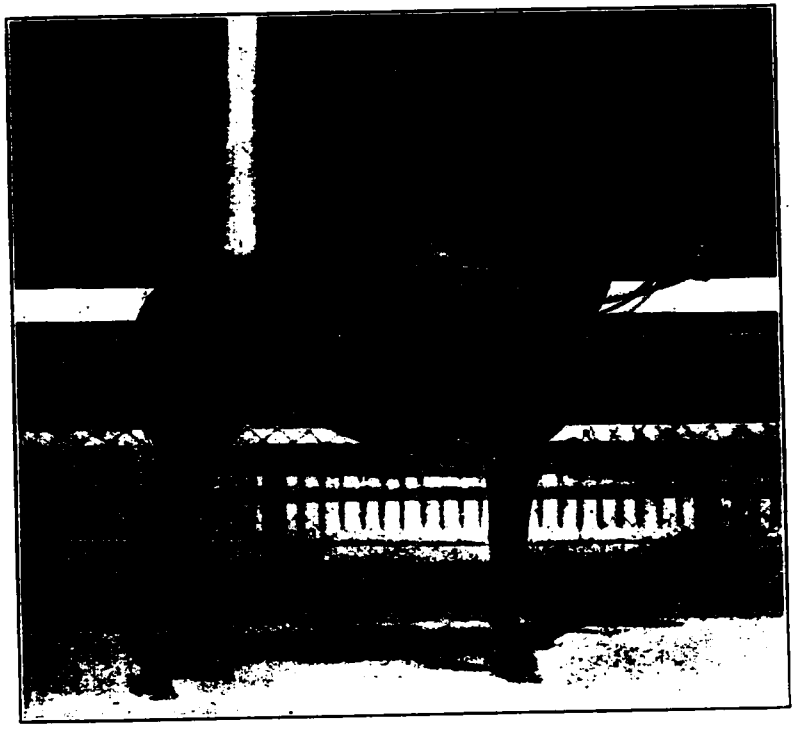
In simple but comprehensive language Baucher's idea was *to obtain complete and instantaneous obedience from the horse by the cultivation of the instinctive muscular actions which follow the application of the hand and heel.* This formula was a stroke of genius, and proved Baucher to have been the greatest horsemen that the world has seen. Unfortunately for the art his contemporary, Comte d'Aure, had the ear of France, and was the director of the *L'ècole d'Application de Cavalerie* at Saumur, and this opposition to the finished method of his rival has had in some ways a bad influence upon general horsemanship. I think that I can truthfully say that I am familiar with nearly every work and text book on riding that carries any weight, from the days of the pupils of Pignatelli down to the present time; that is, for about four hundred years, and I do not hesitate to express the opinion that many of the manuals of the great armies of Europe have always been, and still are, full of errors and contradictions. The prime faults being in the rules for demanding the gallop, and for making the turns and wheels; if these are not evident to any one who reads the works in question it is not worth while discussing the matter, although I may explain for the uninitiated, that their rules for demanding the gallops among other fallacies would tend to make the horse false in the changes of direction in that pace. The only book published recently in a foreign language that I can recommend is that of Mr. James Fillis which appeared, I have a right to remark, four years after I had properly and fully explained the gallop-change in the 1886 edition of "Modern Horse-

manship." It must be noted, however, that although Fillis is evidently a follower of Baucher his criticisms are really aimed at some very poor drawings which were intended to illustrate the work, for Baucher always deprecated the lowering of the head of the horse and the custom of permitting

CAPTAIN CROUSSE OF THE FRENCH ARMY, ON CONSPIRATION.
Winner in 1908 at Paris, Rome and Brussels. Photograph by J. Delton, Paris.

the face to make less then a right angle with the plane of movement, and in the carefully prepared portrait of the master upon Partisan, the horse is represented as carrying its head sufficiently high.

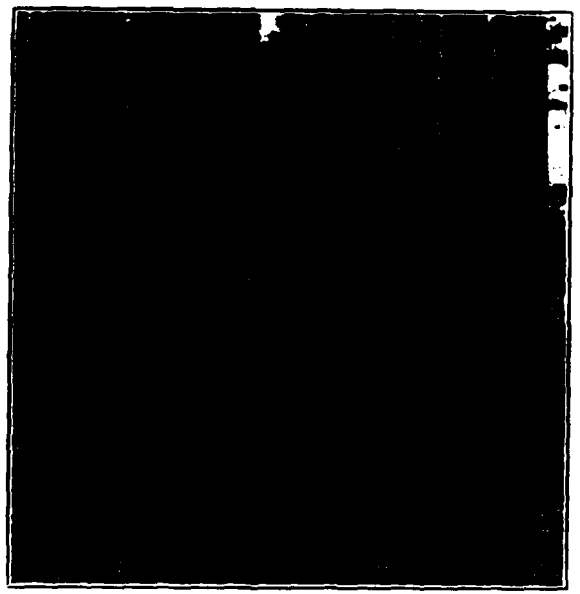
When a horse will move smoothly and evenly under its rider we are approaching that condition of the union of the weights and forces of the extremities known as the *equilibrium*. Of course in a state of perfect equilibrium there would be no motion, but for safety, for obedience and for cadenced action there must be a certain approach to the union and balance of the forces under the rider, and this takes place



CAPTAIN VON PONGRATZ
One of the finest horseman of the Austrian Army.
Photograph by A. Huber, Vienna.

whenever a horse is pleasant to ride, whether the man knew or did not know how the affair was accomplished. It is the "fad" nowadays, of pretenders to horsemanship, to let the horse go along in a disunited, slovenly manner; this is not only an ugly sight but it is dangerous for those who practice

it. This mode of riding may be seen in Rotten-row, in Central Park, and, more especially, on the ride of the Avenue du Bois in Paris; but real horsemanship is exhibited in the Concours of Paris, of Brussels and of Vienna by such riders as MM. Leclerc, Liebenstein, Crousse, von Pongratz and by hundreds of other gentlemen of intelligence and skill who maintain the art in its integrity, for horsemanship is an art that requires study and practice for any proficiency.



GENERAL VON MITZLAFF.
Superintendent of the Cavalry School at Hanover.
Photograph by Berger, Hanover.

Owing to certain reasons "Charre," the Anglo-Arab which was employed for the larger number of photographs in this book, had many interruptions in its training previously to its appearance before the camera; and it had been ridden in the open only some six weeks before it was ready to make the gallop-change and other movements, on the Normandy coast, as are shown by the pictures. The Anglo-Normand, trained in Switzerland, had even less attention given to its

handling before it was ready for the travers gallop and other movements in that pace, for it took readily to the gallop.

The education of a horse can be carried on much more rapidly by the work on foot, as suggested by Baucher, than

VAULTING INTO THE SADDLE.
Photograph by M. F. A.

by the mounted exercises alone; and I believe that a horse could be completely trained without the rider mounting, although I have never quite proved that to myself, as I have always been too desirous of getting upon the back of the

animal I had in hand in order that I might have the feel of the saddle.

I once wrote a little work on "The Simple Art of Horsemanship," but before it reached the hands of an editor I found that a lady had used the same title in a periodical, and so my paper, in *Country Life in America*, was entitled "The Whole Art of Horsemanship." The art is in fact extremely simple, and in half an hour a complete knowledge of its

DISMOUNTING.
Photograph by Dorothy Woods.

principles should be acquired by any one who has a taste for riding. It takes long practice to make a good rider, and aptitude is necessary for excellence; it is certain that the longer a beginner sticks to the walk, and studies his position, the better and stronger will be his seat. I think that proficient horseman, de Bussigny, was jesting when he said that it required fifteen years at the walk to give a perfect seat on the

horse; but fifteen days will not bring it as many tyros seem to believe.

It was as long ago as 1857 that Henri Franconi taught me the method of Baucher; notwithstanding, I find that I ride as strongly as I ever did, and take as much pleasure in training young horses as when I began the fascinating work; indeed, from constant practice in riding and in moderate gymnastics I am as active as one could wish, and I can vault into the saddle or leap to the ground without difficulty. It should be understood that I am an amateur, having no saddle horses for sale; when an animal proves unsuitable it is sent to the auctioneer and sold anonymously, never to be heard of again. The echo of a horse deal is seldom agreeable.

I wish to repeat what I have often said, that there is neither formidable nor esoteric knowledge in the training of a horse. If a proper method is employed pupil and master proceed without friction and riding is a wholesome, fascinating sport of which a man should never tire until he seeks the chimney corner and an easy chair.

It is always advisable that the beginner should have a very steady horse which he will find that he improves with his own progress, and he will bring the horse up to his skill, but no further. All horses that are active enough for the saddle must have plenty of work or they may become too lively and skittish, and vices often result from the play of a fresh horse. A skillful rider can always keep his horse steady with the spur; but there is not one man in a thousand of those who ride who knows how to use the sharp rowel, or who has the patience to employ it with that delicacy and discretion that makes it the powerful instrument that it may become.

CHAPTER III.

THE SEAT OF A HORSEMAN.

In these days we have but one form of saddle-tree, for sport or pleasure riding, and each man has in it his *best seat possible;* and there are so few differences in the proper positions that may be taken upon the flat saddle, due only to the conformation of individuals, that one may say that in all civilized countries men have the same seat. No longer do we hear of such absurdities as the "tongs across the wall," of the "long seat," or of the "short seat," for a rider can have but one seat that is the best for all purposes, and this he can find the first time he mounts a horse. It is silly for a man to think it necessary to have one seat for the park or road and one for cross country, for in the park or on the road the horse may make movements as violent as it would in the hunting field or in the steeple chase.

The writer has lived many years in various European countries and he has been a guest at the military academies of Saumur, Hanover and Vienna, besides visiting scores of riding schools in a number of cities, finding nowhere among real horsemen any observable changes in the position of the man upon the horse.

Baucher's description of the seat, written nearly three quarters of a century since, is the best and clearest that could be given: "Sitting upon the buttocks let the man take every possible point of contact with the saddle with the flat inner surfaces of his knee and the inside of his thighs; the feet finding themselves parallel with the sides of the horse without effort on the part of the man, and the length of stirrup leathers being adjusted so that the tread of the stirrups strikes the heels of the man."

A sure way in which one may find this seat is for the rider to mount the horse, and, sitting without rigidity, raise his legs so that the points of the knees meet above the pommel, then to drop the knees, very gradually, until their points and the flat inner surfaces of the thighs have every

possible point of contact, the lower parts of the legs, from the knees downwards hanging loosely, until it is desired to insert the feet in the stirrup irons, when nothing more than the balls of the toes should feel the tread of the stirrups, and that in a light and elastic manner. Firmness of the seat depends upon the friction against the saddle and the suppleness of the man's body, particularly in the loins. If a man be not active he is safer and more comfortable in a motor car or in an æroplane, two abominations, than upon the back of a quick horse. But most men of a fair share of agility may learn to ride with pleasure and comfort at any age, provided they follow some good method.

Xenophon's description of the seat, the earliest representations upon the monuments, the drawings of Fieschi about 1550, the portrait of Louis XIII, that of de la Guérinière by Parrocel in 1733, and that of Baucher in the first edition of his work, as well as the photographs of modern riders in this book, prove that the horseman's seat has been always and must have been always the same, except the absurd situations taken by men in armor who required peculiar saddles to maintain their positions on the horse, and whose seats, according to Froissart and other writers, were very insecure.

The seat must always be maintained, but the upper part of the body must conform to the movements of the horse, in obedience to the laws of nature for holding the position upon the saddle, and the lower parts of the legs, from the knees down, must be under perfect control, and are as of much use in the management of the horse as are the hands. That is, as should be apparent to every one, when the forehand of the horse rises, the body of the rider should be bent forward; where the hindquarters of the horse are raised and the forehand lowered, the body of the rider should be bent backwards, and the parts above the hips should bend with the horse as it turns, depending in amount upon the shortness and rapidity of the turns; in other words, the laws of gravity, of centrifugal and of centripetal forces must be observed as carefully in riding as in walking.

To excel in horsemanship one requires not only aptitude for the art, but agility, adroitness and readiness. Practice

in dancing and in other callisthenic exercises are of great value in rendering the rider supple and strong; and there are many gymnastic feats which he may practice with good effect upon the horse standing in place, or moving; for example, leaning forward until one shoulder touches the crest of the horse; leaning back until his shoulders rest upon the croup; turning about in the saddle by passing one leg and then the other over the pommel and over the cantle; vaulting upon the horse and leaping to the ground while the animal rests, or is in motion, and other exercises that should suggest themselves. In vaulting upon the horse or in dismounting without stirrups, the left hand will seize a lock of the main half way between the withers and the ears, while the right hand, thumb under the pommel, will take hold of the saddle in a firm clasp. In leaping to the ground from a moving horse the man must be prepared to take some strides in the direction of the movement, maintaining control of the horse by the reins held in the right hand.

All of these exercises are very easy after a little practice, and they add quality to the rider's skill and confidence, while they render the horse quiet and accustomed to the sudden movements of the man. If when the trainer, in the beginning, finds the horse restless he should make the animal extend the forelegs occasionally, but always before mounting he should collect the horse by holding the reins under its chin and giving a tap or so of the whip upon the rump, so that the bearer should be properly under the mass before the man's weight is upon its back. The more frequently the horse is handled the more quickly it becomes steady, but no one exercise should be carried on to a point that will weary the horse, for young horses, at least, are easily bored and then become resentful.

CHAPTER IV.

THE UNION AND BALANCE OF THE EXTREMITIES.

I remember reading somewhere of two "supernumeraries," of jealous dispositions, who spoiled the effect of a quadrupedal representation upon the stage by a want of coördination between the forelegs of the artificial animal and its hind legs. Some such result takes place when the young horse is mounted; for between the restraint of the hand and the urgency of the spurs or whip, not to mention the unaccustomed weight of the rider, the forehand and hindquarters are for a long time at variance. A young horse is awkward enough without any interferences, but when the man mounts it must be given a proper carriage in order that it may move smoothly and evenly in cadenced motions. When a horse becomes safe and pleasant to ride it is always the result of a series of experiments upon the part of the rider or because it has been scientifically handled by a trainer who had a good method. In the first case one could never have perfection, but a thorough horseman can make the animal he trains a machine that answers every demand, on the moment and precisely.

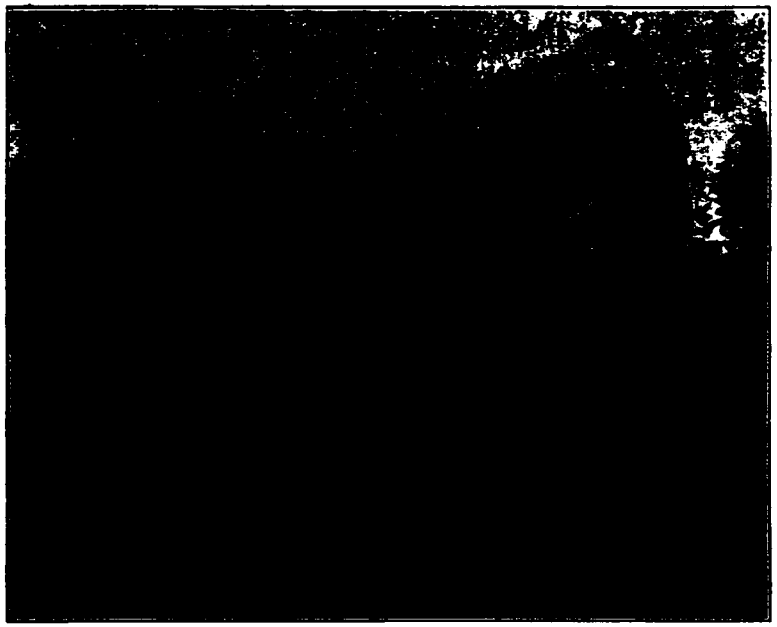
To obtain this coördination of the extremities a few lessons on foot are of great use, although a horse may be trained from the saddle or, as I have intimated, without having been mounted. The normal and usual process, however, is the following:

The essential thing is that the horse is to *go forward*. Even when the animal is made to back it must be induced to take a stride, or at least an inclination, forward before it is permitted to come to a rest. So the young horse is first ridden in the snaffle and made "to go into the bridle;" that is, to move forward freely against a tension upon the reins.

The horse having been brought "quiet to ride" in the snaffle is ready for the higher education; and, as has been said, more rapid advancement can be made by a few lessons with the man on foot than by his riding the animal as soon

as the double-reined bridle is employed; for no horse can be trained without bit and bridoon, unless it be in the snaffle alone in the hands of an exceptional horseman, when much reliance must be placed upon the assistance of the spurs in its control.

The following exercises are called the suppling lessons, and by them we overcome all resistances of the horse, whether active (intentional) or passive (due to conformation), so that the horse is pliant and obedient throughout.



DIRECT FLEXION OF JAW AND POLL. (Anglo-Normand).
Photograph by M. F. A.

The first work is upon the forehand, or those parts of the horse before the saddle. The trainer standing in front of the horse should take a snaffle rein in each hand and elevate the head to the full extent of his arms, and then gradually and gently bring it back to such a height that seems to him the natural carriage of the head, demanding, without

violence, that the face should be about vertical to the plane of position. Then standing on either side of the horse near its shoulder, he should draw the snaffle reins away from the nose of the horse with one hand while with the other he should by gentle vibrations draw the curb reins, held under its chin, towards its chest, yielding the snaffle reins as the animal gives its jaw and drops its nose until the face is about vertical. When the horse curls the upper lip and has a perfectly pliant, but not lifeless, feeling upon the reins

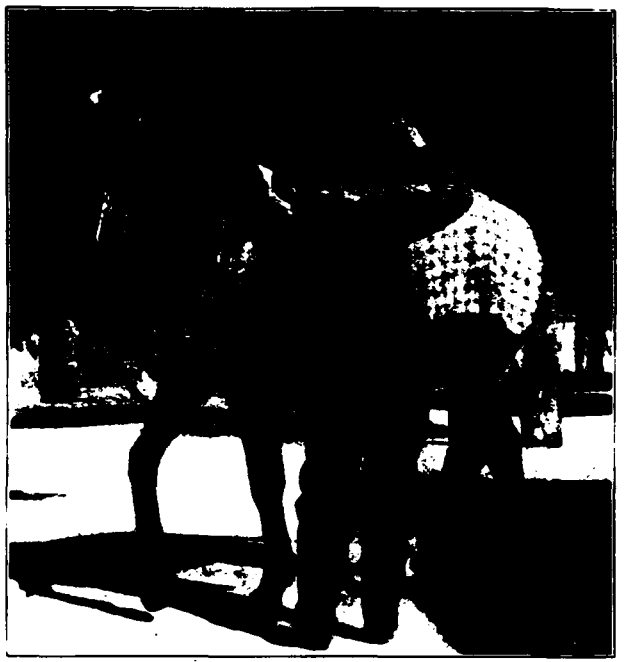
BENDING HEAD AND NECK WITH CURB BIT.
Photograph by M. F. A.

the objects of these two lessons have been accomplished. In these exercises the face of the horse should not be drawn nearer to the chest than the vertical position mentioned, and the head should rather be higher than the natural carriage than otherwise. Regarding the next exercise I feel bound to say that it has aroused much opposition from those riders and trainers who think that the horse should be kept straight under all circumstances; but as I have found it so valuable in many ways and required for so many important movements,

and as I have the support of horsemen of the first force, I do not hesitate to recommend it as absolutely necessary. Standing at the head of the horse, on its right side, the man should grasp the reins of the curb bit near the branches and turn the bit by pushing with the right hand, while drawing the left hand towards him; in this manner he should gently and quietly bend the head of the horse to the left, and then by an equal, vibratory tension upon both reins procure the pliancy of the jaw and of the neck, as before described. In a similar way, the man standing on the left side of the horse should bend its head to the right. After it has been bent sufficiently to satisfy the trainer, the head of the horse should be placed straight, and the direct flection of the jaw be demanded, and the horse should be encouraged in its obedience. At no time during these lessons should the horse be permitted to draw back without being brought to its original position and corrected by the voice, or be made to advance by a gentle tap of the whip upon the chest. It might be as well to mention here that, at this stage of its education, the horse should never be given punishment with the whip, or be struck on the hind legs. There are times when a sharp blow of the whip has a very good effect, say, when a horse pretends to shy, or gives a kick at whip or spur, but by a second application or by further strokes only mischief will follow, and the whip, instead of being an "aid," becomes a danger, for the horse is a determined fighter and will seldom "give in."

Two very simple exercises, with the trainer on foot, prepare the way for obtaining control of the hind quarters, or those parts of the horse behind the saddle. 1. Let the man stand on either side of the head of the horse and with the snaffle reins held under its chin keep the animal in place, as he gives some gentle taps of the whip upon the croup, so that the horse will carry the hind legs under the body. After one or two lessons the whip taps should be applied to one or the other hip, so that the horse will carry forward the right or the left hind leg as may be desirable. 2. To carry the croup about the forehand, let the man stand at the left shoulder of the horse, and in the left hand hold the snaffle

reins under the chin of the animal; then with the right hand let him give one tap, or more, of the whip to the left flank until one step is taken to the right. Gradually, step by step, the croup will be carried about the forehand, the left foreleg acting as pivot, the right foreleg being moved to conform to the movement by whip taps upon its under side. In a similar manner the horse should be made, by gradual lessons, to



CROUP ABOUT FOREHAND. LEFT FORELEG THE PIVOT.
Photograph by Dorothy Woods.

carry the croup to the left, around the right foreleg as pivot, the man standing on the right side of the horse, demanding each step singly and refusing to accept a voluntary movement.

During the period of these lessons which should occupy about half an hour each day, the horse should be exercised sufficiently upon the longe line, and by being ridden at the

walk and slow trot in the snaffle bridle. In the latter case the horse should be accustomed to the pressure of the rider's heels, by being collected for the changes of direction upon a closing of the rider's legs, and, at the turn, being made to conform to the arc of the circumference by an increased pressure of the outside heel; the direct rein, supported and its effects measured by the outside rein, demanding the turn, an equal tension upon the reins following its completion.

When the suppling exercises have resulted in a pliancy of the muscles and in a ready obedience to the whip taps the horse is to be ridden in the double-reined bridle, and by governing the extremities, between heels and hand, the rider will gradually produce the desired condition of *union and balance of the weights and forces*, and so be master of any movement—forwards, to the rear or to either hand—that he may wish.

When there is a perfect state of union and balance of the forces there can be no motion, and changes of position are made by one extremity yielding sufficiently to produce the effect sought. In violent actions the center of gravity is changed with a corresponding violence, as in the rapid paces or in leaping, rearing or plunging. But the schooled horse is instinctively obedient to the rider, and only those movements take place that he demands. Not only can the rider require from the trained horse of good conformation every possible movement, but faults of conformation may be corrected by an artificial carriage so that nearly every horse may be brought to move in easy, smooth and cadenced paces and motions. Indeed it may be stated that any horse with four good legs can be made safe and pleasant to ride, while the ideally formed horse must ever be awkward under a rider until it is given an artificial carriage.

CHAPTER V.

THE SPUR—IN HAND—CLOSELY UNITED—THE HALF HALT—THE REINS.

Ordinarily the spur is a hindrance rather than an aid. A horse either shrinks from the sharp rowel or breaks away unless, as sometimes happens, it becomes a sluggard and has to be kicked along to keep it going Properly employed the spur is an important, and in some cases is more important, than the bit; for example, in stopping a "bolt"; but in any event it is indispensable in the management of a horse, and in the use of a true horseman gives at the outset no more than a scratch, for after a few brief lessons the application of the sharp rowel is no longer required, as the side of the rider's heel or the pressure of his leg will be all that is necessary. The most nervous horse can readily be taught to bear and to obey the sharp spur with composure; and such a state of affairs gives an assurance of safety to the rider in many ways, for the horse will neither rush off upon an accidental scratch nor refuse to obey his demands. No one can give the proper application of the spur whose seat is not perfect, for no matter how violent the changes of the center of gravity may be the rowel should be used with such precision that, at most, only a scratch is made. But the trained horse would on occasion take and obey a severe use of the aid without resentment. During the early lessons under the saddle the horse should be taught to obey the heel of the rider, a tap of the whip upon the flank sometimes being required to enforce the pressure of the heel. After the horse has been accustomed to this form of the "leg aid" dull spurs may be used for a while. Then the horse should be ready to accept the sharp rowel, and upon the occasion of a lesson the rider should give a slight scratch upon one flank with the points and calm the horse by soothing words or by strokes of the hand. After an interval the other flank should receive a similar attack and the horse be quieted in the same manner. After a few such lessons the horse will not require the

sharp rowel, and the dulled spur or the side of the rider's heel will be obeyed with alacrity and precision.

The horses employed for the photographs in this work were ridden in spurs that had no sharp rowels, and I may say that blood had never been drawn from them by the spur.

The forehand of the horse being under the control of the rider, and the hindquarters being under the control of his heels, the man may readily demand such a union and balance of the extremities as he desires. A rule that must always be observed is that the effects of the heels should always precede those of the hand, for the hand must always have impulses from the croup to direct and manage.

The lowest form of collection in which lies safety and comfort is that which is known as "in hand," that is, when the motions of the horse are at least obedient to the rider's will.

If one mounts a horse, whose education has been carried as has been described, and quietly closes his legs against its sides before making a few vibrations of the reins, the horse will bring its bearers under the mass, drop its nose, yield the jaw, and show by the play of muscles under the rider that it is alert and ready to move off "in hand." A gentle yielding of the hand permits the horse to proceed in a walk, and then between heels and hand the rider should keep the weights and forces in the condition explained. Should the horse bear upon the hand and go too much upon its shoulders it should have the hind legs brought up under the body and the head slightly elevated. The horse should be ridden "in hand" at the walk, the trot and the slow gallops; the heels of the rider demanding sufficient impulses from the hindquarters, his hand directing and controlling these impulses, while between the heels and hand the proper balance and suppleness should be demanded.

A closer form of collection may be required and the increased impulses will go into increased action, when we shall have the shortened trot, the passage, or the school gallop of four beats. When the extremities are brought to a state of equilibrium, there can be no progress, and we shall have the

half-halt, the finished halt, or, if action is demanded, the dancing steps known as "the piaff."

The half-halt can be held but a moment, while the horse is light and one leg at least is flexed. When all the feet are on the ground the horse has lost its lightness and the halt is complete.

When the horse is brought to a halt, the rider's legs

HALF HALT. THE HORSE IS PREPARED TO GO FORWARD OR TO THE REAR.
Photograph by Dorothy Woods.

should not be withdrawn until the tension upon the reins has ceased.

There are a number of ways in which the reins of the double-bridle may be held. In riding a young or a difficult horse, I hold in the left hand the left curb rein between the

little finger and the ring finger, the left snaffle rein between the ring finger and the long finger, thumb uppermost; in the right hand, knuckles upwards, I hold the two right reins divided by the forefinger, the snaffle rein next to the thumb. In this way one has great control over the mouth of the horse by the direct reins, and the right reins can easily be shifted into the left hand.

UNITED OR SCHOOL GALLOP OF FOUR BEATS.

Photograph by Dorothy Woods.

In riding a schooled horse I carry all the reins in the left hand; the curb reins divided by the little finger, the snaffle reins divided by the long finger, the loose ends carried through the hand and held by the thumb which is uppermost and pointing between the ears of the horse. The right

hand lying on the ends of the reins, when not otherwise in use, and ready to assist the bridle hand.

There should not be a tension upon both sets of reins at the same time; that is, when the snaffle reins are in use the curb reins have no tension, and the snaffle reins are loose when the curb reins are in action. In riding with the left hand alone the turn to the left should be made by turning the thumb over the left shoulder of the horse and then by carrying the reins to the left. In turning to the right, the thumb should point towards the right shoulder of the rider and then the reins should be carried to the right. By this mode the danger of giving a wrong indication is avoided, and in demanding the gallop and the gallop turns and changes the direct rein controls the movements from the beginning, and there can be no confusion in the demands of the rider. When the right hand is free it should assist so that the direct rein acts in changes of direction, in beginning the gallop, and in the gallop turns and changes, because it is well to keep the horse accustomed to obeying the direct rein, and because the other rein can in this way better measure and control the effects of the direct rein.

In reducing speed and in coming to a stop the rider should increase the pressure of his heels and slightly raise his bridle hand and it must be borne in mind that the horse should always be brought to a finished halt by the action of heels followed by that of the hand, the tension upon the reins being loosened before the heels are withdrawn.

CHAPTER VI.

MOVEMENTS TO THE REAR.

A horse fit for riding should back freely and smoothly. The first lesson, and a very important one it is, should be given while the trainer is on foot. Placing the horse alongside of a wall the man should hold the snaffle reins under the chin of the horse with one hand and with the other hand give a few taps with the whip upon the rump to unite somewhat the extremities. Then by a repeated tap of the whip upon the rump, the trainer should produce an impulse and carry the flexed leg to the rear *one step*, immediately inducing a forward movement. Gradually, very gradually, the horse should be taught to take several steps to the rear always being induced to go forward before coming to halt. In other words, at the point where the backing ceases and the forward movement begins there should be no decided halt, but the body of the animal should drift like a pendulum, backwards and forwards, and then the stop.

After a few such lessons the rider should mount, and after bringing the horse in hand, between heels and rein, he should increase the pressure of his legs until he feels an impulse when he should release his heels and carry back the flexed leg one step, then stop the movement by his heels and demand a step or two forward and finally a halt. As gradually as the rider's patience will permit, and a horseman should be fitted out with unceasing patience, the steps to the rear should be increased until the horse will move in a balanced and cadenced movement as far as may be desired; at least one step forward always being required before a halt.

Before many days the horse may be made to pass to the rear without any touch upon the reins, by the use of the spurs and the position of the body of the rider.

In backing, the turns and changes of direction may be made with the same precision as in the forward movements, the croup being turned to the left by the right spur and the right rein, measured and controlled by the left spur and the

left rein; and the croup is turned to the right by an interchange of spurs and reins.

I have often been asked by beginners how it is that the spur demands the forward movement, the halt, and the passing to the rear; all of which can be procured without the employment of the reins after a little practice.

BACKING WITH THE SPURS.

Photograph by Dorothy Woods.

This question may be answered by the statement that the spur requires impulses from the croup which first carry the hind legs under the mass. If the hand gives permission the horse moves forward under the impulses; if the forehand is

raised and the body of the rider is thrown back the hind legs come under the body and act as an elastic break or drag; if the impulse be caught and turned back before the movement forward is made the horse goes lightly to the rear.

BACKING WITH SPURS, WITHOUT TENSION UPON REINS.
Photograph by Mary Woods.

Now after this explanation it should be understood that during the lessons in which the reins are employed the horse,

which is a very observant animal, learns how the rider uses his body in the various movements and will be ready to obey the spurs, nor does it always require the action of the reins which never precede that of the heels.

It now occurs to me to explain the difference between a step and a stride. A stride is the ground covered by the mass from the moment any certain foot leaves the earth until it is again planted; example: in gallop right a stride is from the time the right hind leg drives the mass over the right foreleg into air until the same hind leg again comes to the ground. A step is the raising and next planting of any leg; for example: in beginning to move the croup about the forehand the horse may take one step with one of the hind legs, the other legs holding the ground.

CHAPTER VII.

ON TWO PATHS — FOREHAND ON OUTER CIRCUMFERENCE OR TRAVERS — CROUP ON OUTER CIRCUMFERENCE OR RENVERS — PIROUETTE — REVERSED PIROUETTE.

Travers and *Renvers* are the movements upon two paths, the forehand following one path; the croup, slightly behind in the movement, following the other path, in such a manner that the horse is placed diagonally across the line of progress. When at the turns and changes of direction the forehand is on the outer arc of the circles we have the Travers. When the croup is on the outer arc of the circles in the turns we have the Renvers.

When in Travers the turn is so short that the inner hind leg of the horse acts as pivot, we have the Pirouette, or, if in the beat of the gallop, the Pirouette-volte.

When in the Renvers the turn is so short that the outside foreleg of the horse acts as pivot, we have the Reversed Pirouette.

In the lessons on Croup about Forehand, with the whip, we have prepared the horse to yield the croup at the pressure of the rider's heel, and these effects will now be employed for all the movements on two paths, whether Travers, Renvers, Pirouette or Reversed Pirouette.

The readiest way in which to begin the work upon two paths is to place the head of the horse near a wall, the forehand slightly in advance of the croup as regards the lines of progress, let us say to the right. The rider should then lead the animal along to the right, while with his left heel, its effect measured and controlled by the right heel, should press the hindquarters along as the body of the horse holds its diagonal position across the lines of progress.

In making the turn to the right, the croup on the inner shorter arc of a circumference should be slightly retarded so that at every point of the body of the horse shall hold its diagonal position. In head to the wall to the left the forehand

in advance of the croup, should, in a similar manner, be led on to the left by the reins, the hindquarters being pushed by the rider's right heel, its effect measured and controlled by his left heel. At the turns to the left the forehand being on the outer greater arcs of the circumference, the croup will be retarded, as in passing to the right. The effects of the

DRIFTING. FORWARD AND BACK. BALANCE BETWEEN SPUR AND REIN.
Photograph by Mary Woods.

rider's heels in these movements may be supported in the early lessons by light taps of the whip, and to apply the whip to the left flank of the horse the man may carry it behind his back, or he may shift the reins to his right hand and take the whip in his left. But as soon as the horse begins to un-

derstand the heel pressure the use of the whip should be discontinued.

Croup to the wall, or Travers to either hand, is done in exactly the same manner, the forehand slightly in advance of the hindquarters, but in Travers, as the hindquarters are on the outside larger arc or circle, at the turns, the forehand

USE OF WHIP IN BENDING CROUP ABOUT FOREHAND TO THE RIGHT

Photograph by Dorothy Woods

must be so retarded that the diagonal position of the body of the horse shall be preserved at every point on the turns or circles.

These lessons should be practiced at the walk until the horse is quite perfect in both Travers and Renvers in that

pace, then it should be made to pass in two paths in the trot and finally in the shortened gallop.

As has been said when the turns, in the walk, in the trot or in the gallop, are so abrupt that in Travers the inner hind leg acts as pivot we have the Pirouette. When the turns

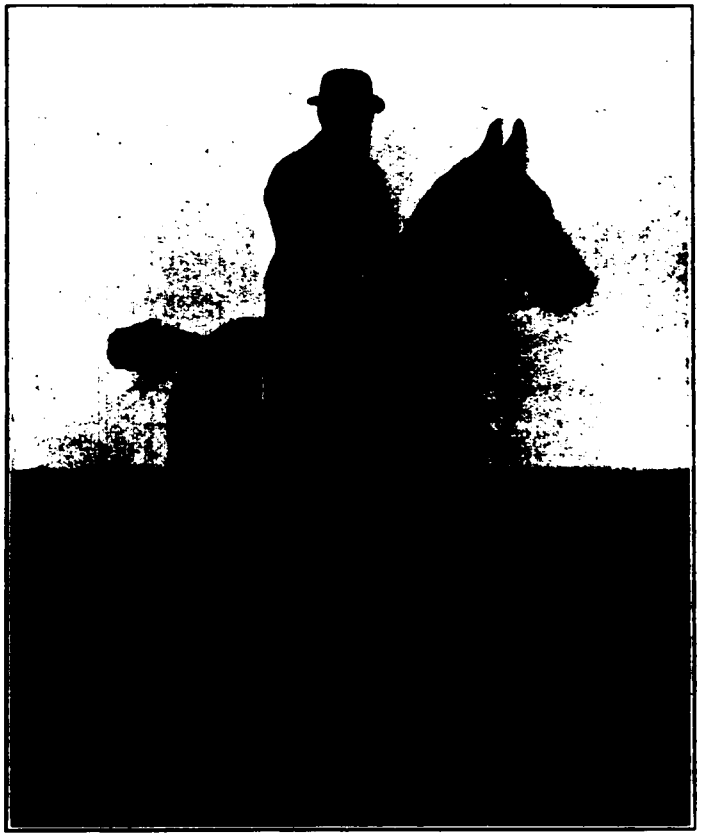
USE OF THE WHIP IN TRAVERS. (ANGLO-NORMAND).

Photograph by the Author.

in Renvers are so abrupt that the outer foreleg acts as a pivot we shall have the Reversed Piroutte; that is, when the croup passes to the right about the left fore leg as a point we shall have the Reversed Pirouette to the right. In a similar manner, when the croup passes about the forehand to the left so

that the right foreleg acts as pivot we shall have the Reversed Pirouette to the left.

In all work in Travers and in Renvers the head of the horse should be slightly bent in the direction of progress; so



RENVERS. ON TWO PATHS TO THE LEFT.

Photograph by Dorothy Woods.

that in the Reversed Pirouette the horse should look towards the croup as it goes about the forehand.

All of these movements upon two paths, including the pirouettes, are of the highest importance to all of those who

are to be considered as horsemen, and to mounted soldiers they are absolutely essential, for the trooper who has the

PIROUETTE. RIGHT HIND LEG THE PIVOT.

Photograph by Dorothy Woods.

readiest horse in turns and wheels has his opponent in his hands.

To those who argue that the bending lessons are not only useless but harmful, I can only say that I have found that the more supple and pliant I can make my horses the more readily I can keep them straight when it is required; and the precision with which all the movements were made,

REVERSED PIROUETTE. LEFT FORELEG THE PIVOT.
Photograph by Dorothy Woods.

whether straight or bent, is proved by the scores of moment photographs of half a score of horses, printed in "Modern Horsemanship," in "Riding," in "The Cavalry of To-morrow," in this book, and in my various magazine articles, for in each picture the position is exactly right.

[CONTINUED.]

NOTES ON A TRIP THROUGH JAVA.

BY MAJOR W. C. BROWN, THIRD U. S. CAVALRY.

UPON arrival in Batavia I called upon the American consul, who arranged for me to make my formal official call the following morning upon His Excellency, Lieutenant General M. B. Rost van Tonningen, commanding the military forces—about 30,000 men—in Netherlands India.

The next morning I met the consul by appointment at the Concordia Club, which is the military club of the city, and, being quite a palatial establishment, is well calculated to favorably impress visitors.

We then proceeded to the residence of Gen. Rost van Tonningen, where we were received most cordially, and upon my expressing a desire to see something of the cavalry and native troops, it was arranged that I could see that same morning a squadron, part white and part native, stationed in Batavia. It was also proposed that I should visit their remount depot at Padalarang and principal cavalry station at Salatiga, the former about six and the latter about twelve hours by rail in the interior and in a salubrious climate about 2,000 feet above the sea level.

The general said that they had natives and whites in the same organization, as by this means better results were secured than where they were kept separate. He spoke very fair English, an accomplishment which I understood was quite general with their officers.

The general then arranged that his deputy should return my call the same evening.

We then made a brief call upon Major W. E. A. Burton, His Excellency the Commander in Chief's deputy, and I proceeded to the barracks of the squadron in question, they having been advised over the telephone by the general of my coming.

A squadron, I learned, is composed of one captain, four lieutenants, 140 enlisted men and 128 horses. Forming a part of each squadron is a platoon of two Maxim machine guns manned by nineteen troopers.

The squadron was mounted on New South Wales Australian horses of very good quality, about the same grade of remount as we have recently been purchasing in Australia, and of a height from 14¼ to 15½ hands, the majority being small horses, which apparently suit their purpose better than a taller one, so far at least as concerns their natives, who are but little taller and heavier than our Filipino native scouts.

The horses cost, laid down in Java, £41, or about 500 guilders ($200) each. They have a purchasing agent in Sydney, Australia, who has the contract to supply their annual requirements at this figure. The contract is revokable only upon giving eighteen months notice.

A board of officers visits Australia annually and passes on the horses presented for their inspection by the contractor. After a horse has been thus accepted the government assumes all risks, although the cost of transportation to Java is borne by the contractor.

At the inspection of barracks and stables the following was noticed which seems to be worthy of mention.

Arms.—Carbines of Manlicher pattern, five cartridges in magazine, calibre 6½ millimeters. This carbine is rather shorter than the Krag carbine which we have recently discarded and is carried on the back of the trooper.

The sabre is almost a duplicate of the sabre, with bronzed blade and hilt and leather covered scabbard, of which we have recently issued a few in the Philippines for trial and experiment. This is intended as a field weapon. Officers on ordinary duty carry a nickel plated sabre similar to our own.

Equipment.—Canteen of aluminum covered with felt of German pattern, capacity about the same as our own. This form of canteen was favorably reported upon by the writer some thirteen years ago, and he still regards it as more durable, lighter, more cleanly and better shaped than our canteen. Having a removable felt cover the canteen can, from

time to time, be taken out and thoroughly cleaned by being placed for, say, twenty minutes in boiling water.

Spurs.—Attached permanently to a black shoe, which is a very poor one both as to pattern and quality of leather. The arrangement does not strike one favorably.

Pack.—Spare clothing is rolled in a piece of brown canvas about three feet square. No shelter tent is carried.

The squadron commander had less than an hour's notice of my coming. As I found the arms and horse equipments in excellent condition, it may be assumed that this is their habitual state.

The Veterinary Hospital was visited and appeared to be well equipped, scrupulously neat and clean and provided with an operating table—a low platform heavily padded and covered with leather.

The Veterinary Department was in charge of three officers—a major, captain and lieutenant. Evidently the services of this important branch are better appreciated than in our army.

The squadron has a small canteen with separate room for non-commissioned officers.

Non-commissioned officers are, in some instances at least, provided with separate rooms in barracks.

The bunks for native troops are little more than tables about six feet square, each providing sleeping space for two soldiers.

The arrangements for cooking were almost identical with those of the Filipino kitchen with which we are all familiar.

The pay of the native soldier is ¼ of a guilder (10 cents U. S. currency) per day. These native troops comprise about two-thirds of the army of Netherlands, India. The large proportion is explained on the score of economy. They seem to have their full share of field service in their efforts to conquer the Achinese in Sumatra, who have been waging a guerilla warfare for about thirty years, and no prospect of an end to it.

Before leaving Batavia, Major Burton, by General Rost van Tonningen's direction, gave me a general letter of introduction to the commanding officers of all troops in Java,

besides making special arrangements for my reception at the remount depot at Padalarang.

Our consul gave me a letter of introduction to the Adjutant of His Excellency, the Governor General of the Netherlands, East Indies, at Buitenzorg, whence I proceeded from Batavia.

I was received very cordially by His Excellency, who, learning that I was going to Djokjakarta and other places to the east, had his secretary give me a letter of introduction to the various resident or local governors, and suggested at the same time that I might find it interesting to call on the native sultan or regent at Djokjakarta. These regents, he laughingly remarked, are self styled "emperors," but have but little power.

He invited me to dine at the palace that evening and sent a carriage to bring me to the dinner and return me to the hotel at its conclusion. The dinner was quite an elaborate full dress affair, and I was pleasantly surprised at finding English quite generally spoken by the guests as well as by my charming host.

The term of service of officials, both civil and military, in the colonies is ten years, when they are entitled to a year's leave on half pay.

I was told that the pay of officers in the Colonial Army is about three times that in the home army in Holland. Cavalry officers are required to own their mounts, purchasing them usually from the government on the installment plan. Those officers' chargers which I saw were of a very high class.

VISIT TO DJOKJAKARTA.

My next visit to a military establishment was at Djokjakarta, where the garrison (infantry), consisting of one company of native Ambonese (considered their best native soldiers), and one company of white (European) troops, was quartered in an old fort.

I called on the Commanding Officer, Lieutenant Colonel Schellheim, who returned my call a few hours later and made an appointment with me for the following morning to see the drill of the Ambonese and inspect the barracks, etc.

At the drill the Ambonese were dressed in dark blue uniform, with a stiff black helmet with bright metal trimmings, black shoes of a poor quality of leather. This impressed me as being decidedly out of date, and must have been most uncomfortable to the wearers. These native soldiers were most attentive at their drill, however, showing a creditable amount of interest in their work.

Their drill on that particular occasion was bayonet exercise with Manlicher rifle. They also gave a good exhibition of an advance on an enemy by rushes.

These men were evidently kept under good discipline; their rifles were in excellent condition, but their equipments were poor and out of date.

The hospital was next visited, and was found to be in excellent condition and, so far as I could see from a non-professional standpoint, the establishment was run on lines which were quite up-to-date, considering the means at their command. The surgeon stated that requisitions for medical supplies were promptly filled.

TARGET PRACTICE.

I was informed that about 100 rounds per man per year were spent in target practice, and I saw here, as in Batavia, an appliance for assisting in the aiming and sighting drill worthy of mention.

Instead of a bag of sand or oats resting on an improvised tripod of tent poles, as with us, the rifle rests on two tripods in a bed or groove at the head of each. The rear tripod is provided with screw movements for both horizontal and vertical deviation.

This arrangement permits of more rapid and more accurate work than our improvised tripod.

A reflecting instrument is slipped over the rifle just in rear of the rear sight enables the instructor to ascertain by a side observation whether or not the recruit is aiming correctly.

I was told that the men had from two to three hours per day of practical instruction, and one of theoretical.

Guard duty averages four or five nights, with a minimum of three nights in bed. When troops go into the field they have no regular transportation, but carry three days' rations of fish and rice on the person.

In barracks white soldiers have coolie "strikers," two or three clubbing together and hiring one for about ten cents, U. S. currency, per day.

The men sleep on iron bedsteads without springs, on mattress and pillow stuffed with straw, changed monthly.

The letter of introduction to the resident or local governors, given me by direction of His Excellency the Governo General, enabled me to visit the establishment of the native sultan or regent at Djokjakarta which, while very interesting from the standpoint of the tourist, has little to recommend it as a source of military information.

His native guard is armed with muskets of calibre 50, model of 1842, spears, swords and krisses. Part, at least, of his native guard is mounted, but the men live at their homes and assemble only as occasion requires.

The Netherlands India government has, however, a troop

of about fifty white cavalrymen which is pretty thoroughly up-to-date and splendidly mounted, quartered in the Sultan's compound.

As is well known, the native Sultans, while drawing large salaries and commanding extensive establishments, are virtually prisoners and dare not even leave their compounds without permission of the residents.

VISIT TO SALATIGA.

From Djokjakarta, I proceeded to Salatiga (2,000 feet above the sea) the headquarters of three of the five squadrons comprising the one cavalry regiment of the Colonial Army. Here I was shown horses (all Australian) which had been here for one, two and three years.

Upon receipt of horses from the remount depot at Padalarang they are kept in the depot squadron at Salatiga for nearly a year before being put to full duty with troops.

From what I could see, the horses were well trained gentle and in excellent condition. Java is a mountainous country and requires a small, compactly built, "nuggetty" horse. Major Daniels, the commanding officer, was quite emphatic in expressing his preference for this style of horse.

They have good, firm gravel roads in Java, which are rather hard on the horses feet, and they are kept shod all around and troopers carry four horseshoes and nails with them on the saddle in the field.

The floors in the stables are of cement. Arms and equipments here, as at Batavia, are in excellent condition.

The natives are apparently fair cavalrymen, but do not look to be as good horsemen as ours. The sword being their native weapon, Major Daniels stated that they did well at mounted fencing.

In these squadrons the natives and whites seemed to be mixed indiscriminately. The saddle blanket is thick and soft, and I saw no sore backs or few evidences of there having been any such.

They have no picket pin, but carry a lariat — rather inferior to ours — rolled.

When a horse is lariated out, the one great source of danger is that he will become entangled with the lariat caught in the fetlock joint of one of the hind feet and in kicking to free himself, while thus entangled, may ruin himself in a few minutes. To provide against this the trooper carries a pair of leather shields which, when the horse is to be lariated out, he buckles about these joints as shown in the illustration.

In the Bannock campaign in 1878, the writer was in the field from May to October, marching some 2,600 miles. Hay or grain was rarely obtainable, the conditions being such that it was necessary to subsist horses by grazing alone. The lariat was used almost exclusively—rarely the side lines. We had, however, a considerable number of horses "burned" at the fetlock. The desirability of just some such

device as the Dutch use was noted by the writer, and subsequently reported upon by him. I desire to renew my recommendation as to this, as well as to suggest the omission of the heavy iron picket pin from the list of equipments carried by the trooper.

In their practice marches they evidently cover quite as much ground as we do, for Major Daniels informed me that he had marched from Batavia to Salatiga, 600 miles, in sixteen days, and back through the mountains in twenty-two days. He also spoke of making the march to Samarang, thirty-five miles, in one day.

On the morning of my visit one of the squadrons was engaged in executing a tactical problem almost identical with some of those which we have recently carried out at Camp Stotsenberg, with the difference, however, that I noticed that the squadron commander had a detailed topographical map in colors to work by.

They are still working to perfect the military map of Java, and I talked with a couple of officers who are engaged

on this duty. Their work, they told me, was filling in details—the skeleton has already been made—and the results of their work when completed will be published.

It is worthy of note that I found in one of the squadrons that one man was provided with dynamite, fuse, etc., for making demolitions, something which all of our cavalry is as yet not provided with. Another non-commissioned officer had in his saddle bags a sketching case with colored pencils. Two men in each platoon are provided with heavy wire cutters.

Other tools carried in the squadron were a small pick, a sort of grub hoe and a number of small hand grass cutters used by the native troops in cutting grass for the horses of the squadron.

At my request Major Daniels sent a native trooper over to the hotel that I might photograph him in various positions with his equipments. The photographs, with the notes thereon will, it is believed, give the reader a clear idea of the equipment of the native trooper of the Army of Netherlands India.

Contents of Left (near) Saddle Bag.	*Contents of Right (off) Saddle Bag.*
1 shoe (man's).	1 shoe (man's).
1 soft visorless cap.	Horse brush and curry comb.
Lariat.	Cleaning cloths.
Comb.	Pair fetlock protectors.
Cleaning materials.	12 horseshoe nails.
Screw driver.	Scissors.
10 cartridges.	Knife, fork and spoon.
	10 cartridges.

Four horseshoes are carried—two on each side—in leather pockets.

The canvas bucket, as shown in the photo on the off side, is carried by each seventh man.

On the seat of the saddle is a padded saddle pillow and underneath this is a cotton blanket.

Thirty cartridges are carried in a box on the belt of the trooper in addition to the ten in each saddle bag—fifty in all.

In the front of the saddle is carried a sickle or grass cutter.

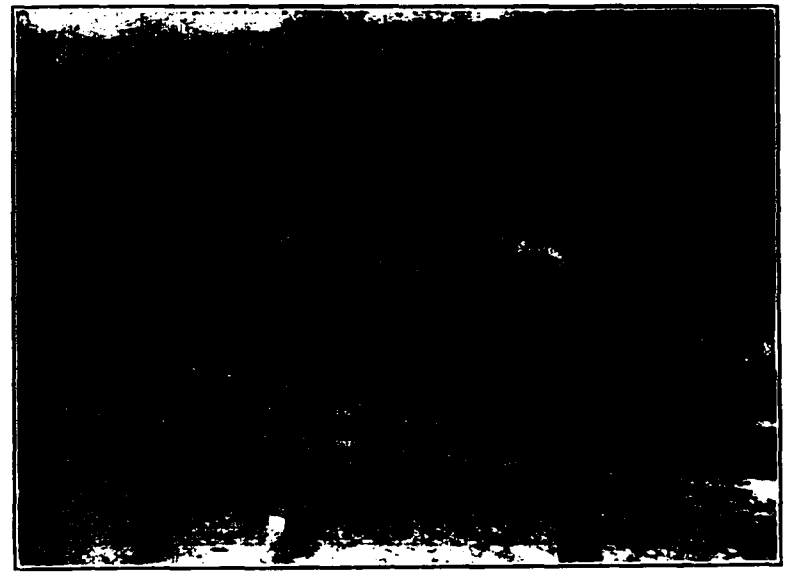
On the near side in rear of the saber is carried a pair of heavy wire cutters, shown in the illustration.

The back pack (brown canvas roll) contains:

One coat, serge.
One trousers, cotton—indigo color.
Shirt, drawers and towel.

VISIT TO PADALARANG.

From Buitenzorg I proceeded to Padalarang, being met at the railway station by Lieutenant W. J. E. van Reinsdijk



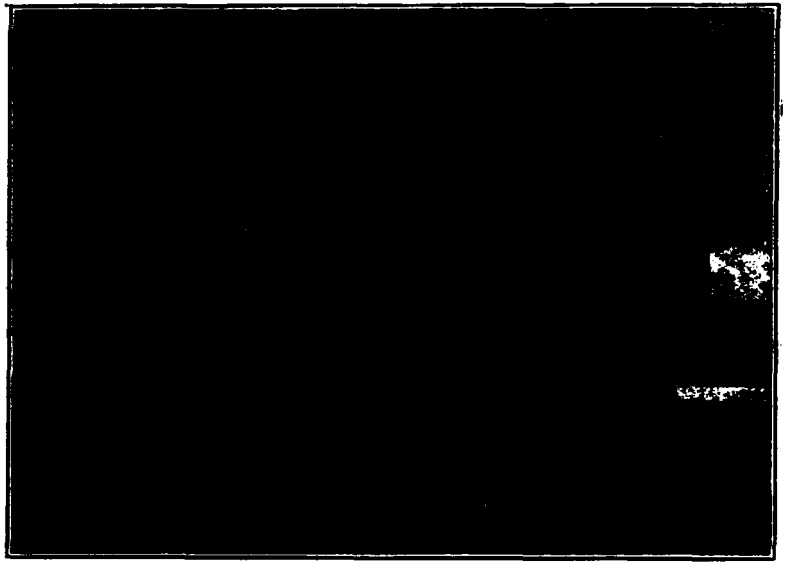
who brought me to the quarters of Major W. Groeneveld, Chief of the Remount Depot and Government Stud, whose guest I was during my stay there.

Accompanied by these officers I made the rounds of the stables of the remount depot, where they have some 280 horses that had been there three months or longer.

All horses purchased in Australia (about 250 each year) are sent to Padalarang for training. Their ages when received vary from three to five years and height from 1.47 M.

to 1.58 M. (about 14¼ to 15¼ hands) the price delivered in Batavia being for remounts, 500 guilders ($200), and for gunners 560 guilders ($224). They also had a number of pack horses on hand.

Horses are kept here for the first three or four months simply to get in condition; their exercise then starts, first trotting and later (about twice a month) at a canter. They are kept at this for about three months. The track around which they are driven is about one-half to three fourths of a mile in circumference and oval shaped.



They are then saddled and for about two weeks given exercise in a small riding school with the saddle, that they may get accustomed to the feel of it. The native soldier then puts his weight in the stirrup (but does not mount) and continues this for a number of days, when finally he slips over into the saddle. The horse is then ridden daily for about a month by the native soldier.

In this way the oldest horses are kept at the remount depot for about six months and are then transferred to the

depot squadron at Salatiga for their military training, which requires from ten to twelve months.

The younger horses are kept at the remount depot for a full year or eighteen months, as horses are only sent to the depot squadron at five years of age.

The horses at the remount depot are sheltered in small stables having a capacity for twenty horses, each under charge of a native soldier and a native civilian employee — the latter at eight guilders ($3.20) per month.

These stables have a hard wood frame, sides of suale, roof of tiles, are about sixty-five feet long by thirty-two and one-half feet wide and cost about $200 each. Attached to each stable is a paddock about six acres in extent divided by a fence, so that the horses may be changed from one to the other about every two or three weeks.

The forage ration is about five kilograms of paddy and twenty-five kilograms of grass per day, and they sometimes give them an oil cake from a native bean (grown underneath the ground) from which the oil has been pressed. They are also making a trial of feeding on dry hay, as they think too much green food is not good for the horses. Their forage costs them an equivalent of about 12 cents (U. S. currency) per day. They raise practically all their green fodder and are starting to raise alfalfa, but that, as yet, is an experiment and not altogether a satisfactory one. They are also experimenting with a sort of Guinea grass which promises good results. A grass called Bengal grass is is also regarded favorably.

A great difficulty with which they have to contend is from lack of lime in the soil and hence in the forage. To counteract this they are now fertilizing the soil where their forage is grown with powdered limestone. This promises good results.

Labor here is very cheap. They have adopted the plan of working men from 6 A. M. until noon, and for this six hours' work the native gets an equivalent of six cents, U. S. currency—a cent an hour.

They count that their horses will last them about four years. Their stony roads, food, climate, severe exercise, etc.,

wear horses out very rapidly. They are by no means satisfied with the results which they are getting. It may be in the horse itself, or in the climate, food or treatment.

Horses at the remount depot are weighed every month. They had twenty pack horses on hand at the time of my visit. The load which they assign to each pack horse is 150 kilos. They have found it difficult to get horses strong enough, low enough and yet with sufficiently short backs for pack horses.

One of the officers remarked that he thought the Australian horses generally had not good loins, and therefore do not stand severe gymnastic training.

In quality, it seems to me that the horses I saw were about the same (no better and possibly not quite as good) as those we have recently been buying in Australia. Their prices should not be so high, because these horses average considerably less—an inch or more—in height.

The remount depot has been in operation some twenty years, although established at Pedalarang only five years ago. Major Groenevald has been in charge of it for eleven years.

GOVERNMENT STUD.

They have here three stallions of the Timor breed and fifty Timor and ten Australian mares. The purpose of the stud, which has been in operation four years, is to raise stallions for the natives of the country to breed from and increase the size and quality of the native pony. They work to increase the size by using, first, big stallions of the same breed; and, second, by later on crossing with Arab stallions. They report that the results are very satisfactory in increasing the size and quality, but they have had a considerable trouble with osteoporosis or osteomalæie (big head), thought to result from lack of lime in the food. They say that they have this trouble in all their colonies, particularly in the tropics.

I was shown one horse so afflicted, leaving a hard, permanent and painless swelling or enlargement of the face. The only remedy seems to be that there should be lime in the fodder. The fodder grown in a limestone region will naturally be satisfactory. If the soil contains no lime, it must be fertilized with it.

SURRA.

Upon inquiring as to their experience with surra, their theory is that it is transmitted by a fly which can give surra even though the horse has not a scratch.

When surra is to be feared, horses are turned out to graze at night only and are not tied out on the picket line in the day time. A smudge is made about the horses in the day time to keep the fly away.

CAVALRY REORGANIZATION.

By Captain ROBERT E. L. MICHIE, Twelfth Cavalry.

IN a great commercial country, detached from the world powers, the people at large become so completely absorbed in private enterprise during times of peace that the needs of a regular army and the necessity of having it always in a state of readiness for emergency is largely lost sight of.

Our nation has so far been uniformly successful in all its military conflicts and it has not been necessary for the spur of disaster to call forth patriotic sacrifice for reorganization and training in time of peace.

Without this probably the genius of Scharnhorst would have availed little in reorganizing the Prussian Army after its disasters a century ago. Without a somewhat similar incentive, after the Chinese-Japanese war, that most excellent Japanese military organization would not have come into being for the recent great war in the Far East.

As a civilized nation, we turn from war with horror so long as peace is possible with honor, but in maintaining honor and in averting war preparedness is essential. The aim to be desired is to see means made available, so that our nation may find in the hour of emergency that immediate response from its trained military forces which will afford strength and security to all in the satisfactory knowledge of their ability to cope with whatever emergency presents itself.

It is our national boast and pride that we require only a small regular army. Such being the case, the greater is the necessity for some "reserve" force for all arms as the cornerstone upon which the real effectiveness must rest, and the fountain from which to supply subsequent needs.

It is an indisputable fact that the most effective peace organization of every army unit would be that which approaches most closely the organization of that unit when on

a war footing were there not economic and political questions which rule otherwise. For this reason the peace organization of all regular armies is greatly reduced below the strength provided for war purposes. For the latter purpose the great European continental powers provide from three to three and one-half times their peace establishments, by maintaining a reserve system which supplies a force that has previously served in the regular establishment and which may subsequently become engaged in civil pursuits, rendering military service only as emergency requires. These powers require universal military service with certain exemptions—so many years with the colors and so many with the several reserve forces.

The United States alone of all great nations reduces the regular military establishment to about one-half the field service or war strength by skeletonizing *all* units, *regiments*, *battalions* and *companies*, and makes no provision for the supply of effectives necessary when such units are called into service. Such a policy can have nothing to commend it on either economic or political grounds, and if continued, must eventually prove disastrous to our nation in its shortsightedness. That it has not done so before is undoubtedly due to our isolation from other great powers and to our great latent resources in men and money.

In the great international questions which this nation will in the future more than ever be called on to consider, an effective naval and military force will be factors more important than latent resources.

That great English soldier, Field Marshal Earl Roberts, aptly says:

"A terrible lesson awaits the nation whose soldiers find themselves opposed to equally brave but better trained opponents on the field of battle. No amount of money, no national sacrifices will then avail, for modern warfare moves fast and time lost in peace can never be made up during the stress of campaign."

Russia sadly learned this at the battle of Mukden. With an army of from 300,000 to 400,000 men, a strength perhaps

twenty per cent. less than her adversary, well supplied, and in some respects better armed, this mighty force was driven from thoroughly fortified positions with approximately thirty per cent., or over 100,000 men killed, wounded or captured. So far as such disaster can be explained, we may say it was due to the greater unity of command, the superior training of the Japanese officer and soldier, with a completeness of detail, prepared in advance, for every undertaking, great or small. Both the Russian and Japanese soldiers are equally brave, as attested on many battlefields, and both chieftains were possibly equally great commanders.

Assuming that it is not a desirable policy to maintain a standing army much in excess of that now authorized by law, and that our first reliance for offense and defense will properly be our Navy, economic reasons as well as a necessary provision for national defense require us to make our military establishment the most effective for its size in the world and capable of the greatest immediate expansion compatible with the retention of its effectiveness.

THE CAVALRY REGIMENT.

The limits of this paper will not permit me to go into the historical employment of cavalry. Owing to the use of smokeless powder and the continued improvements in rifled arms, war is daily becoming so scientific that all details must be worked out in advance of battle and every possible emergency provided for. A battle once entered into, little more than supervision and the employment of reserve forces can be controlled by the commander.

At Waterloo the armies engaged fought over an area of about three miles in length by about one and one-half in depth, the battle lasting from 11:30 A. M. to 8 P. M. Napoleon and Wellington were approximately within about a mile of each other the greater part of the time and both were capable of directly controlling the movements of their troops. In our Civil War (1861-'65) the range and precision of firearms had improved so little that conditions on our great battlefields were not materially changed. While in South

Africa the British on various occasions, with less than half the number of troops engaged at Waterloo, covered a front of more than twenty miles. In Manchuria, with forces vastly greater, the Russians and Japanese occupied fronts at Liao Yang, Shaho and Mukden of from thirty to one hundred miles, and engaged in continuous combats covering from ten to eighteen days; the headquarters of the commanders being from ten to twenty miles in rear of their line of battle. Communications under these conditions can only be kept up by field telegraph, flag, heliograph and mounted orderlies as circumstances permit. Even with the most effective use of such means of information, the combat once entered upon, tactical changes of troops can seldom be made by the shifting of troops from one part of the line to the other.

Great opportunities, however, are offered for the use of a strong reserve of thoroughly trained cavalry of the American type. That the Japanese did not make more use of such a force was undoubtedly due to their deficiency and inefficiency in this arm. That they did not seriously suffer on this account was due to the great effectiveness of the Japanese infantry and artillery and the absence of a thoroughly efficient opposing cavalry force of this character.

In addition to duties relating to reconnaissance, scouting, screening and raiding, generally recognized as exclusive functions of cavalry, changed conditions of modern warfare will employ it for certain vital acts on the battlefield, viz: The rapid reinforcement of important points for either offense or defense, as well as the seizing and holding of strong positions in advance or retreat.

Some military writers improperly use the term "cavalry" to mean troops who fight habitually mounted, and "mounted infantry" for troops who fight both mounted and dismounted. A more correct application of the term "cavalry" is to apply it to the latter named force, exemplified in our American trooper, and the term "mounted infantry" for foot troops who use the horse only as a means of transport. Early's mounted forces in the Valley claim that their defeat was chiefly due to the fact that Sheridan's cavalry, unlike them-

selves, were armed and trained for mounted as well as dismounted action.

It was the absence of Confederate cavalry and the presence of Union cavalry under Buford which made it possible for Reynold's infantry to seize and occupy that magnificent defensive position which insured victory to the Union arms at Gettysburg, and it was such cavalry which, under Sheridan, culminated that victory at Appomattox.

Cavalry, to be effective in its many capacities, must in addition to its mounted training, be the equal in all respects when dismounted to infantry, man for man and arm for arm. Our American soldier is fully capable of such qualification, but he cannot be improvised, and to so qualify him the fighting units (troop and squadron) of which he is a part must be maintained in peace on the same status they will be used in war, with a *reserve* of *men* and *remounts* provided for war contingencies.

ORGANIZATION.

*The cavalry of the various great powers is organized as follows:

GREAT BRITAIN.

"Regiments consist habitually of four service squadrons. The regiments recruit for themselves, recruits and remounts both being trained at regimental headquarters when on home service. When ordered on colonial service a depot detachment is established to receive and train recruits, horses being supplied at the station where the regiment is serving. The peace establishment of a regiment at home is 715 men and 515 horses."

GERMANY.

"The German cavalry is of four different kinds: Cuirassiers (heavy), lancers (medium), dragoons and hussars (light). Each regiment consists of five squadrons, one of which is broken up in war time and forms the depot squadron. The peace establishment is 701 men and 667 horses, that for war comprises 668 men and 662 horses. The squadron numbers

*The Army Book for the British Empire.

in peace time 139 men and 133 horses (including twelve remounts), against a war strength of 150 combatant men and horses."

FRANCE.

"The French cavalry consists of cuirassiers, dragoons, chasseurs and hussars with a few special African regiments. The system of four active and one depot squadron obtains as with the Germans. The strength of a squadron on a war footing is 149 sabers and horses, and of a regiment 612 men and horses."

AUSTRIA-HUNGARY.

"In Austria-Hungary we find dragoons, hussars and lancers, all medium. Each regiment consists of six field squadrons, and the cadre of a depot (Ersatz) squadron. The total combatant strength of each squadron is 171 of all ranks with 150 horses and of a regiment, 935 sabers."

RUSSIA.

"The Russian cavalry requires a longer notice. It has two distinct classes, the regulars and the Cossacks. The regular cavalry is subdivided into cavalry of the guard and of the line. The former comprises cuirassiers, lancers, hussars and dragoons, whilst the line cavalry are all dragoons, trained to fight on foot, and to look upon the horse simply as a means of rapid locomotion. These carry a rifle and bayonet, the rifle similar to and only somewhat shorter than the infantry weapon. The Russian regiment now consists of six squadrons, with a strength of 36 officers and 859 men and horses, and, in addition, a depot or reserve squadron. Each squadron numbers 5 officers, 143 combatants and 143 horses. The Cossacks are commonly looked upon as an irregular force, as were their prototypes the Parthians. Their system and terms of service are special, but recently their individuality has been somewhat merged by the inclusion of Cossack regiments in the regular cavalry divisions. The Cossack is armed with the lance as well as the carbine."

COMPARISON OF DEPOT SYSTEMS.

"It must be fully recognized that on the outbreak of war the cavalry must be prepared to take the field on the spot, and that to do so with an effective force and ranks filled up the non-effective men, such as recruits and sick, must be transferred to some body which will in return replace them by effectives. In Germany and France, immediately on mobilization, one of the squadrons, and in Austria the depot cadre become depot squadrons, and the necessary transfers both in men and horses are made with great facility on the spot. These depots now become feeders of the regiment; men and horses becoming non-effective through the rapid waste of war are replaced by new hands and remounts from the depot, and the regiment is in all respects self-supplying. In Russia, a reserve squadron exists for each regiment, independent of and separated from it, consisting of about 150 men and 160 horses. This squadron, both in peace and war, is used as a remount and training depot."

UNITED STATES.

Our cavalry organization is fixed by the Act of Congress approved February 2, 1901, as follows:

That from and after the approval of this act, the Army of the United States, including the existing organizations, shall consist of fifteen regiments of cavalry * * *.

Section 2. That each regiment of cavalry shall consist of:

1 colonel,
1 lieutenant colonel,
3 majors,
15 captains,
15 first lieutenants,
15 second lieutenants,
2 veterinarians,
1 sergeant major,
1 quartermaster sergeant,
1 commissary sergeant,
3 squadron sergeants major,
2 color sergeants,
1 band, and 12 troops organized into three squadrons of four troops each.

Each troop of cavalry shall consist of:

1 captain,
1 first lieutenant,
1 second lieutenant,
1 first sergeant,
1 quartermaster sergeant,
6 sergeants,
6 corporals,
2 cooks,
2 farriers and blacksmiths,
1 saddler,
1 wagoner,
2 trumpeters,
43 privates.
Total enlisted, 65.

Provided, That the President, in his discretion, may increase the number of corporals to eight and the number of privates to seventy-six, * * * making a total of 100.

Each cavalry band shall consist of:

1 chief musician,
1 chief trumpeter,
1 principal musician,
1 drum major,
4 sergeants,
8 corporals,
1 cook,
11 privates.
28

With some minor exceptions, the strength of cavalry troops is, therefore, limited in time of peace to sixty-five enlisted men, the squadron to 261 enlisted men and the regiment to 816 enlisted men, and the maximum or war strength to 100, 401 and 1,236, respectively. Therefore, even if these units were fortunate enough to have their peace strength, they would still require some 60 per cent. increase before they are ready in personnel for field service. Never having this peace maximum of effectives they will in reality require about 100 per cent. increase. Where is this additional personnel to be obtained when mobilization is ordered and where the required mounts? To obtain enough green recruits to fill up our present fifteen cavalry regiments will re-

quire several months under the most favorable conditions of popular enthusiasm. The necessary equipment may be provided in advance, but months will be necessary to convert these recruits into fairly effective cavalrymen. We are therefore simply maintaining a paper organization which cannot be realized when war comes, as was thoroughly proven in 1898, but must push our skeletonized regiments to the front depleted of officers with many of the best and most efficient enlisted men detailed on special duty, which takes them from the firing line and duty with their company units. Or, in theory, while we count a cavalry regiment as consisting of fifty commissioned officers and 1,236 enlisted men, we maintain on paper only fifty officers and 816 men, and deducting the average absentees we actually have present about thirty officers and 756 men, out of which, deducting the non-availables, we cannot muster for action more than twenty-five officers and 600 men, or 50 per cent. of our paper organization. In the interest of economy, if not for a more effective organization, should this not be remedied? The great European powers have to consider economy in the military machine and maintain their cavalry regiments at about the strength which we actually use; that is, about 50 per cent. of our paper strength.

COMMISSIONED PERSONNEL.

Experience in all countries has demonstrated that to have efficiency it is necessary for the total of the higher commissioned grades to bear such a proportion to the total of those below as to permit of a reasonable flow of promotion throughout and make it possible for an officer through seniority to reach the field grade while possessing proper physical qualifications. In the cavalry of foreign nations this is provided for. We well know what stagnation prevailed in our former artillery regiments when there were five field officers and fifty captains and lieutenants. The present organization of our cavalry regiments is not much of an improvement since we have five field officers and forty five captains and lieutenants. Prior to the last cavalry reorganization, we had five

field officers to only thirty-eight captains and lieutenants. Therefore, the experience of foreign nations as well as our own has in this respect received little consideration in our present organization. The result has been a decided stagnation in the grade of captain, the senior officers of that grade now having over twenty-five years' service, and unless something is done this stagnation must increase rather than diminish. To relieve this condition, we have had advanced measures for elimination and the enforced retirement of officers still qualified for the proper discharge of duty. Can it not be better remedied by a proper increase in the higher grades, eliminating before promotion all unfit for advancement.

The following is quoted from a most excellent paper, by Major Henry T. Allen, Eighth Cavalry, on this subject:

"Our entire service struggles under the misfortune of having officers too old for their grades. This is especially true of the cavalry, wherein the ages now are relatively greater than in other branches, instead of being less as they should be. The best organization cannot be effective when old age clings to grades belonging by nature to youth. The object of these notes, however, is solely to set forth data that may be useful in determining a proper cavalry organization without infringing upon the subject of promotion. But, as a reasonable *flow* of promotion is absolutely necessary to efficiency, and since the contrast in this respect between our country and all other progressive countries is very great, I deem it well to exhibit the following data:

"Infantry grades attained after the various terms of service given:

	Germany.	*Austria.*	*Italy.*	*France.*	*Russia.*
First Lieutenant		5	2	2	4
Captain	13	10	8	10	12
Major	22½	21	18	22	*
Lieutenant Colonel	28	26	25	26	20
Colonel	30	30	30	28	..
Major General	32½	35½			..
Lieutenant General	35	40½		33	..

*Grade does not exist.

"The corresponding grades in the cavalry are attained in yet fewer years, but the exact terms are not at hand.

"The primary objection to maintaining large forces of cavalry is the expense; but when it can be successfully used on foot, as was demonstrated in Cuba, the outgo is largely atoned for. If, however, we are maintaining an archaic and unscientific organization for economy's sake, it were better to reorganize it, even if in so doing the force were cut down. The other states of the world have certainly not less reason to be actuated by economical reasons in their cavalry systems than has the United States. Again, if infantry organization be maintained for the cavalry regiment in order to permit greater adaptability to firing lines, then it were advisable to create a force of mounted infantry and not sacrifice the major rôles of cavalry to a minor one. This is not to be interpreted as a protest against mounted infantry, but a protest against a training which eliminates from the trooper's mind the horse as his foremost weapon.

"European, South American and Oriental states are fully acquainted with our organization, and yet not one has seen fit to adopt it. On the other hand, it is learned that there is no desire or intention on the part of any one of them to possess cavalry regiments containing more than six squadrons.

"Frederick the Great found his dragoons in regiments of seven to eight squadrons each, his remaining regiments in five squadrons—each squadron in both cases consisting of two troops. England has never seen fit to change this squadron organization, though it can well be said that its troops are little more than platoons of thirty-two men each.

"During the administration of President Madison the army was reorganized and increased to ten regiments of infantry of eighteen companies each; two regiments of artillery of twelve companies each, and one regiment of light dragoons of twelve companies. From this it will be seen that the cavalry alone retains its antiquated organization.

"It might be interesting to add here that Austria with six squadrons has three field officers; England and Canada with three squadrons, five; France with five squadrons, five; Germany with five squadrons, two to five; Italy with four to six squadrons, four; Mexico with four squadrons, three; and Russia with six squadrons, four. This gives an average of approximately one field officer to each 1.25 squadrons.

"The time has passed when we can ignore the practice of other countries whether the matter at issue fall under the War, State or any other department. The maintenance of regiments of twelve squadrons each has for a number of years found few defenders who could advance military reasons for so doing. To state that we had only twelve or fifteen regiments of cavalry made the ratio to other regular branches appear more logical and has been, in fact, one of the strongest motives for such an anomalous organization. The Congress recognizes that cavalry, like artillery, cannot be extemporized and that in our country where the personnel for infantry is abundant and can be rapidly organized, the peace ratio of the two former to the latter must be unusually large. There is no longer any reason to maintain regiments which every military student knows are larger than can be properly handled on the field of battle and so large that an apportionment to the other branches produces an unnecessary number of regimental fractions. Convinced of the justice of our cause, why should we not plead it in the frankest possible manner? The artillery has been increased but probably not sufficiently. At present the necessities of the infantry in that direction are greatest and should, therefore, take precedence over any cavalry legislation. The War Department believes that an excess of army bills spells defeat for all of them. It is highly probable that the department considers that bills for increase of pay, for extra officers, for the medical corps and the increase of the infantry should have consideration before cavalry reorganization.

"The most pressing needs should, by all means, have first consideration; *but while awaiting out turn, we should unite solidly upon a measure best suited to effect the ends for which we exist.*"

PROPOSED CAVALRY REGIMENT.

Now, considering all of the foregoing, our own experience and that of other countries, I propose the following organization. The present fifteen regiments be reorganized into thirty regiments.

Each regiment to consist of:

1 colonel,
1 lieutenant colonel,
3 majors,
10 captains,
10 first lieutenants,
7 second lieutenants,
1 veterinarian,
1 sergeant major,
1 quartermaster sergeant,
1 commissary sergeant,
4 squadron sergeants major,
4 squadron quartermaster and commissary sergeants,
2 color sergeants,
1 chief trumpeter, sergeant,
1 saddler, sergeant,
1 blacksmith, sergeant,
1 farrier, sergeant,
3 squadron trumpeters, corporals,
1 band and
6 troops organized into three active squadrons of two troops each, and
1 depot squadron.

Each troop to consist of:

1 captain,
1 first lieutenant,
1 second lieutenant,
1 first sergeant,
1 quartermaster sergeant,
6 sergeants,
8 corporals,
2 cooks,
2 farriers and blacksmiths,
1 saddler,
1 wagoner,
2 trumpeters,
76 privates.

Each band to consist of:

1 band master,
1 assistant band master,
1 first sergeant,
1 quartermaster sergeant,
2 sergeants,
4 corporals,
1 wagoner,
2 cooks,
12 privates, first class,
11 privates, second class.

DEPOT SQUADRON.

Each depot squadron to consist of:

1 captain,
1 first lieutenant,
1 second lieutenant,
1 sergeant major,
1 quartermaster sergeant, and
2 troops of reserve list with the same paper enlisted organization as the active troops.

It has been the practice of this government to keep no further track of a soldier on the expiration of his enlistment. Every year a very considerable number of men are discharged thoroughly trained in the duties of certain arms of the service. If sufficient inducement were offered, many of these men would gladly reënlist for service in reserve units. Many discharged soldiers would be glad to retain a membership in an organization with comrades where they might also qualify for a retired pay during old age. The actual monthly compensation need not be great, probably about $2.00 a month regular pay would be sufficient, without allowances of any kind. When called into active service the pay and allowances to be the same as for the active list. To facilitate the recruitment of the regiment both in peace and war, as well as to provide for the administration and mobilization of the reserve squadron, the recruitment of each regiment should be localized to certain districts according to population, and a base depot established at the most suitable point therein. The necessary officers of the

depot squadron, and the non-commissioned staff that constitute its active list, should there administer it during peace, as well as receive and instruct recruits for the active squadrons. In war the depot would be continued as the base for the instruction and supply of recruits for the regiment. There should also be kept the reserve supply and equipment necessary for complete mobilization of the depot squadron. These squadrons should be mobilized at stated periods and transfers to the active squadrons and from one depot squadron to another allowed under proper restrictions.

Enlistments for the reserve to be for three years as for the active list. After serving one enlistment on the active list, service in the reserve should count for retirement, and retirement authorized after thirty years' combined service on the active and reserve lists. The retired pay to be computed on the basis of three years on the reserve list equals one on the active list. Thus a corporal of the reserve list who has served three years on the active list and twenty seven years on the reserved list would, when retired, receive two-fifths of what he would have received had his entire thirty years' service been on the active list.

This depot squadron to be employed only in time of war to keep the active squadrons at maximum strength by transfer, also to garrison permanent stations in the United States.

The regimental commissioned strength provides captains and first lieutenants to be staff officers, as at present, the squadron adjutants to be quartermasters and commissaries of their respective squadrons in addition to their other duties. The strength proposed allows but one veterinarian, who should have the rank of first lieutenant after ten years' service, subject to the proper professional examination.

The regimental non commissioned staff provides for three squadron quartermaster and commissary sergeants. They are necessary and will obviate the need of second lieutenants now charged with this duty and they will also save the employment of extra duty clerks and store-keepers.

The chief trumpeter and squadron trumpeters are needed for duty with the trumpet corps as well as by the regimental and squadron commanders. The regimental farrier and

blacksmith and the saddler are needed to care for the horses of the field, staff, non-commissioned staff and band, now dependent on the civilian employees of the Quartermaster's Department or detailed men from troops. These grades would also furnish experienced men for the instruction of troop blacksmiths, farriers and saddlers.

THE BAND.

The General Staff, after careful study, recommended a measure to the Secretary of War for the reorganization of army bands, which was approved by him and introduced in both houses of the first session of the Fifty-ninth Congress (S. 3920, H. R. 13376). This measure sought to increase the efficiency of army bands in two ways; first, by increasing the number of players from twenty eight to thirty-six, and, second by increasing the pay to an extent thought necessary to secure competent musicians. The organization proposed was as follows:

1 bandmaster,
1 assistant bandmaster,
1 first sergeant,
2 sergeants,
4 corporals,
1 cook,
12 privates, first class,
13 privates, second class.

This organization should provide for two cooks instead of one, for a wagoner and for a quartermaster sergeant. As a rule, the unmarried members of the non-commissioned staff mess with the band; consequently, there will be from forty to fifty men for whom rations must be cooked, requiring the services of at least two men for this purpose. It is now necessary to detach one man as assistant cook, taking a musician away from his musical duties. A quartermaster sergeant and a band wagoner are also necessary. The band, as an organization, should with the non-commissioned staff be self-sustaining and have the proper men to care for property in the same way as a troop. If not provided for in the

organization, men must be either detailed from other organizations or taken away from their musical duties. By making provision in the organization for these positions smoother working and more contentment are assured, beside greater efficiency with little or no additional expense. It is not proposed to increase the number in the band over thirty-six, but the following organization is herein suggested:

1 bandmaster,
1 assistant bandmaster,
1 first sergeant,
1 quartermaster sergeant,
2 sergeants,
4 corporals,
2 cooks,
1 wagoner,
12 privates, first class,
11 privates, second class.

The first sergeant, the quartermaster sergeant, wagoner and cooks should not be rated nor considered musicians, but, first and foremost, soldiers of proper training for the duty required of their respective positions. The number of musicians herein proposed is less than the number considered necessary by Mr. Sousa, Mr. Santelman, Mr. Loving and other prominent band leaders, but the object has been to make a compromise and provide an efficient musical and at the same time a self contained military organization.

To sum up, our present bands are entirely too small to be efficient. A pronounced volume of sound is indispensable; the band must usually play in the open and the music must carry to a considerable distance to enable troops to hear and be guided by it. There is only one way to secure this, namely, by increasing the number of instruments.

CHIEF OF CAVALRY.

There is a large element in the service of the opinion that the several arms should be represented by a chief at the War Department charged with duties for their respective arms corresponding to those formerly assigned to the Chief of Artillery for the artillery arm. There is no denying the

fact that a permanent office at the War Department charged especially with promoting the interests of a particular arm of the service secures far better results for that arm than one covering a multitude of interests for all arms.

During our Civil War, when American cavalry was being developed on lines which have fixed the role of cavalry in modern war, it became necessary for us to establish a Bureau of Cavalry at the War Department and to appoint chiefs of cavalry for the various large commands. Of interest in this connection are the two following orders:

WAR DEPARTMENT,
ADJUTANT GENERAL'S OFFICE,
WASHINGTON, July 28, 1863.

GENERAL ORDERS, No. 236.

1. A bureau will be attached to the War Department, to be designated the Cavalry Bureau.

2. This bureau will have charge of the organization and equipment of the cavalry forces of the army, and of the provision for the mounts and remounts of the same.

3. The purchases of all horses for the cavalry service will be made by officers of the Quartermaster's Department, under the direction of the Chief of the Cavalry Bureau. Inspections of horses offered for the cavalry service will be made by cavalry officers.

4. Depots will be established for the reception, organization and discipline of cavalry recruits and new regiments, and for the collection, care and training of cavalry horses. These depots will be under the general charge of the Cavaly Bureau.

5. Copies of inspection reports of cavalry troops, and such returns as may be at any time called for, will be sent to the bureau established by this order.

6. The enormous expense attending the maintenance of the cavalry arm points to the necessity of greater care and more judicious management on the part of cavalry officers, that their horses may be constantly kept up to the standard of efficiency for service. Great neglects of duty in this connection are to be attributed to officers in command of cavalry troops. It is the design of the War Department to correct such neglect, by dismissing from service officers whose inefficiency and inattention result in the deterioration and loss of the public animals under their charge.

By order of the Secretary of War.

E. D. TOWNSEND,
Assistant Adjutant General.

WAR DEPARTMENT,
ADJUTANT GENERAL'S OFFICE,
GENERAL ORDERS, } WASHINGTON, July 28, 1863.
No. 237.

The following instructions intended to promote the efficiency of the cavalry service are promulgated for the guidance of all concerned:

I. Inspections will be made of all cavalry troops at the end of every month, reports of which inspections will be forwarded without delay, through the army or department commander, to the head of the Cavalry Bureau at Washington. These reports will exhibit the condition of the cavalry service in general, and especially the condition of the mounts. The report shall state what service the troops inspected have done since last inspected; how many miles their horses have traveled within the month; what character of service has been required of them, and under what circumstances it has been rendered; what appears to have been the care taken of them, as regards treatment, shoeing, etc., etc.; what has been the quantity and character of rations of forage issued to them; if there has been any deficiency of forage, and who is responsible therefor, etc., etc.; and shall convey any other information pertaining to the objects of the inspection which it may be advisable should come to the notice of the bureau.

II. Inspection reports shall divide cavalry horses into four classes:

1. Those which are to be condemned as unfit for any use whatever in any branch of the service. With regard to this class proceedings are to be had as required by existing regulations.

2. Those now unfit for cavalry service, and not likely to be efficient again for such service, which may be used for team or draft horses, or for herding purposes. Horses of this class are to be turned into the Quartermaster's Department.

3. Those which are now unfit for service or nearly so, but which, by timely care and treatment in depots will regain condition. Such horses are to be sent to such depots as may be established for the army, to be replaced by an equal number of good animals from the depots. As soon as serviceable the horses turned in will be eligible for reissue.

4. Serviceable horses.

The number of such class of horses will be given in every report of inspection for each troop in the service.

III. A suitable number of officers of the Quartermaster's Department will be directed to report at once to the Chief of the Cavalry Bureau, to be charged with disbursements for the objects of his Bureau, under his direction.

IV. Purchases will be forthwith made of a sufficient number of horses to meet the present and prospective wants of the service up to September 1, 1863, and the horses placed in depots for issue from time to time.

V. Requisitions for remounts will be made through the intermediate commanders on the Chief of the Cavalry Bureau, who will give orders on the depots for the horses needed to fill them.

VI. Officers of the Quartermaster's Department assigned to duty under the orders of the Chief of the Cavalry Bureau, will make their reports and returns of money and property, as required by existing laws and regulations, to the accounting officers of the Treasury and to the Quartermaster General, and will also make to the Chief of the Cavalry Bureau such reports and returns as he may require for his information.

Estimates for funds will be submitted to the Chief of the Cavalry Bureau for his approval before being acted upon by the Quartermaster General.

VII. Major General George Stoneman is announced as the Chief of the Cavalry Bureau in Washington.

By order of the Secretary of War.

E. D. TOWNSEND,
Assistant Adjutant General.

It would, therefore, be the part of wisdom and prudence to provide in peace for a small but efficient office of this character which will promote developments in the direction that war will inevitably demand.

For many years we did without a general staff corps and a chief of artillery, but the results obtained from the establishment of this corps and the latter office have amply proved the wisdom of establishing both.

All great European powers appreciate the necessity of such an office, and each has a special head for its cavalry. We are to-day spending very considerable amounts on our cavalry service, but are we securing full measure therefrom?

SUMMARY.

The organization proposed will give:

Commissioned:	
1 brigadier general	1
30 regiments, including chaplains and veterinarians	1,020
Total	1,021
Enlisted:	
30 regiments, 654 enlisted men each	19,620
Maximum enlisted strength now authorized	18,540
Reservists, Depot Squadrons:	
60 troops, 100 enlisted men each	6,000

THE MACHINE GUN.

In conclusion, I do not favor machine gun units as an integral part of the cavalry organization, valuable as that weapon is. Let our entire organization be homogenous in all its parts. The present mountain field artillery gun is of far more general use to a cavalry column, but we do not advocate absorbing these troops.

So let the machine guns be organized as our chiefs see fit, to be attached to cavalry when conditions warrant.

TARGET PRACTICE AND TRAINING FOR MOUNTED ACTION.

By Lieutenant K. B. EDMUNDS, Eighth Cavalry.

DURING four years of service with mounted troops two strong objections to our present system of instruction have presented themselves to the mind of the writer. They are: first, so many of the best months of the year are devoted to target shooting that little time is left for training in the equally important mounted work; second, the course itself does not give the best training for fire action in active service. If this article can call forth any criticisms or suggestions on the subject, it will do all that is hoped for it.

Assuming that all our training should be devoted to giving us the maximum efficiency in war, let us first see how cavalry acts in war, then what time should be taken to train it in its various functions.

In campaign, "Cavalry is the eyes of an army," our post is far in advance; we must be able to ride far and hard to make the best and most economical use of our mounts. Consequently we need training in horsemanship, marching and reconnaissance.

In action "Cavalry possesses three methods of fighting: * * * the charge with the arme blanche, dismounted action with the carbine, and artillery fire." Although in our service there are many officers who deny that cavalry can fight with the saber, I think that the majority of our mounted officers will agree with the author of "Cavalry in Action." Neglecting artillery fire, which does not concern us, it follows that we must be able to cover a thousand yards or more in line at a gallop, and at the end to hit our opponent with closed interval in perfect alignment and at full speed. We must have a good saber and be able to use it. We must train our squadrons to maneuver quickly and accurately.

We must thoroughly train our horses. Lastly we must be able to maneuver dismounted, to shoot accurately and to direct and control our fire.

With the exception of marching, reconnaissance and shooting, we have nowhere near the time to accomplish these ends. The practical season is from April to November, seven months. Taking the last year, for example, my squadron spent three months at target practice and two months marching and at maneuvers. To this time must be added two weeks of supplementary season, and about twenty-one days spent on weekly and monthly practice marches. This leaves about one month of the practical season for training in mounted work and this time is so broken up that it is impossible to make any systematic arrangement of it. During the next year, owing to the fact that there are no maneuvers, we will have an additional month, but even when multiplied by three (the enlistment period), this is not time enough to train cavalry, and it is not to be supposed that we will ever go into action with ranks filled with men of over two years service.

We should also consider here the time spent by officers and men at competitions. While the training of the troop may still go on during the absence of these individuals, their services are lost during that time and they are generally among the best men in an organization. Last year the competitions were held during maneuvers. As a result the six troops which attended from this post went without the only two captains for duty with troops (who also commanded squadrons), one lieutenant and several first sergeants and quartermaster sergeants. One troop was entirely deprived of the services of its officers. Yet regimental pride requires that the best shots be sent to these events, and the best shots are generally the most experienced officers and men. It may well be questioned if this is not too big a price to pay for the medals won.

It may be said that much practical instruction may be given during the winter months, but comparatively few of our cavalry posts are provided with riding halls. It is true that there are about twenty days during November and

December when out-door drills are practicable, but this time can not be depended on, and it is too short to arrange any progressive instruction. It may also be said that all the target season is not taken up with firing, but on days when out-door instruction of any kind is practicable, the troop officers will be found either on the firing line of their own troops or marking in the pits for some other.

It has already been stated in what things we should train our cavalry. These can roughly be divided into three classes: training for field service and reconnaissance, training for dismounted action and training for mounted action. In the first should be included practice marches, patrolling, advance and rear guard work, outposts, etc; in the second target practice and dismounted drills; in the third horse training, the handling of arms, mounted, and all mounted drills. No true cavalryman will say that the last of these divisions is the least important of the three, yet under the present system no systematic training in mounted work is possible. We deem it necessary to set aside three months of the year for target practice, to lay out a careful, full and systematic course for it, to devote to it a large amount of time outside the season. Why is not equal attention given to the mounted work? It is at least equally important; it requires more time, and it requires a systematic arrangement. Instead we find that we have but a scanty six weeks for mounted training, and this time must be taken a day here and a day there and devoted to things which the troop commanders think most needed. Under such a lack of system and time there is, and can be, no thorough training.

Let the practical year be divided into three parts, proportional to the time necessary to train troops in their various functions. Let the mounted training be arranged progressively and systematized as thoroughly as the target practice is now. Confine all firing, including competitions, to the target season. Assign a certain time for training in field service and use this time to the best advantage. When this is done we will have troops which can fight well both mounted and dismounted, and which will be ready and equipped for the field at all times.

The results of lack of training are painfully apparent in our mounted troops. I have never seen a troop which could always deliver a good charge; the result is sometimes obtained, but the troops generally lack the cohesion necessary for shock action. The men, as a rule, ride well so far as sticking on goes, but have little control over their mounts, and handle their weapons awkwardly when mounted. They are, however, good field soldiers, quickly learning to take care of themselves and their horses and absorbing readily the principles of camp sanitation. This is as it should be, considering past events, for the marches of some of our troops during the Indian wars have never been equalled. I have never seen an officer or soldier in our service who by any stretch of imagination could be called a swordsman.

Considering the target course itself, does it best accomplish the end for which it is intended, viz., to train our men so that in action their fire will have the maximum effect? I think the answer must be, "No." It does teach them to be very good individual shots, the majority of them only at the short and mid-ranges, all of them only at a stationary target and at known distances. But in action the firing is never at known distances, seldom at a stationary target, and seldom individual. It would seem, indeed, that a troop commander would spend more time on the collective fire, inadequate as the present course is, since collective fire counts as much for the standing of his troop as the individual. But in practice it generally works out that the troop commander is beguiled into spending nearly the limit of his ammunition allowance on the attractive and lucrative individual shooting, so that when he comes to collective there is little left.

"Fire discipline is the unhesitating habit, developed by instruction and training, of commencing, relaxing, or ceasing the fire, and concentrating it on the designated object, in obedience to orders." Where is this instruction and training to come in? Presumably in the target season, but we may look in vain through the course laid down. We have already seen how much time there is for training during the rest of the year. In the collective fire course we "commence" the

fire, but where do we "relax" it, or "cease" it, or "concentrate" on any other object than the one we start with? Yet that fire discipline is important no one can deny. Would it not be well to devote some of the time we now spend in developing a few sharpshooters and experts to developing this fire discipline in the troop?

Of late years the development of expert shots has been much encouraged by pay, medals, and participation in competitions. But it is a question whether, in action, there will be much difference between the shooting of our experts and sharpshooters on one hand and our marksmen and first-class men on the other. I believe that when a man has once learned to use his sights intelligently, to hold firmly, and to pull steadily, he has learned all there is to know about military shooting, and once learned these things are not readily forgotten. What is the difference between an expert and a marksman? First, the man's personal equation, his intelligence, strength, eyesight, and temperament. These cannot be changed by any amount of range practice. Second, his intelligent use of advantages and devices which can only be had on the range. In action he will not have flags and anemometers to tell him the strength and direction of the wind; telescopes to give him the mirage will be lacking; the distance of each shot from the objective will not be marked, so that he can make his careful adjustment of sights; finally, and most important, he will not have the exact range. What is the use of training men to shoot within a few feet of an objective when in action we cannot depend on giving them the range within fifty yards? The bullet flies to the range to which the rear sight is set, not to the actual range of the objective. The accurate shooting of the target range is liable to give us an exaggerated idea of the effect of the fire in action of men expert in target shooting. The results obtained when the conditions of the range are lacking may be illustrated by a few examples which have come under my personal observation.

In the late spring of 1905, the first squadron of the Eighth Cavalry, stationed at Fort Sill, had just finished the target season. A good showing had been made and there were

many sharpshooters and marksmen in the ranks, and few third class men. Major Ripley, who commanded the post, sent two troops out with twenty rounds of ball cartridge per man. At a certain point we were informed that we were under fire, ordered to dismount and go into action. The troops were dismounted under cover, and after five minutes work with the field glasses we picked up the objective, which was a double row of kneeling and standing silhouettes in our direct front.

The targets blended so well with the background that they were difficult to see, many of the men not being able to locate them even after their position was pointed out. The ground was damp and gave no dust. The chiefs of platoon gave the range, which was pure guess work, no results being obtained from the volleys. It turned out afterwards to be about 1,500 yards. All the ammunition, about 1,500 rounds, was expended. Results, eleven hits. There were about seventy-five men firing. The troops were armed with the Krag carbine.

In the spring of 1906 I was on a mapping detail in the hills east of Manila. The party was on foot. When leaving our base camp I took three cavalrymen and a scout. The country was full of deer and hog, and the pieces were carried loaded and locked. On one occasion while we were going down a trail in single file, a deer got up within 100 yards, and ran parallel to the column. Every magazine was immediately emptied at him, but he escaped unhurt.

During the same trip moving deer four times came under fire of from two to five men, at distances of from 100 to 300 yards, yet during the month we killed but two deer, and one of these with a shotgun. The escort were picked men, old soldiers, and had all been through several target seasons.

Up to this point I have endeavored to establish two points:

First. The time expended on target practice is so long that it seriously interferes with the training of the troop in the equally important mounted work.

Second. The target course as at present constituted does not give the best training for active service. Too much attention is given to individual training, and not enough to organization training, *i. e.*, fire discipline.

It remains to be seen how these faults can be corrected. Two things must be done; the individual course must be cut down, and the collective fire course must be extended and made more nearly like firing in action, for in collective fire lies the training in fire discipline. It has been already stated that in action there will be little difference between the excellent shots and the good shots. It will not be the fire of individuals but the fire of tactical units that will count. Then let us have but two classifications, and let the higher include all good shots, and by good shots I mean marksmen and first class men. For the sake of clearness I will call this classification that of riflemen. When a man has qualified as rifleman, excuse him from further individual firing during his service. He has learned to shoot and it is believed that he would get all the practice necessary to keep him in training in the collective course. If the skirmish fire is omitted, it is believed that about two thirds of the troop could qualify as riflemen (say the qualification requires sixty per cent). This at once cuts down the time spent on individual training by two thirds. All energy, time and surplus ammunition could then be employed in bringing the remaining one-third up to standard. By cutting out the skirmish course (which training would be covered in the collective course) and giving the preliminary training during the theoretical season, the individual course should be cut down to two weeks. However, this course should include 800 and 1,000 yards. The qualification of rifleman should carry with it a substantial increase in pay. Whenever a man's rifle is changed he should, during the next target season, take enough of the rifleman course to properly sight his piece.

The objects to be sought in collective fire have already been clearly shown in the definition of fire discipline, if we add a maximum of hits at all ranges. The troop must be trained to open fire carefully, to fire the indicated number of rounds, to cease fire promptly at command, make a careful

change of sight, and open fire on a new objective. Without going into details I believe these ends could be obtained by having a series of lines of disappearing figures at various ranges, say thirty objectives between 400 and 1,500 yards. These targets could be operated from a central trench by a device similar to the switching system in a railroad center. The procedure would be about as follows:

The troop takes its position and loads; a line of targets appears, the troop commander estimates the range, fires at least one volley to verify it, and opens fire at will. A certain time after the appearance of the first row, say three minutes, a second row appears. The troop must immediately, and at command, cease fire on the first objective and open on the second. The first row remains in sight until the command is given to open fire on the second. Penalties should be inflicted on the troop for shots fired after the command for ceasing fire. The record course would consist of about five of these changes of objective made in succession. Troops to be graded on the aggregate of hits. The course might be extended by firing at moving targets, and a skirmish run made by the entire troop at a common target.

The troops should be graded on their collective fire only. The men should be paid on their individual fire only.

The advantages claimed for this system are:

1. It will favor the development of all the troopers into good shots, rather than the development of a few of them into excellent shots.
2. It will train the troop in fire discipline.
3. It will take but a short time.
4. Much of the preliminary training can be given with blank cartridges on days when the conditions are not good for firing.
5. The organization receives the training, not the individual.

The principal objection I can see advanced for this system is that the troops do not all fire at exactly the same ranges, consequently one might have some advantage over the others. But if we bear in mind that this target practice

is not a game to see who will win out, as it is now regarded, but is an actual and serious preparation for war, this objection becomes insignificant.

I have purposely avoided mention of the pistol in connection with range practice, as I do not wish to become involved in the old discussion as to its relative importance. However, I think everyone will agree that if the pistol is to be carried the men should be skilled in its use. Under present conditions pistol practice is rushed through on days when range practice is undesirable, and with a wary eye fixed on the ammunition expended.

Our mounted troops can now be called very good mounted infantry. They are familiar with the use of their rifles and can ride well on the march, can care for their horses and dismount quickly to fight on foot. The squadron when dismounted becomes a handy little battalion. As much cannot be said for the mounted work. The troops do not charge well, the men are not skilled in the use of the sabre, and the horses are not trained to make the quick answer to the aids necessary for quick work in close order, and which must be so necessary in the mêlée. Among many officers there is a decided doubt that mounted action, and especially sabre action, is practicable. This is natural, as our wars of the last thirty years have not been of a character which would favor this kind of fighting, and there is a tendency caused by improvements in the range and accuracy of small arms to unduly value rifle fire. This view may be correct, although it is held by the military men of no other nation but our own.

"How, I ask, can the cavalry perform its rôle in war until the enemy's cavalry is defeated and paralyzed? I challenge any cavalry officer, British or foreign, to deny the principle that cavalry, acting as such against its own arm, can never attain complete success unless it is proficient in shock tactics.

"Cavalry soldiers must of course learn to be expert rifle shots, but the attainment of this desirable object will be brought no nearer by ignoring the horse, the sword or the lance." (Lieutenant General Sir John French.)

"Having admitted that dismounted action has increased considerably in importance, particularly on the offensive, it

nevertheless remains the fact that the combat with cold steel remains the chief *raison d'etre* of the cavalry, and when the principles have to be considered according to which troops have to be employed on the battlefield, the actual collision of cavalry's 'masses' remains the predominant factor." (Lieutenant General Frederick von Bernhardi.)

In our own service the following was approved by the chief of staff: "But in the case of a charge over open ground of large bodies of cavalry against each other, where there is no room for deployment, the contest is usually decided by the shock of men riding boot to boot at full speed against each other. In the mêlée which follows this collision the troops are more or less jammed up against each other, horse against horse. In this mêlée a pistol discharged at an enemy may easily kill a friend, and in any case the pistol is no match at arms length for a sharp sword. The pistol may hit five times; it is then useless. The sabre, on the other hand, can strike an infinity of blows, and if sharp, its wounds are terrible. Such a combat will be decided by the most determined men, on the strongest horses and by the most skillful use of the sharpest sabre." (Extract from opinion of Cavalry Board.)*

If the view of the advocates of mounted infantry tactics and pistol fighting is correct, we should at once discard the sabre as a useless encumbrance. If not correct we should be armed with a good sabre, be skilled in its use, and we should bestow at least as much attention to our mounted work as to our rifle practice and practice marches. At least four months of the year should be set aside on an arranged schedule for training in mounted work and for nothing else; other times when mounted drills are practicable could be used as the troop commanders see fit. When this is done we will be in a position to meet on at least equal terms the highly trained squadrons of Europe, and our troops may be called in the best sense of the word, cavalry.

*Taken from "Weapons and Munitions of War," Captain John P. Ryan, Sixth Cavalry.

MACHINE GUN ORGANIZATION.

By HENRY J. REILLY, Second Lieutenant and Squadron Quartermaster and Commissary, Thirteenth Cavalry, Commanding Machine-Gun Platoon.

Organization.

IN considering the organization of machine gun detachments, the first question naturally arising is, should they be directly attached to and a part of infantry and cavalry organizations or should they be organized as a separate arm.

To determine this it is necessary to consider primarily the tactical handling of these weapons, which is determined by their fire power, mobility and vulnerability.*

Fire Power.—Using the same ammunition as the rifle its ballistic properties are those of that arm, its fire power differs then only in rapidity of fire, which is greater; in dispersion of fire, which is practically uniform, as against the irregular distribution of rifle fire; in the dependency on the personal element, which is less, due to the rigidity of its mount; and in efficiency against individual or widely scattered targets, which is less, due to its inability to affect such targets without either sacrificing its rapidity of fire and therefore being of no more use than a single rifle, or else using an amount of ammunition incommensurate with the result produced.

On the first two of these differences, rapidity and uniformity, depend the intensity of fire of the machine gun.

How can this intensity be best taken advantage of: by massing the guns or dispersing them?

The experiences of the Russo-Japanese War would seem

*Under vulnerability is included every effect, other than moral, that fire could cause.

to dictate dispersion in small groups as against massing, except in exceptional cases, witness the following quotations:

"*Concentration* and *dispersion* (in attack or defense).—The result of employing a number of machine guns together is not by any means necessarily the sum of their several values; for instance, over a narrow front there is little difference as regards time or fire effect, whether we employ two or six guns. Moreover, the amount of ammunition used in a short space of time is so great that unless it is used with economy the result will not counterbalance the means; also the sources of ammunition supply in the neighborhood, the brigade reserve, the ammunition columns, will speedily run out of ammunition if called on to supply a number of machine guns." *

"Except when a broad front has to be covered by machine guns (as when employed to protect a space between two forts widely separated) massing of guns is a principle to be avoided.

"Four or six guns per battery and one battery per regiment were usually suggested."†

"In consequence of the experience gained during this war, the Japanese authorities took steps after the war to attach half a machine-gun detachment of these guns to each infantry regiment to be utilized either in that form or to be concentrated according to necessity in each brigade."‡

"The cavalry machine-gun detachments consist of eight guns divided into two sections, each cavalry brigade has one of these detachments which may be easily distributed between the two regiments of the brigade."§

In each case a detachment of six or eight guns so arranged can be easily split up into smaller units.

* From an article by Captain F. Takenouchi, "The Tactical Employment of Machine Guns with Infantry in Attack and Defense," translated from "Kiakosha Kiji" of October, 1906, by Captain E. F. Calthrop, R. F. A., British Army."

† Lieutenant Colonel Edward J. McClernand's report on Russo-Japanese War.

‡ Captain Victorin's article in the Cavalry Journal for July, 1908.

§ Editor's Table, Cavalry Journal for October, 1908.

It is on the intensity of the fire and the third of these differences, *i. e.*, lesser dependency on the personal element, that the claim for the superiority of machine gun over the rifle at ranges between effective small-arms fire and the lesser artillery ranges is largely based. That there are grounds for this claim seems generally to be conceded.

It is believed, however, from what little firing has been done with the machine-gun platoon of the Thirteenth Cavalry at 1,200 yards (the greatest range obtainable at Fort Sheridan), that, while superior to rifle fire at the longer ranges, beyond 1,200 yards, the effectiveness of the fire would be so small as only to warrant the consumption of ammunition in the case of exceptional targets offering themselves.

This view is borne out by the experience of the Japanese in their recent war, as is shown by the following quotations:*

"I draw the following deductions from the above examples. * * * While not altogether vetoing the employment of machine guns for covering fire, I only condemn their substitution for artillery at long ranges.

"To open fire on a thin line of skirmishers at long range is a most useless proceeding and gives no return for the ammunition expended. * * * Four of the enemy's machine guns, at a range of about 1,000 yards, swept our widely extended skirmishing line with fire. It had no effect whatever on our advance and the enemy eventually evacuated the position.

"On the other hand, fire at close range at skirmishers advancing to the assault, or at bodies in mass, gives overwhelming results in a short time.

"These practical examples prove what has been stated, that the power of this weapon must not be overestimated; that in the defense the enemy cannot be stopped at a distance in excess of the effective range of the rifle and that any statements to the contrary show an ignorance of the economical use of the machine gun."

*From an article by Captain F. Takenouchi, "The Tactical Employment of Machine Guns with Infantry in Attack and Defense," translated from the "Kaikosha Kyi" of October, 1906, by Captain E. F. Calthrop, R. F. A., British Army.

The use of telescopic sights would greatly increase the fire power of the machine gun at the longer ranges, but as it would also increase the fire power of the rifle, no advantage can be claimed in this direction.

The machine gun differs from weapons classified as artillery not only in the character of the projectile used, and its lack of destructive effect as regards material, but also in its range, in which latter difference it cannot compete in any way with the artillery.

Mobility.—When carried by pack animals the machine gun can keep up with and go anywhere that the infantry or cavalry can go. This has been amply demonstrated by the platoons in our own service and has been shown to be true in other services. Captain Takenouchi of the Japanese Army* states that guns carried on pack animals and capable of being man handled are available in any situation. Captain Victorin, of the Austrian Cavalry, states that pack animals carrying machine guns were able not only to keep up with the cavalry but "to climb up and down declivities, take high and broad leaps and to gallop over long stretches," all with success.†

Vulnerability.—The mobility of machine guns permitting an appearance on any terrain it is necessary to decide whether or not they present to the enemy a target of such dimensions as to prohibit their use under effective small arm fire.

On turning to the Russo-Japanese war for examples we find in Colonel McClernand's Report:‡ "On the offensive he (speaking of an officer of high rank) would send them (the machine guns) forward among the first lines of the battalions to which attached," * * * and later: "It is not essential that they be at all times immediately on the line occupied by the infantry, although when the latter, after a

*In an article, "The Tactical Employment of Machine Guns with Infantry in Attack and Defense," translated from "Kaikosha Kiji" of October, 1906, by Captain Calthrop, R. F. A., British Army.

†From translation published in CAVALRY JOURNAL for July, 1908.

‡Pages 95 and 96, Part V, Reports of Military Observers Attached to the Armies in Manchuria during the Russo-Japanese War.

considerable advance, meets with determined opposition, some guns should be brought up."

"When advancing under fire it is often a good plan to move one gun at a time."

Showing that the guns were not only advanced under fire, but one of the best times for putting them in the infantry line was when that line was meeting with considerable opposition which presupposes a heavy fire.

From Captain Takenouchi's paper we find the presence of the guns on the infantry line taken as an accepted fact, the discussion being whether or not the guns should accompany the first line from the beginning. This is shown by the following quotations:

"In the attack of a prepared position the question whether machine guns should accompany the first line from the commencement, or be held in reserve under the disposal of the commander of the force, is a much vexed question."

"The conclusion to be drawn from the above is, * * * and that not until the final moment of the final attack should they be used with their full power in the first lines."

And later—

"At the battle near Mukden * * * the enemy's position at Sha Shan was taken. The enemy in Li-Chia-wo-peng at about *500 yards* from the captured position, then poured a heavy fire into us; * * * on this occasion our machine-gun detachment * * * which had accompanied the assaulting column advanced on to the position."

Conclusions.— From the above we see that while the mobility and vulnerability do not prevent. the fire power demands, on the part of the machine gun, close association with the troops using the rifle.

The above discussion has equally to do with infantry and dismounted cavalry, both in the attack and on the defensive.

Speaking broadly, the best use of cavalry is in a combination of mounted and dismounted action. In this use machine guns are particularly valuable, as by their fire power they are able to supplement the fire of the dismounted men to such an extent as to materially decrease the number

necessary, thereby increasing the number available for the mounted attack.

In the mounted attack of cavalry against cavalry these guns are useful in compelling, by means of their fire, an earlier deployment on the part of the enemy than otherwise would be made, thus disclosing their plan of attack and making the attack more difficult of control.

It has already been shown that their mobility is such as to permit of their accompanying cavalry anywhere.

Artillery, employed more or less in masses, helps the infantry when they are helpless because of the range, assists them through the fire fight, but because of the danger to them must cease firing when they are about three hundred yards from the enemy's trenches.*

Machine, guns employed in small detachments, accompanies the infantry, with them helpless at the greater ranges, into the small arms fight where at first, largely with the regimental or brigade reserves,† they gradually come into action; until, just before and during the assault up to shortly before the moment of actual contact,‡ they give by means of their intense fire that support so essential at this final stage of the attack.

In a similar manner the cavalry attack is supported by the horse artillery until within a few hundred yards of the enemy, while the machine guns, though supporting the attack at rifle ranges and helping to keep down and draw the fire of any small arms, are particularly useful in the last stages of the

*"Present Method and Lessons in Regard to Field Artillery taught by the Russo-Japanese War," by Captain Tiemann N. Horn, Third United States Field Artillery in the *Artillery Journal* for November and December, 1908.

†"And not until the final moment of the final attack should they be used with their full power in the first line"—Captain Takenouchi—"Machine guns should not be kept in the firing line, but held in reserve until the opportune moment arrives * * *. The commander of a unit will fight men with redoubled confidence if he feels that, at a critical moment he has in hand an easily controllable means of instantly increasing his volume of fire."—Colonel Macomb's article in the CAVALRY JOURNAL for January, 1907.

‡"An officer who commanded one of the batteries (M G.) at the battle of Mukden * * * said that on one occasion there he continued to fire until their infantry had arrived within thirty meters of the enemy's position."—Colonel McClernand's report, page 96.

attack, and, in the first stages of the pursuit, where, on account of the closeness of the combatants, it is dangerous for the artillery to fire.

From whatever point of view examined it is seen that the best use of this weapon is found in close tactical association with the infantry and cavalry, and that in units of never more than six or eight, and generally two, three or four guns.

Not the association of one arm with another in which each, though doing its best to help the other, is compelled through a great difference in arms, fire power, mobility and vulnerability to a more or less independent use of its own particular tactics, though all are striving for a common end, but a relationship borne of a similarity of tactics which compels actual association during the different phases of the fight.

Apparently, then, while a knowledge of the machine gun and its powers and limitations is essential for an officer commanding these weapons, it is above all necessary, in order that they may be used to the best advantage, that he be, primarily, an officer of that branch of the service with which his guns are serving. In other words, if serving with infantry he must be an infantryman first and a machine-gun man second; if with cavalry, a cavalryman first and a machine-gun man second.*

In answer to the objection which will be used against this, that the functions of field artillery and horse artillery differ and yet they are composed neither in the one case of infantryman, nor in the other of cavalryman, commanding guns, but of the same arm, and are assigned as necessary to the other arms. It may be said that the fire power and vulnerability of artillery compel tactics of such difference from those of infantry and cavalry as to necessitate on the part of the artillery only such general knowledge of the tactics of these other arms as it is necessary for one branch to have of the others to insure a proper coöperation of the three arms;

* "The rôle of the cavalry machine gun is to increase the fire power of the cavalry, to support it everywhere and to assist it in carrying out its many various missions both in mounted and dismounted action. The detachments must be instructed in and imbued with the cavalry spirit."—Editor's Table, CAVALRY JOURNAL for October, 1908.

furthermore, artillery is used in large tacital units and is assigned to the cavalry and infantry divisions, it being given to smaller units only when they are to act independently; while it has been shown above, it is believed that the tactics of machine guns are primarily those of the arm with which they are serving and that they are rarely used in units of more than six or eight guns, generally less, which following the ratio established in the Russian-Japanese armies would mean assignment to brigades and regiments.*

Further objections might be raised on the ground that the technical knowledge required makes a stronger bond between foot and mounted machine-gun organizations than tactics could possibly make between the infantry and the former or the cavalry and the latter; and that even though their tactics demand their being fought, not in large masses by themselves but in small units attached to troops of other arms, their tactical efficiency would not be impaired by having them in single corps and assigning them as needed, as is done in the Signal, Medical and Engineer Corps.

The technical training needed may be divided into knowledge of the ballistic properties of the gun, and packs and packing. As the ballistic properties are practically those of the rifle this is common to every infantry and cavalry officer. The few differences are easily learned. The mechanical part is not difficult and may be soon mastered by anyone. As to packs and packing, this is something about which no officer of the combatant branches can know too much. If the case of the field and horse artillery is again cited, it may be answered that in addition to the tactics of these arms preventing any closer organization with the other arms than that found in the larger units, the technical training requires a knowledge of material so different from that used in the infantry and cavalry as to forbid their being efficiently handled by officers of these branches. As an answer to any further comparison between light artillery and machine guns it should be remembered that these latter weapons are

* In Capt. Victorin's article in the CAVALRY JOURNAL for July, 1908, he states that each Russian infantry regiment (3,000 men) is to have four guns and that each Japanese cavalry brigade (1,200 men) is to have eight.

neither as regards tactical handling or technical training, field pieces, but small arms.*

As to the Signal, Medical and Engineer Corps there is a basic difference between them and machine-gun detachments which would seem to vitiate any comparison, the primary function of the latter being combat; and of the corps mentioned, some purpose other than combat, such arms as they possess being for their defense, while performing these other purposes.

The engineer troops are generally attached to the higher units only, the Signal and Medical Corps owe their allegiance, if it be put that way, not so much to the commander of the unit to which they are attached as to some other; the former corps being merely a means whereby that other directs and controls his different units; while the men of the latter crops attached to the smaller units are the means employed by a higher officer of their own corps of collecting and bringing under his care the wounded of the different units.

The machine-gun detachments owe their allegiance to the immediate commander of the unit with which they are serving and are used by him equally with his other units for tactical purposes.

Assuming then that it is best for mounted machine gun organizations to be a part of the cavalry and foot machine-gun organizations of the infantry rather than being united in one corps, it becomes necessary to determine in what manner they should be attached to the two branches.

Following in general the line of reasoning above, they should be attached to and part of units consisting of such number of men that about six or eight guns would be in the correct proportion, this being about the maximum number ever used together.

The objection urged to this would be that it makes a unit whose constituent parts differ, in organization, tactics, and in the kind of training needed.

Organization, depending upon tactics and technical train-

*"But at present my opinion has undergone a decided change * * * to the effect that the machine gun is not a part of the artillery, but a small arm."—Captain Victorin's article, page 118, CAVALRY JOURNAL, July, 1908.

ing, this objection has already been answered, as it has been shown above that while the latter does not forbid, the former demands the closest association of machine guns with the arm with which they are serving.

As for tactics, the difference as far as fire action is concerned is mainly one of drill regulations. If the various trainings necessitated by a mixed command can be successfully carried on under one commanding officer, as is done in a mixed garrison, no reason is seen why it should not be done in, say, a regiment, the constituent parts of which are to fight together under the regimental commander in action. The more a commander handles and is responsible for in peace the units he is to fight in war, the more efficiently it will be done when war does come, particularly if he has served when in lower grades in command of, and as a subordinate in these different units.

The colonel of a regiment having a machine gun troop would not likely let that troop suffer as regards training when he has once realized that on the battlefield it is to be an intimate part of his own command; this would be particularly true of the time, should it come, when there will be colonels who have served as lieutenants and captains of machine gun troops.*

That serving with troops of different kinds is desirable is shown by the frequent recommendations that officers serve for a time in arms other than their own, so as to prevent that inefficient handling of these other arms so frequently seen in a mixed command, particularly when artillery is assigned to infantry or cavalry units.

This paper having mainly to do with the organization of machine gun detachments with regard to their use with cavalry, the attaching of the mounted detachments to the proper cavalry units will alone be considered.

From their experience in the Russo-Japanese war the Japanese have decided to attach to each brigade of cavalry,

*In spite of the present vicious organization little difficulty has been experienced, as far as the Thirteenth Cavalry is concerned, in giving the men of the machine-gun platoon that training which the platoon commander has considered correct.

1,200 men, a detachment of eight guns.* Following out their experience this would seem to indicate eight guns as the proper number to assign to one of our regiments. However, as our cavalry is armed with the same rifle as the infantry and receives the same instruction in its use, the need for these guns is not as great as in those cavalries of which this does not obtain. At the same time, due to the fact that even in dismounted action it is advantageous to have as large a mounted reserve as possible, the proportion of these guns per thousand men should be greater than the proportion found correct for the infantry. Captain Parker† tells us that the correct proportion for the infantry is from two and one-half to three and one-half guns per thousand. Taking the upper limit, four and two-tenths guns is the correct proportion for 1,200 men A mean between this and eight would be about six guns, which would allow an assignment when necessary of two guns per squadron.

If the cavalry is reorganized into regiments of four squadrons of two troops each, making two squadrons to a wing; or into three squadrons of three troops each, giving regiments of 800 or 900 men; following this proportion, we would have four guns as the correct number per regiment. It has been shown above that six to eight guns are, as a rule, the maximum number ever used together at one time. As this number would take for its proper handling about 100 men, a captain's command, a troop commanded by a captain and composed of six guns assigned to and part of each regiment of cavalry would appear to be the correct organization. It will be generally conceded, it is believed, that it is not best to have a tactical and administrative unit of less than a captain's command.

With our present organization of three squadrons to a regiment, and particularly as in the service of security and information, the different squadrons of a regiment are often separated; and, as it has been found that machine guns should never be used in units of less than two guns,‡ a division of the troop into three platoons of two guns each would seem advisable. Each platoon must then be complete in itself and capable, when necessary, of being readily separated from the remainder of the troop and acting independently.

This being so, the organization of the platoon should first be determined, deducing from it that of the troop.

*Editor's Table, CAVALRY JOURNAL for October, 1908.

†Journal Military Service Institution, December, 1903.

‡Editor's Table, CAVALRY JOURNAL, October, 1908, and on page 96 of Lieutenant Colonel McClernand's report on the Russo-Japanese War.

PERSONNEL.

To readily pack, unpack, set up and handle a gun in action, four men are necessary. The firing can be done by two, which leaves the other two available for the supply of ammunition. As the led animals are generally some little distance from the guns, and as it is frequently necessary to repack the gun and ammunition at the same time, a third ammunition man posted with the ammunition mules has been found necessary.

When the squadron dismounts to fight on foot, it being impracticable to advance with all the animals and the distance to the first point at which the guns are to be put in action generally being too great for them to be readily carried there by hand, a formation in which all the cannoneers dismount and with the gun mule and one ammunition mule from each section, advance to their first position, the lead animals remaining with those of the squadron, has been found advisable. If the drivers of the mules in question dismount and lead them it makes too many animals for the horse holders to take care of, tends to confusion and consumes more time; therefore, after several different ways had been tried, it was found that the best method was to leave an extra cannoneer to lead the gun mule when dismounted, the ammunition mule being led by the third ammunition man, this method leaving the four cannoneers to handle the gun, the ammunition man remaining with his mule and giving an extra man to help with the animals and ammunition when the platoon was not dismounted to fight on foot.

To handle gun 4
To pack and unpack ammunition 1
To lead gun mule when dismounted 1

Total one gun ..... 6 cannoneers, one of whom, the gunner, should be a corporal.

The number of drivers is determined by the number of mules necessary to carry the gun and ammunition.

The Japanese carry 9,600 rounds with each gun, the amount carried in the ammunition wagon is not known. The Austrians have decided on 5,000 with the gun and 10,000 in the ammunition wagon.*

Captain Victorin deduces from the experiences of the Russo-Japanese War 5,000 as the correct number to be carried immediately with each gun.† Apparently five or six thousand is sufficient. This would take four mules per gun, which, adding the gun mule, would make five drivers, giving a section of one corporal (gunner) and ten privates, (five cannoneers, five drivers). To take charge of the led animals, to exercise supervision over the property of the platoon and, when the platoon is acting independently, to perform the duties of first sergeant and quartermaster sergeant, one sergeant is necessary.

To enable the platoon to act independently, one cook, one blacksmith, and one saddler are necessary; these men can also be used as a guard for the led animals, and to lead extra horses and mules, and the mule carrying blacksmith, saddlers tools, etc., considered necessary for each platoon.

To prevent the platoon becoming a burden to other organizations, to enable the platoon commander to act without fear of surprise and to prevent the platoon, when in action, from being annoyed by the enemy's sharpshooters, scouts who are sharpshooters are required. From experience gained in garrison and department maneuvers it has been found that at least four are needed, two of whom can act as range finders when a position has been decided upon. One of these men should be a corporal.

For use as a messenger and horse holder for the platoon commander one man is necessary and as the need of a trumpeter is occasionally felt, this man should be a trumpeter. A mechanic to take care of the guns is necessary; his duties would not prevent him from acting as a cannoneer or driver.

*Pages 458 and 459, CAVALRY JOURNAL, October, 1908.

†Pages 121 and 122, CAVALRY JOURNAL, July, 1908.

thus saving one private. This gives for one platoon of two guns:

1 lieutenant, commanding,
1 sergeant, chief of led animals, etc.,
3 corporals (2 gunners, 1 scout and range finder),
1 saddler,
1 blacksmith,
1 farrier,
1 cook,
} Two to lead supply and extra mules and horses attached to platoon; two to act as a guard for the led animals.
1 mechanic (to act as driver or cannoneer),
1 trumpeter,
22 privates (10 cannoneers, 9 drivers, 3 scouts and range finders).

Total:

1 officer,
32 enlisted men,
36 horses (32 for enlisted men, 2 for officer, 2 extra),
12 mules (5 for each section, 1 supply, 1 extra).

This number may be objected to by some on the grounds that at present there are allowed but twenty-one men for a platoon of two guns. Aside from the fact that the Russo-Japanese War has shown the necessity due to large losses* for men in reserve to take the place of disabled cannoneers, the experience of most platoon commanders will probably bear out the statement that even with the platoon kept filled up to the authorized number and all men attending drill,† except the guard, sick and confined, it is often so reduced as to almost prevent the proper handling of the guns.

The troop to consist of three platoons, its personnel would consist of three times that of the platoon with certain additions and exceptions.

It should be commanded by a captain and, as it is unadvisable to increase the proportion of lieutenants to captains, instead of three lieutenants it is considered that two (one first and one second) are sufficient. One platoon always remaining with the captain, it can be commanded by the first sergeant. A first sergeant and quartermaster sergeant are

*Page 97, Reports of Military Observers Attached to the Armies in Manchuria during the Russo-Japanese War, Part V.

†The platoon of the Thirteenth Cavalry has been kept filled at all times, the men not being available for detail on either extra or special duty.

of course necessary. To prevent the number of corporals in proportion to the number of sergeants being too large, the non-commissioned officer of scouts in one of the platoons should be a sergeant instead of a corporal.

To furnish a reserve of ammunition there should be one ammunition wagon permanently attached to and part of the equipment of the troop. To operate the belt filling machines in this wagon and to drive it four privates and a non-commissioned officer, one considered necessary, one private to drive, three to operate machine, the non-commissioned officer in charge.

To equalize the number of sergeants and corporals this non-commissioned officer should be a sergeant. As, under the present pay bill, it is desirable to have the troop quartermaster sergeant mess sergeant, so that he may draw the extra pay, and as it is too much for him to have charge of all property, the kitchen and the stables, this ammunition sergeant should also be stable sergeant and have the grade and pay as is done in the field artillery.

To care for and set up the aparejos there should be a trained cargador or packer. To assist the stable sergeant and help care for the wagons in the field, one wagoner is considered necessary; the troop would then consist of

1 captain,
1 first lieutenant,
1 second lieutenant,
1 first sergeant,
1 quartermaster sergeant,
1 stable and ammunition sergeant,
4 sergeants (3 platoon, 1 scout),
8 corporals (6 gunners, 2 scouts),
1 packer,
3 cooks (1 chief, 2 assistants),
3 farriers (1 chief, 2 assistants),
3 saddlers (1 chief, 2 assistants),
3 blacksmiths (1 chief, 2 assistants),
1 wagoner,
3 mechanics (to act as drivers or cannoneers),
3 trumpeters,
70 privates (30 cannoneers, 27 drivers, 9 scouts and range finders, 4 ammunition),

Total.....105 enlisted men, 3 officers.
117 horses (105 for enlisted men, 6 for officers, 6 extra),
40 mules (5 to each section, 3 supply, 3 extra, 4 to the ammunition wagon).

In the total number of men and horses, proportion of non-commissioned officers and others to privates this organization is quite similar to that of a troop of cavalry, as will be seen by the following table:

	Officers.	*Sergts.*	*Corpls.*	*Cooks, etc*	*Pvts.*	*Total.*	*Horses.*
Machine gun platoon	3	7	8	20	70	108	117
Troop	3	8	8	8	76	103	112

The apparently, at first sight, large number of men other than non-commissioned officers, cannoneers and drivers is not any too many to care for the supply mules, extra mules and horses with the light train, the ammunition wagon, the two escort wagons, which should be supplied by the quartermaster, as is done for a troop of cavalry, act as guard to the led horses, find ranges, act as scouts and sharpshooters, and to furnish above all the reserve necessary to replace disabled cannoneers and drivers.

To reduce this to a peace basis the following could be dispensed with until the army is put on a war footing:

1 sergeant (scout),
4 privates, ammunition,
5 privates, scouts,
10 privates, drivers (using blacksmiths, farriers, etc., instead).

Total—20 enlisted men.
26 horses (20 for men, 6 extra),
3 extra mules.

This would put the strength of the company at
85 enlisted men and 3 officers,
91 horses,
37 mules.

If any further reduction should be contemplated, from experience had with the platoon of the Thirteenth Cavalry, it is considered that it would be better to do away with one complete platoon, leaving but two in peace and those at practically a war strength, not only to secure the proper training which it is not considered can be done with a six-gun troop of less than eighty or eighty-five men, but also to prevent the men from having so much work as to give them just cause for dissatisfaction.

Reprints and Translations.

RAID OF THE CONFEDERATE CAVALRY THROUGH CENTRAL TENNESSEE.

Commanded by General JOSEPH WHEELER (October, 1863).

BY CAPTAIN WILLIAM L. CURRY, FIRST OHIO CAVALRY.

TWO days after the battle of Chickamauga, fought September 19 and 20, 1863, the Second Cavalry Division, Army of the Cumberland, commanded by General George Crook, entered Chattanooga, forded the Tennessee River and went into bivouac opposite the town.

The division crossed the Tennessee to the south, some distance below Stevenson, Alabama, September 2d, and had been in the saddle continuously for twenty days. The horses were much jaded and had great need of shoeing and rest. The troopers were worn out, uniforms, arms and equipments required repairs and renovating.

We had not seen our wagon train for a month, and the officers, not having a change of clothing during the campaign, were neither comfortable nor presentable.

It was hoped that we would at least get a few days rest, but we were doomed to disappointment, for in two days we were destined to start on another hard campaign, which, up to that time, had not had a parallel in the annals of the cavalry service of that army.

The division was composed of nine regiments of cavalry and one battery of artillery.

FIRST BRIGADE.

Commanded by Colonel Robert H. G. Minty.

Third Indiana—Lieutenant Colonel Robert Klein.

Fourth Michigan—Major Horace Gray.

Seventh Pennsylvania—Lieutenant Colonel James S. Seibert.

Fourth United States—Captain James B. McIntyre.

Chicago Board of Trade Battery (one section)—Captain James H. Stokes.

SECOND BRIGADE.

Colonel Eli Long commanding.

First Ohio Cavalry—Major Thomas J. Patton.

Third Ohio—Lieutenant Colonel Charles B. Seidel.

Fourth Ohio—Lieutenant Colonel Oliver P. Robie.

Second Kentucky—Colonel Thomas P. Nicholas.

Chicago Board of Trade Battery (one section)—Captain James H. Stokes.

The Second brigade had been handled pretty roughly during the last day's battle of Chickamauga, having lost 136 men out of a total of 900.

Colonel Valentine Cupp, the brave commander of the First Ohio, had been killed and a number of other officers of the brigade had been killed or wounded, among whom was Lieutenants Neff, Cilly and Henry, Fourth Ohio, and Captain Zacharay and Lieutenants Griffith, Ayres, Calder and Brooks of the Second Kentucky.

Major Thomas J. Patton, familiarly called "Rough and Ready Tom," who was never so happy as when in the "mêlée," on the death of Colonel Cupp had succeeded to the command of the First Ohio. In some of the regiments new faces were at the head of companies, squadrons and battalions, for not only had the ranks been decimated, but many officers were "*hors de combat*."

There was many a trooper who longed to see the old officers riding at the head of their commands, but the young leaders commanding had all been tried in the fire of battle and had not been found wanting—all as true as steel.

The first brigade, Second Cavalry Division, commanded by Colonel R. G. Minty, fought on the extreme left during the battle of Chickamauga and were hotly engaged. Colonel

Minty, in his report, states that the loss of the brigade during the campaign was less than one hundred.

The situation was critical, as rations, ammunition and all kinds of supplies were short, and it was a question whether Rosecrans could hold Chattanooga.

The enemy commanded the main part of the river road from Bridgeport to Chattanooga, and all supplies had to be hauled by wagon over a long rough route through the Sequatchie Valley and across Walden's Ridge. Rosecrans himself, a discrete and wily strategist, knew his astute antagonist well and fully realized that Bragg would make a supreme effort to cut off the "cracker line" of the Union Army at any sacrifice.

Rosecrans, anticipating a cavalry raid on his line of supplies, made rapid disposition of his cavalry to meet and frustrate the enemy, should such an expedition be undertaken. General Joseph Wheeler, Commander of General Bragg's cavalry corps, was ordered to equip his command for such an expedition and he rapidly concentrated all his available cavalry, being reinforced by a division of General Forest's command.

General Rosecrans, through General George H. Thomas, who had charge of the secret service of the Army of the Cumberland, was kept informed of these movements of the enemy. To General Ed. McCook, commanding the First Cavalry Division, was assigned the duty of guarding the river below Chattanooga toward Bridgeport.

General Crook, commanding the Second Division, was ordered to patrol and guard the river to the northeast and resist any effort of the enemy to force a crossing, as it was thought the movement would be made by the left flank of our army.

At dawn, September 26th, "boots and saddles" were sounded, and with "five days' rations in their haversacks," the Second Cavalry Division, with blast of bugles and guidons fluttering in the balmy September breeze, left their bivouac near Chattanooga armed and equipped and ready to scout, raid or fight.

On the 28th we arrived at Washington, a little cross-road town about fifty miles from Chattanooga and three miles distant from the Tennessee River. Here General Crook established his headquarters and distributed his command along the river near the many fords that could be easily crossed by cavalry at this season of the year.

The country was very rough near the river with bluffs, hills and ravines, and in many places heavily timbered. The patrol duty was very laborious and difficult, and the fords, thus screened, could be easily crossed by the enemy unobserved during the night time. Wheeler's forces made several feints which were intercepted by our cavalry, but on the night of the 29th they forced a crossing at Cotton Port, three miles from Washington.

This ford was guarded by a battalion of the First Ohio, commanded by Major J. W. Scott, who made a strong resistance, but the enemy opened up with a battery and he was compelled to fall back with a loss of about twenty men, wounded and taken prisoners, including Captain Conn, severely wounded.

The rebels surrounded a picket post of the First Ohio and sent in a flag of truce, demanding their surrender, but instead of surrendering they made a dash through the lines and made their escape.

The battalion in which I commanded a company of the First Ohio was stationed at a ford about three miles north of Cotton Port, where the principal part of Wheeler's command crossed. On hearing the artillery firing the morning of the 30th, we mounted and prepared to resist an attack which was momentarily expected at the ford we were guarding. In a few minutes a staff officer dashed up with orders for the battalion to report at Washington at once.

We moved out at a gallop and in half an hour we arrived at division headquarters. General Crook, surrounded by his staff, was mounted and all was excitement. Crook was giving orders to his brigade commanders, staff officers and orderlies were galloping off on the several roads carrying orders. The artillery was ready for action—companies, battalions and regiments were swinging into line, and horses, as

well as officers and troopers, seemed to imbibe of the general feeling that there was fight in the air. There was a thrill in that hour of preparation and concentration of troops that is indelibly stamped on the memory of every survivor of Crook's cavalry division who rode across the State of Tennessee in pursuit of Wheeler's bold raiders.

As soon as Wheeler's command crossed the river they moved rapidly down the valley toward Chattanooga. Crook concentrated his scattered forces as rapidly as possible and started in pursuit. We only marched about ten miles, passing Smith's Cross Roads on the 30th and bivouacked for the night in a drenching rain which continued until morning.

On the morning of October 1st we took the pass up Raccoon Mountain, reaching the top of the mountain at dusk and bivouacked with rain pouring in torrents all night. Colonel Miller, commanding a brigade of mounted infantry, did not reach the crest of the mountain until the morning of the 2d, and that morning we descended the mountain into the Sequatchie Valley at Pitt's Cross Roads. At this time the enemy had from twelve to fourteen hours the start of Crook's Division. Wheeler had divided forces, a division crossing the Cumberland Mountains by way of Pikeville, while the balance of his command marched down the valley toward Dunlap and, as was afterwards learned, ascended the mountain from that point. Of these movements of the enemy Crook kept well informed through his scouts and prisoners captured.

On the afternoon of the 2d we took Robinson's trace up the Cumberland Mountains and reached the top about midnight. The pass was very difficult, and both men and horses were very much exhausted by the hard night march. We were in the saddle at daybreak and marched rapidly across the mountain, descending late in the evening. Had some skirmishing during the day with the enemy's rear guard, and on descending the mountain struck the enemy in strong force and had some sharp fighting, lasting about two hours, and drove the enemy, which proved to be a brigade of Crew's Texans and Martin's division, about three miles until the dense darkness prevented further pursuit. The loss in

Crook's division was forty-six killed and wounded. Miller's brigade, armed with their Spencer seven shooters, had the advance and bore the brunt of the fight. The roar of their rapid firing guns, with the bright flashes, presented a magnificent scene in the darkness. No doubt the loss of the enemy was heavy, but could not be ascertained. Crook had Crew's brigade completely surrounded with dismounted cavalry and infantry, but darkness coming on our men could not distinguish the enemy from our own forces and were afraid to fire when the enemy commenced breaking through our lines. As our men were under cover and the enemy in the open, if there had been another hour of daylight Crook would have destroyed or captured a large part of Crew's brigade.

Having left Chattanooga September 26th with five days' rations, and this being the seventh day out, our rations were all exhausted. As we halted on the mountain during the day, the men cut down many chestnut trees to get the chestnuts to eat.

The next morning our breakfast consisted of about two little hard sour apples to the man in my own company, and we considered ourselves fortunate at that, as but few troopers in the command got even that much. One of Napoleon's maxims of war was that to get good fighting out of a soldier, good care must be taken of his stomach. In this instance the maxim of the great warrior seems to have been overlooked by our commander, but presume his rations was about the same as the balance of the command. As we had the enemy on the run, with a prospect of a fight every day, this kept the command in buoyant spirits, notwithstanding the short rations.

Looking back after a period of forty-five years has elapsed, it seems almost incredible that soldiers could have stood such service, subsisting on such meager rations, the enemy having stripped the country of provisions as they advanced.

Crook had now driven Wharton's command over two high mountain ranges, but Wheeler, with the balance of his forces under his immediate command, had been having a hot time in the Sequatchie Valley. He had marched rapidly down

the valley and at Anderson's Cross Roads attacked a large wagon train hauling supplies for Rosecran's Army at Chattanooga. There were from 800 to 1,000 wagons and ambulances in the train. The light train guard of cavalry and infantry put up a good fight but were driven from the train into the woods by the overwhelming numbers of the enemy, but not until they had unhorsed a large number of Wheeler's troopers. Wheeler's men commenced selecting out the best teams and wagons, then proceeded to kill many of the mules, burning the other wagons with supplies. When it was learned that Wheeler's forces had crossed the Tennessee and were marching down the Sequatchie Valley, anticipating his designs on the supply train, Colonel Ed McCook, commanding the First Cavalry Division, guarding the river south of Chattanooga, was ordered to move rapidly with his command up the valley to meet the enemy. As has already been stated, it had been raining heavily and the roads were almost impassible for artillery in many places, so that his movements were very much impeded.

On October 2d, he struck Wheeler's command at Anderson's Cross Roads, where they were busily engaged in plundering the train, killing mules and burning wagons. The First Wisconsin and Second Indiana Cavalry charged into the enemy with the saber and drove them in much confusion from the burning train, capturing many prisoners and releasing some of our prisoners. Wheeler rallied his men and made an effort to stem the tide, but McCook's men again charged his lines with saber, driving his forces rapidly across the Sequatchie Valley all the afternoon, although he made several ineffectual efforts to hold the Union forces in check. Darkness approaching, McCook waited for the balance of the division to join him under Mitchell, commander of the cavalry corps.

During the night of the 2d Wheeler pushed on rapidly, crossing the Cumberland Mountains in the direction of McMinnville. The sudden and impetuous attack of McCook so demoralized the Confederate cavalry that they were compelled to abandon much of their booty. Many of the mules and wagons with supplies were saved and a number of drivers and

quartermaster employees came into our lines mounted on mules which they had cut loose from the wagons, riding bare-back, minus hats and coats, and in rather a dilapidated condition. They gave us information of the destruction of the wagon train. When in the valley near Pikeville, the day of the attack on the train, we had heard the explosion of the shells and supposed at the time that a battle was in progress at Chattanooga.

On the morning after the night fight at the foot of the Cumberland Mountains Crook's men were in the saddle at daybreak and moved on toward McMinnville, striking the rear guard of the enemy about noon, charged them three or four miles, capturing many prisoners, and recapturing some of our men. Captain Wm. Scott and Lieutenant A. D. Lieb of the First Ohio had both been taken prisoners while carrying orders for the concentration of Crook's division the day Wheeler crossed the river.

Captain Scott made his escape during the night fight on the evening of the 3d and came into our lines. He had been under guard by Crew's Texans and the captain in command became so enraged at Scott's language, berating the Confederates and their cause in language more emphatic than polite, compelled Scott to walk and keep up with the rapid marching cavalry column under penalty of death.

On the morning of the 4th Scott, who was one of the bravest little Irish officers in the command, secured a horse and moved out with the advance, swearing dire revenge. In the first charge among the prisoners captured was this same Texan captain. He was mounted on a large mule and was a fine looking officer. Scott at once took him in charge, made him dismount, and as we passed them Scott was compelling him to empty a large pair of saddlebags, fastened to the cantel of his saddle, filled with blue uniforms taken from the supply train in the valley.

The brave Texan looked very much chagrined while the little Irishman was looking on, taking a grim satisfaction in the proceedings. It is safe to say that the Texan had to take his turn at hoofing it that day. This is but a little incident showing what changes are wrought in the fortunes of war.

We drove the enemy's rear guard rapidly through McMinnville and found that the garrison, composed of about 500 new Tennessee recruits, commanded by Major Patterson, had surrendered with but little resistance. Major Patterson claimed that he lost about forty men, killed, wounded and missing. Wheeler captured many horses and mules and destroyed a large amount of government stores, a train of cars, cut the telegraph wires, destroyed a railroad bridge over Hickory Creek, sacked the town, then pushed on toward Murfreesboro.

As this was Sunday, it disturbed the good citizens of this quiet mountain town in their devotions, but as there were many Union citizens in the town and surrounding country, they hailed with delight the advance of Crook's men. General Crook states in his report that he learned from reliable and intelligent Union men that Wheeler had about 6,000 men in his command, as his full force was concentrated when he descended the Cumberland Mountains. Crook's command numbered at that time about 3,500 effective men.

We struck the enemy's rear guard about three miles from McMinnville and had a sharp skirmish.

The Second Brigade having the advance, Colonel Long, the brigade commander, at the head of the Second Kentucky, made a saber charge, driving the rear guard pell mell four or five miles, capturing many prisoners. The rear guard was so hard pressed that a large force of the enemy halted and formed a line of battle. Crook attacked with dismounted infantry and drove them steadily back. Stokes' battery was also brought into action and a very pretty and exciting artillery duel was kept up for some time. Captain Stokes was particularly distinguished in this fight and soon knocked the Confederate battery out of action. The enemy left the field hurriedly and, darkness coming on, we bivouacked on the field for the night. As we did not have any rations, we laid down supperless, our heads against the roots of pine or cedar trees and slept as soundly from sheer exhaustion as if our heads had been on downy pillows, perchance to dream of the

feast of chestnuts we had enjoyed the day before, not forgetting the luscious sour apples on which we breakfasted. The horses fared better than the men, as there was abundance of corn in the coves and valleys well ripened and more than the horses of Wheeler's command could consume, as we were driving them so rapidly, but all kinds of provisions in their line of march was confiscated. To have forage for his horse was a great comfort to the good cavalryman, as he would fight for forage for his horse and go hungry without any grumbling in the excitement of a raid.

The morning of the fifth we mounted in "hot haste" and again took the enemy's trail, as they had escaped from us during the night.

Crook getting information through his scouts that it was Wheeler's intention to capture Murfreesboro, then destroy the railroad toward Nashville, decided to make a flank movement to thwart Wheeler's plans; thereupon Crook made a rapid move to the right from Readyville, thus throwing his forces between the enemy and Nashville, compelling him to move in a southwesterly direction toward Shelbyville.

We reached Murfreesboro about 4 o'clock, having marched upward of forty miles. The two regiments of infantry forming the garrison, with all citizens of the town, were in Fortress Rosecrans, which had been constructed for the protection of the large amount of rations stored.

The garrison was well prepared for the expected attack by Wheeler's forces, and had the attack been made he would undoubtedly have been repulsed with great slaughter. The citizens were greatly alarmed and hailed the advance of Crook's command very cordially. Wheeler's men, under Martin, had made a stubborn resistance all day, forming dismounted along the edge of woods, streams and hills wherever there seemed to be any kind of screen or protection from which they could resist Crook's charging troops.

After entering Murfreesboro, it was found that some of the enemy was hovering around the outskirts of the town toward Shelbyville, taking observations, but evidently afraid to make an attack. A little dash from one of our regiments sent them scurrying off on the gallop, and we were glad to

halt for a much needed rest. The garrison was so overjoyed that they were willing to serve the men of Crook's command in every possible way, and hundreds of rations were issued without requisitions. In fact, the men entered the commissary department and carried away hams, shoulders, bacon, hard-tack and whatever they cared to take while the guards looked on smiling, offering no objections. The officers were directed to make the best disposition possible for the comfort of their men, and the second brigade camped in the town. Fires were soon blazing out on the commons and in some instances even in the streets. We had not had any rations for five days, and we were about famished. The men were cautioned not to eat too fast or too much. But little regard was paid to this precaution, as fires were burning and the men were cooking all night. Forage was issued, horses were unsaddled, and many lay down on the streets among their riders. General Crook gave imperative orders that private property must not be in any manner disturbed, and that he would hold the officers strictly accountable for any violation of the order. There was no necessity for a very vigilant picket during the night, as the enemy was as tired as our own men and were not anxious for any more fighting, but were more anxious to get away from Crook's command which was pushing them so hard.

The next morning, the 6th, we drew some clothing from the post quartermaster for the men who were most needy, and with well-filled haversacks marched about ten miles toward Shelbyville, but did not strike the enemy, and here General Mitchell joined Crook with the First Cavalry Division. That afternoon we lay in bivouac while Crook's scouts were busy locating the enemy.

Although we captured many horses from the enemy, we did not secure a sufficient number to mount our own men whose horses had given out and had to be abandoned. When we left Murfreesboro about 500 of Crook's men were left there dismounted. The blacksmiths were busy on the afternoon of the 6th shoeing horses, as there had been but little time for shoeing since the 1st, and all the blacksmiths could do was to nail the shoes on without fitting.

The morning of the 7th we marched into Shelbyville, a beautiful little town situated on the banks of Duck River. There was a strong Union element in the town and Colonel Galbrath, who commanded a Union cavalry regiment of Tennesseeans, resided there. The Union forces had been in possession of that section of the State for so many months that business had been resumed by the merchants. It seemed that Wheeler's men took great delight in destroying and plundering, had stripped the business houses of everything and had the citizens terrorized when he entered the place. The prisoners captured that day were loaded down with bolts of dress goods, muslins, ribbons and even many ladies' bonnets which they had to abandon with many regrets.

The divisions of Lee and Roddy had been ordered by Bragg to join Wheeler, coming by way of Guntersville and New Market, Alabama, but they failed to arrive at Shelbyville as Wheeler had expected. Martin's division captured a small garrison at Watrace, burning two or three bridges, and had joined Wheeler's main force at Shelbyville. This was the situation on the morning of the 7th when we arrived.

Crook's division moved out on the Farmington road, while McCook moved on the Unionville road, on the right bank of Duck River. Crook learning through his scouts that Davidson's Division was in line only a few miles from Shelbyville, with his usual energy and eagerness for a fight, ordered the Second division forward rapidly, and about three miles out struck Davidson's division. The mounted infantry having the advance, moved to the attack mounted, opening a sharp fire, and the enemy fell back into a wood. The infantry then dismounted and delivered several volleys, driving the enemy in considerable confusion. The Second Brigade was ordered to the front and, headed by Colonel Long, made a saber charge, driving the enemy three miles, killing and wounding many of them, and capturing a large number of prisoners. We then halted for a short time, waiting for the troopers, who had dropped behind by reason of jaded horses, to close up, also to allow the guard to come up with the prisoners and let our horses blow. We halted perhaps twenty to thirty minutes, and during that time our men gathered sev-

enty of the enemy's wounded from the woods, some of whom had saber cuts, and laid them down on a little green grass plot shaded by trees on one side. Here our surgeons dressed their wounds and worked earnestly and rapidly until we were again ordered forward. The enemy soon made another stand in a cedar thicket and again the infantry dismounted, made the attack, routing them, and the Second Brigade followed up with another saber charge, driving them back rapidly in every attack. This mode of attack was kept up for fifteen miles, and during all of that distance we were scarcely out of sight of dead and wounded men, and many wounded and abandoned horses were scattered along the roadside. There was plenty of hard fighting, but to Crook's men it was one continuous forward movement, for the enemy was on the run the greater part of the time, although they made several desperate efforts to hold Crook's now wild and impetuous rough riders in check. A short distance from Farmington, Wheeler, having concentrated his whole command in a strong position in a dense cedar thicket, prepared to make a last desperate defense with his men largely dismounted. Crook at once made the attack with the infantry, as the cavalry could not operate in the thickets, except dismounted. He, therefore, decided to use the same tactics he had been practicing all day. The enemy opened with a battery at a distance of 400 yards with a raking fire of grape and canister, then charged from the front and on both flanks, but were repulsed. The fire from their battery was terrific, the grape, canister and shells tearing through the thick brush sounded like a great tornado.

Captain Stokes' battery was brought into action at this critical time, and before he could get his guns into position the enemy turned their battery fire against him, killing and wounding several men and horses. Captain Stokes took charge of one of his guns, sighting the piece himself, and about the second or third shot knocked one of the enemy's guns out of action by blowing up a caisson; Crook's infantry dismounted, raised the Yankee Yell and charged, breaking through the enemy's lines, driving them in great confusion, capturing the battery and a large number of prisoners.

Long's brigade was then ordered to charge, and, galloping to the front through the lines, passed the captured battery and prisoners, but a short distance from the village found the roads heavily barricaded, manned by dismounted cavalry.

It was now growing quite dark and we were ordered to dismount, but before we could make the attack on the barricades, Colonel Long was ordered to halt and abandon the pursuit.

As Colonel Minty failed to reach the field with the First Brigade until after the fighting had ceased, Crook had but Long's brigade and a brigade of mounted infantry. As Crook states in his report, he had but 1,500 effective men. No other troops had been in action during the day, and it had been almost one continuous fight from Shelbyville to Farmington, a distance of fifteen miles. The prisoners were rounded up and surrounded by a guard. The captured battery and caissons, to which were attached mules instead of horses, was parked in the village square. Then we went into bivouac, discussed the victories of the day over our coffee and hard-tack for a short time, cared for the wounded, wrapped our blankets about us, for the night was cool, and were soon in deep slumber. It was a "red letter day" for Crook's command. It was "up and at them, boys," all day. No time to think of thirst or hunger. No time to think of being tired and exhausted. It was "mount and dismount," then on to find the enemy and hit him another hard blow. We kept no count of time, the hours flew like minutes; although the physical strain had been almost to the limit of endurance, it seemed that darkness came all too soon. A few saddles had been emptied and their riders were not present at "mess" that evening, but had fallen, "booted and spurred," with drawn sabers and faces to the foe.

A few years ago I met in the city of Columbus, Ohio, a Rev. Montgomery, president of a Presbyterian College. In the course of conversation he mentioned that he was born in the State of Tennessee. On inquiry he stated that his father lived near Farmington during the Civil War, and I then mentioned the battle that occurred at that village in the fall of 1863. He said he had heard his father relate the

story of the battle many times. They resided but three miles from Farmington and heard distinctly the rattle of musketry and roar of artillery. His father visited the battle ground early the next morning and assisted in caring for the wounded and burying the dead. His father, in telling of the scenes, spoke of the dead soldiers lying on the field with upturned faces, the drops of dew on their brows glistening in the bright October sun. He said this made such a deep impression upon his young mind that he always associated this incident with every story of battle or battlefield.

Among the killed was Colonel Monroe of the One Hundred and Twenty-third Illinois Infantry, a brave and skillful officer who had rendered most efficient service throughout the campaign. Crook's loss in this fight was forty-one killed and wounded.

McCook's division, which had taken the road to the right, did not find any enemy and did not have any fighting during the day.

The next morning, the 8th, it did not take but one note of the reveille to bring us to our feet. At 4 o'clock, and after a hasty cup of coffee and a hard-tack, with little grooming of horses, we were in the saddle. Crook claimed in his report, that if the balance of the command had been on time, as he expected, he would have thrown them on the flanks and would have "captured a large portion of Wheeler's command with all of his artillery and transportation." Crook made the fight with this small force against Wheeler's whole command, and not only captured a battery, but nearly half as many prisoners as he had soldiers in action. Crook had sent out his scouts during the night in all directions to ascertain the movements of the enemy, and learned through them that a large portion of the enemy had retreated on the Pulaski Road. We marched at once on the Pulaski Road, passing through the towns of Lewisburg and Connellsville.

All day we had evidences of the complete rout of the enemy in abandoned baggage, broken wagons, broken down horses, with now and then a few stragglers picked up. All showing the complete demoralization of Wheeler's whole command.

Many of his wounded men were left at farm houses along the road, while squads were deserting his columns, scattering over the country in an effort to escape. We arrived at Pulaski about sundown and just in time to see their rear guard galloping out of town, only firing a few shots.

The First Ohio had the advance, and we galloped through the town and went into bivouac about a mile from the village, on the Lambs Ferry Road. My own company was detailed for picket and were posted in a dense woods, and did not close an eye that night after our hard day's march. Fearing that the men, being so exhausted, might fall asleep, I ordered them to stretch a picket rope across the narrow road fifty yards in advance of the videttes, so that in the event the enemy should make a dash on the pickets, the rope would give them a little check, but the night passed quietly without any demonstrations on the outposts. The advance of Crook's column passed the outpost early on the morning of the 9th, and moved rapidly out on the Lambs Ferry Road, leading to the Tennessee River. We did not strike the enemy until we reached Sugar Creek, and here we found a brigade, posted in a strong position to delay the advance until Wheeler's main force would be safely across the Tennessee. But we gave the brigade a surprise they were little expecting, for instead of fighting them at long range, Crook ordered a saber charge by his advance brigade, and Lieutenant Colonel Patrick, commanding the Fifth Iowa Cavalry, led a most gallant charge with his regiment, killing ten, wounding nine and capturing upward of seventy prisoners, utterly scattering and demoralizing the whole brigade. From that time on it was simply a race for the river. For the last six or seven miles we were on the gallop and gathered up many stragglers whose horses had given out, many others of the enemy, who could not keep up with the column, fled to the woods and mountains. No further resistance was offered and when we reached the river we found the enemy had crossed at a ford just above where Elk River enters the Tennessee. We went into camp at Rogersville, four miles from the Tennessee, on the evening of the 9th, after a continuous campaign in the saddle, marching and fighting since

the morning of September 30th, or ten days in all, and had driven Wheeler's forces clear across the State of Tennessee. Quoting from my diary, I find the following entry on the evening of the 9th: "We hope to get a few days' much needed rest, as both horses and men are much jaded. Hundreds of campfires are burning to-night, the camp is ringing with shout and song, the boys all feeling happy over the success of the campaign." This was the hardest continuous ten days' riding and fighting in which the Second Cavalry Division participated during the war, and the results were of the most satisfactory.

We had struck the Confederate cavalry such a hard blow, under their most able and dashing leader, that Rosecrans in Chattanooga had no fears that his communication would be interrupted by another cavalry raid, and he felt secure. We remained in camp at Rogersville on the 10th, and on the 11th broke camp and marched by easy stages toward Chattanooga, reaching Paint Rock, Alabama, on the 19th, went into camp for a few days' rest.

SUMMING UP LOSSES AND RESULTS.

The best evidence we have is from the reports of the different commanders at the time.

Crook stated in his report that his total loss during the raid was, in killed and wounded, 111. Referring to the loss of the enemy, he stated that, "at the battle of Farmington the enemy left 86 of their dead and 137 wounded on the field, while many of their wounded were taken up by citizens." He gives the total loss of the enemy during the raid at upward of 2,000 in killed, wounded and prisoners, and some of the officers in their reports estimated the loss at from 2,500 to 3,000. In closing his report he pays a high tribute to the bravery and endurance of the officers and men of his command, as follows: "Notwithstanding the severe hardships and fatigue under which the men suffered, having but three days' rations in twenty days, many of them nearly naked and several times exposed to cold, drenching rain, yet they never complained, but were always cheerful and ready for duty."

Extract from report of General R. B. Mitchell, commanding First Cavalry Corps, Decherd, Tenn., October 20, 1863: "I think the record of cavalry service during the entire war can not show a more severe campaign than the one my command has just closed. There was scarcely an hour during the whole pursuit that the horses were unsaddled; for days and nights together the men were in their saddles, almost constantly on the march, and some days making as high as fifty-three and fifty-seven miles. Take again into consideration the fact that a greater part of the time the troops were out of rations, and our hasty movements giving them little or no time to forage on the country; that the nights were cold, the men without overcoats; I think the campaign challenges comparison with any service performed during the war. Yet, with all the severe duty and hardships necessarily devolving upon the men, they made not a murmur, but, on the contrary, seemed only anxious to do everything in their power to accomplish the object for which they had started, viz.: to overtake and, if possible, destroy the enemy's cavalry, and whenever we did succeed in reaching them they proved that they were ready and competent to do this.

"The troops in the command did all that it was possible for troops to do to second the endeavors of their commanders, and when I thank them, as I do, for the fatigue and gallant fighting which they did, I do it in all earnestness and sincerity, realizing their labors and sufferings."

General Mitchell gives the total losses in the First Cavalry Corps at 120. Of this number there were 110 in Crook's division, nine in the First Division, and one at headquarters. While the men of McCook's division were just as anxious to get into a fight as were Crook's men, yet they were not so fortunate in finding the enemy.

Extract from report of General D. S. Stanley, Chief of Cavalry:

"At Farmington Crook captured five pieces of artillery and 700 prisoners, and the enemy's loss will amount to 2,000. * * * We have marched in six days 247 miles. We captured and burned $52,000 worth of cotton belonging to the Confederate States Army."

CONGRATULATORY ORDER OF MAJOR GENERAL WM. ROSECRANS, U. S. ARMY, COMMANDING DEPARTMENT OF THE CUMBERLAND.

"The brilliant pursuit of the enemy's cavalry under Wheeler by the cavalry command of this army, especially Crook's division and Stoke's Chicago Board of Trade Battery, which were foremost in the fight, deserve honorable mention. The general commanding thanks the cavalry, and particularly General Crook, with the officers and soldiers of his division, and of Stokes' battery, for their valuable services in this pursuit of the enemy, which resulted in driving him in confusion across the Tennessee River. He compliments them for inaugurating the new practice of coming to close quarters without delay." By command of Major General Rosecrans, H. M. Cist, Lieutenant and Acting Assistant Adjutant General.

Extract from report of General George H. Thomas:

"This pursuit is unsurpassed for its energy and bravery and endurance of the officers and men engaged in it, and prevented the execution of an extensive plan of destruction of our communications, plunder and murder throughout Middle Tennessee and Northern Alabama, in which Roddy and Lee were to coöperate with Wheeler." Wheeler had planned this raid on a grand scale and the results were no doubt very disappointing to him as well as to Bragg, the commander of the Confederate army. Had he succeeded in repelling Crook and establishing his command on the railroad between Murfreesboro and Nashville, destroying the bridges and road between those points as well as toward Chattanooga, Rosecrans' army would have been in a critical situation. But in this he failed as he found in Crook and Long, both Indian fighters of the Regular Army, "foemen worthy of his steel," and they foiled him at every move on the board with persistent energy, dash and fight. Had he been confronted with commanders that could not have anticipated his every plan and move, as did Crook, he might have succeeded, but Crook was master of the situation and had the full confidence of his officers and men, and at Farmington, with less than half the men that Wheeler had in his command, swept him from the field.

All that Wheeler had to offset his great loss in men was the destruction of a few hundred wagons, some government supplies, a few small railroad bridges, which interrupted communication but for a few days and did not disturb our army in the least.

Roddy crossed the Tennessee and all the damage that he did was to fill up a tunnel near New Market. General Mitchell, having received information of this movement, made a rapid march from Huntsville and struck Roddy's command on the evening of the 12th of October, and after a sharp fight, in a heavy rain storm, darkness coming on, Roddy succeeded in crossing the Tennessee. General Wheeler censured his subordinate commanders severely for the lack of discipline and coöperation, to which he claimed his defeat was largely due. The story of the defeat and demoralization of his command is most graphically told by Col. George B. Hodges, who commanded a Confederate brigade. He describes the running fight between Shelbyville and Farmington as follows in his report:

"Within thirty minutes a courier reached me from Colonel Clay, asking for re-inforcements, being ordered by General Davidson to lead them and to take command of the rear in person. I countermarched with my brigade and was proceeding at a gallop with my command back, when, ahead of me, I encountered the whole of Scott's brigade, crowded in frightful and horrible confusion, wild and frantic with panic, choking the entire road and bearing down upon me at racing speed. It was too late to clear the way; they rode over my command like madmen, some of them stopping only, as I am informed, when they reached the Tennessee. I was ridden over and my horse knocked down, but succeeded in extricating myself, and Captain Larmer's company, Twenty-seventh Virginia Battery, which I threw into position behind a fence running at right angles with the road, and opened upon the enemy, who were fiercely charging the rear of the panic-stricken crowd. This company unhorsed and killed some thirty of the enemy who were in the leading files of the charging column, but was itself badly cut up, and its gallant captain sabered out of his saddle. The enemy were momentarily checked. I seized the opportunity to gallop ahead of the fugitives and extricate my own brigade from the disorderly mob; this I formed line with, and in some order received the now advancing enemy. He came on in heavy force and with determined obstinacy. General Davidson sent me word he was endeavoring to form a fresh line with Scott's brigade to support and instructed me to use my own discretion in the rear. The enemy, finding himself determinedly resisted, brought up three pieces of artillery and commenced shelling my line. I could only reply with two mountain howitzers and was compelled to fall back, forming fresh lines at intervals of about a quarter of a mile. Each of these he desperately charged, and upon being repulsed commenced extending his flanks, which his numerical superiority enabled him to do, compelling me to form fresh lines in the rear and withdraw those he was enveloping.

"For five hours and a half, over seven miles of country, the unequal contest continued. My gallant brigade was cut to pieces and slaughtered. I had informed the officers and men that the sacrifice of their lives was necessary, and they manfully made the sacrifice.

"General Davidson could do nothing with the fugitives. I received no support, and at 3 o'clock, when with my bleeding and almost annihilated command I had formed my last line, the welcome order came from General Wheeler to fall back, as he was in position a quarter of a mile in rear with reinforcements. I passed at 4 o'clock through his lines into Farmington, but only to resume the retreat when, at 5, the division he had placed in position was charged and broken by the enemy. Though much of my brigade with its cannon, reached and crossed the Tennessee River at Mussel Shoals on October 9, one-third of my brigade had been destroyed. I have lost many of my best, gallant and efficient officers."

PROPER TRAINING OF CAVALRY FOR WAR.

A LECTURE BY MAJOR GENERAL BUXBAUM.*

IN battle there is but *one* task the cavalry has to perform. "The enemy in front is the obstacle which must be ridden down." The arm enabling the cavalry to gain the victory is never the lance or the saber, but the horse pure and simple; it, however, will be effective only if it strikes the enemy with the full force of the irresistible charge; for only then will the enemy be thrown and then only will the work of the saber commence. Nothing can withstand the charge of a compact line of horses, as anyone will concede who has observed the havoc wrought by a runaway horse striking a crowd of people.

The above is our well established theory, but what about practice? Supposing the enemy is of the same opinion as we are, then both opponents would be destroyed like two locomotives colliding, but military history furnishes no example of such a fact or happening. It records that in nearly all cavalry charges there was more or less running hither and thither; in short, the following appears to have been the practice: One part faces about before final contact; or both parties, at the decisive moment, entirely lose sight of the destructive quality of a charging mass of horses, parry, and try to defeat one another without resorting to the charge. On the whole, the charge is a moment of utter confusion; no one knows exactly what is happening; it is a question also whether the horses do not involuntarily decrease their speed and power at the decisive moment in spite of rein and spur and thereby neutralize the force of contact. And who can say with absolute certainty that he does not involuntarily pull on the reins at the moment when the two opposing forces are about to come into contact? Anyone who has not actually participated in a charge knows as little about it as a color-blind man knows about color; the many older

*Translated from "*Kavalleristische Monatshefte*" for December, 1908, by Sergeant Harry Bell, Service Schools Detachment.

officers whom I asked for information on the subject were not able to help me to gain a clear picture of it, possibly because in the very few seconds required for a charge there is no time for consideration, no time for events to impress themselves distinctly on our mind. A well known, high-ranking cavalry officer, who is looked upon as an authority on all matters pertaining to the cavalry, says: "Were it possible to cut all reins and press in all spurs automatically at the very moment we give the command 'charge' then an attack would always succeed, but only then." This expression seems to indicate that the rider rather retards than promotes success at the critical moment, even if involuntarily. Be that as it may, one thing must never be lost sight of, "the obstacle in front *must* be ridden down." This maxim should be the basis of our drilling and leading cavalry; it should become the second nature of all of our cavalry officers and troopers.

We can do nothing against unshaken infantry; nowadays the massed fire of the rapid-fire small arms would in a few moments destroy us; in former times also success against unshaken infantry was the merest exception and only two cases are furnished by military history where cavalry was victorious in that respect—Zorndorf and Fére Champenoise. From this it does not follow, however, that the battle activity of cavalry has been decreased, for now as then defeated, demoralized infantry and infantry without ammunition is a fair prey for cavalry. In the battles of the future there will undoubtedly arrive moments frequently which, if correctly judged and timely utilized, will assure brilliant successes for the cavalry.

At the present day the requirements made on the soldier's nerves are materially increased, which fact we must never lose sight of. This is doubly true in case of the trooper, because two nervous systems come in consideration here; the man can, even if his nerves give out, remain master of the situation through sheer will power, but the case is far different with the horse. To illustrate what a powerful factor will power is, we will repeat a well known anecdote: A young officer when chided during an engagement by a superior officer for

exhibiting fear, for being deadly pale and trembling, replied: "If you were as much afraid as I am you would have long since run away."

We can, of course, not expect any will power in the horse; it has an especial nervous system and every one of us has often lost his temper over the fear displayed by it. What horseman can say from his own experience that he has such control over his horse that it cannot jump sideways if scared at something? Is there a cavalry officer who can truthfully state that his horse cannot turn about against his (the rider's) will? At the very moment of danger, even if but imaginary, fear takes such complete possession of the horse that confidence in its rider is reduced to the minimum and it will do everything in its power to do that which fear inspires it to do. A horse which has once lost its head will be unmanageable for a long time. Once I possessed a well-broken English mare, which, while riding one day leisurely along the high road with a loose rein, gave a sudden start, turned at right angles off the road, up a steep embankment, and ran away as fast as she could. When I finally succeeded in checking her mad career, the beating of her heart was audible and could be plainty *felt*. No reason for her running away seemed then apparent; there was but an ox team on the road ahead of us; but I found out later that the mare was mortally afraid of any horned animal, probably because she had once been injured or gored by one. It took me a long time to break the mare of its fear of horned animals, and even after I had succeeded in that I had always to be on my guard when passing or approaching one of them. It is undoubtedly true that a horse can make a hero or a coward of its rider, according to circumstances.

Were a horse possessed of human intelligence, we could teach it easily that it is far better and less dangerous to go straight at our objective. We could prove it by military history that that body of cavalry which turned tail in front of infantry or chased past it always suffered the largest losses, while it sustained but comparatively small losses when charging with energy into the mass. But as this is impossible, we have but one means left; that is, to instruct the horse by

gradually increasing tasks to overcome its fear and to do all manner of things whereby its nerves will be strengthened; and this is a branch of horse training to which more of our attention ought to be given. Exercises tending to accomplish this must be carefully planned out and executed with intelligence and energy. Much can be done and accomplished in this direction. And it is about time that we would do away with old time-worn usages which but serve to teach the cavalry that which it *shall not* do in war.

The coming to a halt after a charge, which is the common rule in our peace maneuvers, seems to us of doubtful value. That it is entirely wrong we will illustrate by an example: Suppose a body of cavalry, the officers, men and horses of which have never yet taken a ditch or an obstruction, is daily drilled to gallop up to ditches or obstacles, to stop there, face about and retire—as is a common practice. What would be the consequence if some day we would require it to jump that ditch or obstatcle? It seems unfortunately difficult to rectify our practice in this matter, as in maneuvers we cannot fire with ball cartridges, neither can we actually charge. We ought therefore plan a means to help us out. One means might be the establishment of a hard and fast rule to sound the "trot" when executing a charge, when the lances would be laid in rest, and immediately after the sounding of "trot" to sound the "deploy" and trot or gallop through lines of skirmishers to the farthest detachment or line in rear and to take up with them the individual combat or mêlée. There would not be as much danger of accidents in this as some may suppose; the men ought to be taught and ought to learn to keep their wits about them and their eyes open, and the watchfulness of the officers will do the rest. This will bring in its wake the advantage, which is by no means valued highly enough in our service, of the trooper being taught to keep full control over his horse at all times and to guide it according to his and not the horse's will. Combine with this always "forward," never "to the rear," and in this lies our only salvation.

In time of peace we ought to strive to learn and practice carefully everything which war should teach us, but cannot

because at the present day wars are far too short for that. It may be quite correct to say that four weeks' war experiences are more valuable than four years' peace experiences, but it is also true that war does not create the cavalryman, it merely finishes the well-instructed trooper's education. War will never make a proficient cavalry out of an indifferent mass of poor horsemen and poorly trained horses; there is no branch of the service which requires better schooling than the cavalry. Frederick the Great's cavalry proves this. Frederick the Great said, in his "Histoire de mon Temps": "The longer the war continues the better my cavalry becomes and the poorer the infantry." His fine old infantry lay in front of Kolin and Prague; his ranks were depleted, because the prisoners taken by the Austrians were not allowed to be exchanged by his far seeing enemy, the Empress-Queen, and he had to content himself with trash to replace his losses in infantry. That his cavalry became better and better is easy of explanation. Vicissitudes of and hardships in war soon cause all bad or indifferent material and personnel to break down completely; every trooper soon learns that his life depends on the power of his horse and will consequently look better after his mount than after himself; every trooper, if allowed, strives to capture from the enemy a better horse than his own mount, and consequently the material does not deteriorate in war. But no man who knows anything about these matters will believe that mere orders, even if issued by the Great Frederick himself in the midst of the war, where there could be no thought of drill or education, caused such a change with a short year that already at Chotusitz a very respectable cavalry force appeared and that it gained, within four years, at Hohenfriedberg, its world-wide renown if it did not have the germ of excellence and ability in its makeup long before the outbreak of the war. It may be true that in 1740 the cavalry was a very clumsy body, but in any case it was well instructed in horsemanship and had good mounts, else it would never have turned out to be the best cavalry in existence in such short a time. Of course it utilized everything to the best advan

tage and was imbued with the proper cavalry spirit and still stands even now as the highest model of our arm.

The land lies different with us nowadays. To-day everything is carried out hurriedly; we cannot count on completing our education in front of the enemy, and we would do well to strive with might and main during time of peace for proficiency, so that in time of war the very first attack will turn out in our favor.

There is no doubt that every cavalry officer devoutly hopes that the powers may be soon convinced that the cavalry is the very last branch of the service which can do without proper instruction in time of peace—then we might hope that it will receive the same consideration as the other arms. Only a small portion of the sum expended for annual target practice of a single artillery regiment would suffice to enable a regiment of cavalry to acquire useful and proper knowledge for contingencies in war, a requirement we are very deficient in. For the proper instruction of cavalry we need:

1. Annually, after the harvest, each and every cavalry regiment ought to have a three days' maneuver in the country, away from its station. The first day should be utilized in terrain rides in columns of platoons, troops, squadrons, and in double columns; the second and third days' evolutions should be had in the terrain in accordance with a certain fixed problem, this to wind up with an attack and charge against certain designated objects, to be ridden in the same manner as would be the case in actual war.

2. Immediately before the annual fall maneuvers one captain, seven subalterns and a number of the best non-commissioned officers and men (fifteen from each troop), a total of about eight officers and seventy-five troopers per regiment, should be detailed to practice under command of the regimental commander for about one week in a terrain at least forty miles from the garrison, reconnaissance and message service duties, based on a certain problem, to wind up with an endurance ride. These exercises should be directed by the commanding officer in such manner that all participants would undergo actual war conditions day and night,

and would, so to speak, live out all manner of situations which might arise for a cavalryman. A captain would have a grand opportunity in this to practice the not very easy function of being the leader of a modern reconnaissance squadron which, to tell the truth, not many appear to be fitted for without prior schooling. A further object would be to instruct the subalterns in the correct leading of reconnaissance squads and patrols, and this scheme would make specialists for field service out of the non-commissioned officers and troopers—that is, out of those who show their adeptness for and proficiency in such work. It goes without saying that the horses, upon return to the garrison, must be in good condition.

It would be of inestimable value to give the non-commissioned officers an opportunity to gallop across country. In winter time they cannot do so and in summer there seems no time for it. If such exercises could be had, they would be enabled to let out their horses and feel the long stretches the horse takes. As they are to instruct the troopers under them and to teach horsemanship to others, such rides under the direction of the regimental commander or other suitable officer would appear very advantageous and almost indispensable.

The practice obtaining in some regiments to allow a number of non-commissioned officers to follow in a second line behind the officers during a chase, has nothing but disadvantages. General Count Schwerin hits the nail on the head in his saying: "But behind there it is frightful." (Denn da hinten aber ist's fürchterlich.)

By carrying out the above suggestions we would take a step forward. Let us never lose sight of the fact: "Only what we practice in time of peace can we take advantage of in time of war."

PACK OR WHEELED MOUNTS FOR CAVALRY MACHINE-GUN DETACHMENTS.*

By Captain HENRY VICTORIN, Twelfth Regiment of Dragoons, Commandant of the Cavalry Machine-Gun Detachment No. 2, Imperial Austro-Hungarian Army.

THE many advantages claimed for the cavalry machine guns with pack mounts are undeniable. But the wheeled-mount detachments also have advantages, and their rejection should be well considered.

Fortified by my experience as commandant of the Cavalry Machine-Gun Detachment No. 2 (four Maxim guns with wheeled equipment), I shall now devote a few moments to a closer observation of the so-called inferiority of the wheeled equipment of such detachments.

First Lieutenant Franz Binder, Imperial Infantry Regiment No. 38, in his pamphlet "The Machine Gun," on page 61, makes the following statement relative to the wheeled detachments: "This too great equipment of 3 officers, 59 men, 73 horses and 6 vehicles (therefore not much less than a six-gun horse battery) is a disadvantage, as it has only a fire effect of one company of infantry at war strength." Opposed to this statement I contend that the strength of the wheeled machine-gun detachments at this time numbers but half the strength of a horse battery. The fire effect of the wheeled detachment is decidedly greater than as stated.

In his article in the July number of this journal (1907) Lieutenant Hayck-Aliprandi, on duty with the Cavalry Machine-Gun Detachment No. 2, has correctly calculated the amount of ammunition that can be carried with a six-gun wheeled detachment to 114,000 cartridges. But even the four-gun detachments have a capacity for 100,000 cartridges without exceeding the draft load per horse (300 kilograms) when the surplus harness and stores, rather too liberally supplied and not urgently required with the fighting detach-

*Translated from the *Kavelleristische Monatshefte* for August-September, 1907, by First Lieutenant Frederick J. Herman, Ninth U. S. Cavalry.

ment, is partly carried in the baggage wagon. During the inspection of the Royal and Imperial Army School of Target Practice in Bruck by His Excellency the Royal and Imperial Minister of War on July 2, 1907, the cavalry machine gun detachments came into the following battle situations:

My own detachment at the Leitha bridge in action with opponent on Hospital Hill, which according to report from the cavalry had its right wing at the end of the new camp, was strongly threatened by contemplated advance of opponent. The cavalry machine-gun detachments, Captain Emil Mierka v. Mowa-Lieszko, with pack outfits, and my own with wheeled mounts, available at this moment, with one squadron (the squadron of instruction, Rittmeister Herman Bordolo v. Boreo), were sent to the threatened point, the rose fields, at the most rapid gait, with orders to oppose the advance of the enemy by all means until the arrival of our own infantry, or for some fifteen minutes.

The detachments named disposed for action by Captain Leonhard Rebhahn, of the Royal and Imperial Army School of Target Practice, solved the problem completely in that so many hits were made in the various targets (consisting of folding targets marking the alternate advance of the opposing detachments, and also a rather loose skirmish line in shelter trenches, one-third of all of which were hit) that in actual warfare the opposing force would have been absolutely compelled to retreat. The Cavalry Machine-Gun Detachment No 2, wheeled mount, inside of fourteen minutes hit thirty per cent of the figures in its segment of fire, during which time both detachments advanced simultaneously for 800 paces at a gallop from the first position and went into action against folding targets suddenly appearing during their advance, and on which the wheeled detachment was able to open fire several seconds earlier than the detachment with pack mounts, owing to its ability to fire from its carriage.

In view of this concrete example, and considering its great capacity for the transportation of cartridges, I believe that the battle effect of a wheeled machine-gun detachment of four

guns may be taken as greater than that of one company of infantry.

First Lieutenant Binder further says: "Besides this, the carriages betray the character of the detachment from a distance and offer, on account of their size, a favorable target, and can therefore be easily put out of action."

In order to mask the carriages I have changed the heretofore normal formation so that the four men, instead of riding in single rank in rear of the carriages, now ride one pace outside of the wheels, each member at a specified place.

Wherever cavalry can march in fours the detachment so grouped can also march, as they require the same width of road. Where cavalry must march in twos on narrow roads, the detachment can also assume such formation, the cannoneers in twos in rear of the piece, but the column will, of course, be lengthened by so doing. Experiments have proven that by this means it is hardly possible to recognize these gun carriages, painted in olive color, and so covered by the detachments of cannoneers at a distance of 500 paces. The enemy gains the impression of a cavalry detachment marching in fours, as the draft horses are flanked on either side by noncommissioned officers so disposed for this purpose. The unlimbering of the piece and the subsequent removal of the teams and limbers out of the line of fire can thus be accomplished more rapidly than by the former method.

During the battle exercises heretofore mentioned the wheeled detachment, moving forward at a gallop with its men on both sides of the piece, required but twenty seconds from the command, "Action, front!" to the beginning of its fire, as was recorded by the supervising officers of the army school for target practice, where it was required to deliver aimed fire at 600 meters against folding targets visible for but one-half minute.

The gun detachment when riding behind the piece was often exposed to accidents whenever the galloping pace of the teams was suddenly changed by reason of encountering obstacles, and last year a horse of the gun detachment was badly injured in the chest in this manner by colliding with the piece. With the formation of the cannoneers on both

sides of the piece the detachment commander may safely increase the gallop to the maximum speed of the teams, as he is no longer concerned about the former precarious circumstances of his cannoneers, who now have a clear run before them. This became apparent during the battle exercises where the wheeled detachments went forward at a more extended gallop than the pack-mount detachment.

A piece with its limber and with the detachment formed on both sides presents a target surface to an opponent six paces wide and twelve paces deep, or seventy-two square paces. A machine gun packed, with its accessories of ammunition, horses or mules, etc., cannot conceal itself in open terrain. It presents a target surface six paces wide and fifteen deep, or ninety square paces. The assertion that the wheeled detachment offers too large a target, therefore, no longer holds good, and, besides, the marching column of the wheeled detachment of four guns and two caissons occupies but a length of eighty two paces against ninety two paces for that of the pack-mount detachment with twelve ammunition pack animals. Thus have the figures been changed in favor of the wheeled mounts. In the same manner the length of column of a six-gun wheeled detachment mentioned in Lieutenant Hayck-Aliprandi's article, has been reduced from 182 paces to 124 paces, and this with the detachment in single rank behind the piece and limber according to the former regulations, which prescribed double rank only the year before.

Where, in action, the pack-mount detachments, in order to escape the too early attention of an opponent, pass over terrain offering no cover in groups with intervals, gun detachments moving at the most rapid gaits, the wheeled detachments, as practically demonstrated by me personally, are as fully capable of doing likewise. Every such gun, so masked, with wheeled mount, is of course manned by a full complement of non-commissioned officers and men, is a small battle unit, and offers, as heretofore stated, a smaller target area than a similar gun and detachment with pack mount. The limbers and teams of the wheeled detachments are very mobile, and are rapidly taken to the nearest cover

by the non-commissioned officer in charge, as soon as the pieces are unlimbered in battle exercises, when it is not possible to open fire at once from a position under cover, so that the complaint of the "great target" constantly offered against the wheeled mount is not justified.

In comparison with this the entire equipment, with horses, of a machine-gun detachment with pack outfits, when under fire, has but little mobility on account of its many led horses, and is almost to be compared to the led horses of the cavalry in dismounting to fight on foot.*

The doubt expressed by First Lieutenant Binder of the possibility of bringing off the gun upon the loss of a portion of the team was met in Pamphlet No. 7.

I wish to add that with the ingeniously contrived harness it requires but a few motions, and the withdrawal of a few bolts to separate the dead horse from the carriage and to drive on with the remainder of the team, which is regularly practiced by the detachment upon the brief statement, "Near wheel horse dead," "Off led horse dead," etc. The chief of section concerned, with his gun detachment, promptly and rapidly attends to such matters without command, makes the required change and follows the detachment at a gallop.

The assertion of Lieutenant Binder, "Finally the cavalry must forego the coöperation of the machine guns as soon as the latter comes into rough or difficult terrain, because its vehicles are unable to follow," has been fully refuted by Lieutenant Hayck Aliprandi in his resumé, in which he states that during the imperial maneuvers in Silesia last year, wherever the cavalry division was able to come through he was able to follow, and bring his detachment to every designated position always at the right time, notwithstanding

*TRANSLATOR'S NOTE:—This is a question of formation. In the cavalry machine-gun service of the United States Army, the cannoneers, drivers and pack mules now form a column of threes (except in route marches). As soon as the piece and tripod and the ammunition boxes are down, the led animals are moved off by the drivers (a led horse on one side and a pack mule on the other) under the command of the senior non-commissioned officer, and move with much greater facility and rapidity than the led horses of an American cavalry troop dismounted to fight on foot—in fact, are nearly as mobile as the teams of the field artillery.

that the terrain near Teschen and other places was rather difficult.*

The above assertion applies mostly to the singular ground or surface covering of upper Italy. Eye witnesses of battles in upper Italy state, however, that by reason of the many walled and terraced vineyards and the wired mulberry trees, etc., the cavalry could not maneuver very much except upon the roads and that attacks were even delivered along the roads. Here the machine-gun detachments would be able to follow the cavalry, and, because of the many road defiles, would often find opportunity for the delivery of massed fire as a surprise.

In order to enable the detachment to cross ditches with vertical walls and more or less width and narrow bottoms, I have constructed a portable bridge, which is carried folded upon a limber and which can quickly be thrown across the ditch. The detachment drives over, and the last vehicle takes up the bridge again. Each platoon has a portable bridge 1¾ m. long. In an emergency bridge-parts may be quickly joined to form a bridge of 3½ m.

In the matter of the employment of the cavalry machine-gun detachments in the attack I wish to mention one more instance besides the advantages heretofore credited to the wheeled detachment by Lieutenant Hayck-Aliprandi. Should a hostile attacking cavalry detachment, riding at its fastest gate through the zone of fire, nevertheless reach the unlimbered machine guns, the charging riders will hardly succeed in disabling any of the gun detachments with saber

*From the reports of the operations of the Third and Seventh Cavalry Divisions appearing in the October (1906) number of this journal, it appears that the two cavalry machine-gun detachments attached thereto (one with four Maxims, the other with four Skoda guns) with wheeled mounts, proved to be very efficient.

The maneuver ground is heavily covered with vegetation, with few view points, quite hilly, with deep ravines and frequent swampy brooks and valleys which were thickly covered with young trees and brush; the terrain favored the operations of large bodies of cavalry very little. But notwithstanding this, the two wheeled machine-gun detachments came through everywhere, and always on time. I believe that this was a most thorough test of their mobility. The gun carriages were decidedly not unwieldy and were able, in fact, to drive across fields. (See First Lieutenant Binder, page 20.)

or lance, as the latter, at the last moment, will take shelter behind the gun carriages, which will serve like an armored tower, and from there use their magazine pistols. (Historical examples are numerous. Batteries apparently taken by cavalry, resume their fire after the charge has passed and, in part also, the charge of Bredow's brigade.)

A machine-gun detachment with tripod mounts, in action and lying on the ground, would in all probability be ridden down and destroyed under such circumstances.

In the determination of the question of pack or wheeled mounts, the unavoidable saddle galls mentioned by Lieutenant Hayck-Aliprandi in the detachment with pack mounts are of considerable importance. Relief within the fighting detachment is hardly possible, as all horses carry either a rider or a pack with machine-gun material.

Those who participated with the Austrian cavalry in the campaign of 1866 can tell of the many saddle galls of that time, and the well-trained personnel with long service and much routine work must be considered in connection therewith. So also the dead weight, the many bivouacs in the rain, which will ruin the most carefully constructed pack-saddle.

With the wheeled detachment relief is very simple; a galled saddle horse is harnessed in as off horse in a team, where the back, relieved of all burdens, will soon heal, while the former draft horse carries only a rider. A horse with collar galls is unhitched, serves as a saddle horse, and in a short time, with care, becomes again available as a draft horse.

The heavily packed led horses of the pack-mount detachments may often stumble and fall during the strenuous work at fast gaits with rigid leads, as they would miss the supporting hands of the riders—which the lead reins never fully replace—thereby presenting the liability of damage to the material, not excluding broken legs.

I believe that I have touched upon only a few points that are in favor of the wheeled detachment.

A desirable detachment of this kind would be, according to my practical experience, as follows: Fighting detach-

ment—six guns, three caissons, Schwarzlose system, with a light gun sledge (the present one is too heavy), with a handy oscillating and elevating gear for precise distribution of fire in horizontal, vertical and oblique directions—the present gear is too clumsy; with the piece, five men, including the gunner and drivers; other non-commissioned officers to correspond to present organization; light cavalry saber fastened to saddle; magazine pistol, except for drivers. Carriages, equipment, etc., in the color of the terrain—green-brown shade.

THE CHARGE OF GENERAL FRENCH'S DIVISION AT THE MODDER RIVER, FEB. 15, 1900.*

THE new Commander-in-Chief of the British forces, Lord Roberts, arrived at Cape Town on January 10, 1900. He found conditions very unfavorable. The British forces held a line of nearly 400 kilometers in extent, in four separated groups. The main forces were still in Natal at Frere and on the Modder River. Up to now it had been impossible to relieve Ladysmith and Kimberley. In the center the two weak detachments under Generals French and Gatacre held their positions at Rendsburg and Sterktroom only with the greatest difficulty against the Boer commandos, which had taken possession of the northern part of Cape Colony.

The new Commander-in-Chief considered it his first task to remove the main difficulties and to inaugurate a better system, based on the experiences so far gained. The lack of cavalry had made itself especially felt, as only with mounted troops could the swiftly-moving mounted Boers be effectually followed up and engaged. Consequently Lord Roberts decided to create a large body of cavalry by concentrating all available cavalry (now attached to the different divisions) and mounted infantry. Of the latter there were eight companies, one battalion mounted engineers, four battalions colonial mounted infantry, and two sanitary compa-

*Translated from "*Kavalleristische Monatshefte*," January, 1909, by Sergeant Harry Bell, Corps of Engineers.

nies. All division commanders were directed to detach their cavalry. Besides that already organized, additional mounted infantry was formed by selecting the best men from the different battalions and organizing them into mounted infantry regiments. These troops were organized into one cavalry division of three brigades, twenty-four squadrons, and seven horse batteries. The total strength of this new division was 3,600 sabers, 1,400 rifles, 42 guns, 14 machine guns. The forty-seven years old Colonel French was selected to command the division; he had all the necessary attributes of a dashing cavalry leader. In England he had been in command of a cavalry brigade; he was one of the first in South Africa on the eastern theater of war, where he had been successful in leaving Ladysmith on the last train before the investment; had then participated, as commander of the third detachment, in several severe battles in the central theater of war at Rendsburg, and received now the command of the new division with the brevet rank of lieutenant general.

General Roberts' plan was to carry the war into the enemy's country, for that only promised a betterment of the military situation. His objective was Bloemfontein, the capital of the Orange Free State. With that once in his possession the Boers would be compelled to abandon the investment of Kimberley and Ladysmith to defend their own homes. Of the roads leading to Bloemfontein Lord Roberts chose the most westerly one. The entire force was concentrated, the beginning of February, on the railroad between the Modder River and the Oranje River, the cavalry division in the Modder River camp. General French received orders to immediately relieve Kimberley.

By the 15th of February French's division stood immediately south of the Modder River, having marched in a northerly direction without having encountered much resistance. Early on the 15th French started with his division with intentions to reach Kimberley before night. But during the night the Boers had obstructed his line of march. With 900 men and three Krupp guns they had occupied the kopjes north of the Klip Drift in a semicircle of about four

kilometers extension. About the center of the position was a 1,200 meters long saddle, connecting the two kopjes. This saddle sloped gently toward the river and could be taken under effective cross-fire from the two kopjes. The Boers had entrenched themselves on the two kopjes; their guns were placed on the westerly one.

Some patrols sent out by French had succeeded in reconnoitering this position. General French ordered his entire batteries and the two 12-pounder heavy naval guns, which had reached Klip Drift the evening before, to go into position and fire on the Boer position. He intended to charge through the Boer line across the saddle, supported by the superior fire of his artillery. It was shortly after 9 o'clock. General French called the brigade commanders, told them his intentions, and issued his orders. The Third Brigade (Gordon) to charge as first line in open order, five to six paces between troopers, across the saddle through the hostile position in a northerly direction; the Second Brigade (Broadwood) to follow at 500 yards distance, in second line; the First Brigade (Porter), with the mounted infantry and the horse batteries, which were directed to fire until the last minute, to follow as the third line.

The two leading brigades deployed at once and advanced on the gallop to the charge. Heavy clouds of dust soon made them invisible. French rode at the head of the Second Brigade.

After the dust had subsided the two brigades were seen about 1,500 meters beyond the hostile position and were reforming. All the Boers who had not fled were taken prisoner, the position was taken, the road to Kimberley opened. The success proved what theory would have considered impracticable.

The following account of an officer participating in that charge gives a graphic view of it: "The undertaking seemed to us in the start foolhardy; we believed that but few of us would live to tell the tale. If we had executed such a charge on the maneuver ground at Aldershot we would have been ruled out of battle and every one would have considered us stupid, to say the least. After we had covered about 400 meters on a gallop we received a heavy frontal and flank fire and I looked along the ranks expecting to see the men fall by scores, but although the rifle fire was heavy and rapid I did not see a single man fall."

The casualties of the division were sixteen dead and wounded and thirty horses.

After a rest of about an hour the division resumed its march towards Kimberley. Critical examination of the means employed leads to the question: What are the peculiar effects or results of those means and were these results what the leader expected?

French attacks. Supported by the artillery, the attack succeeds. French knows their strength and is informed by his patrols of their position. The artillery fires on both kopjes with good effect. The immense cavalry force is true to its moral influence and the enemy abandons the position or is taken prisoner.

"Everything in war is very simple, but the simplest thing is difficult."

The success should primarily be credited to the cavalry leader, to his intrepidity. We consider French an ideal cavalry leader. He grasps the situation in a second, forms his plan, and carries it out energetically. Every success in war hinges on two factors: Our own decision and consequent action, and the conduct of the enemy, *i. e.*, his worth. The Boers were not regular troops seeking a decisive battle; they desired to hold back the English but were intimidated by the latter's energetic advance; there was no supreme commander; they fled.

French's intrepid charge will prove to every cavalryman that energetic action is the surest means to gain laurels.

F. W.

THE MILITARY HORSE SUPPLY IN GERMANY.*

From *The Broad Arrow* of November 7, 1903.

THE effective strength of the horses required for military purposes in Germany during peace is about 110,000. Every year at the conclusion of the maneuvers the horses which are of no further use are cast, and their places filled by the issue of remounts, of which the army requires annually from 13,000 to 14,000. The average length of time which the cavalry horse is expected to serve is about ten years, while in the artillery, where the animals are subjected to greater strain, they serve for not more than nine. Germany is so fortunate as to be in the position of being able herself to supply the whole of her requirements in horses for the army. During the spring and summer the horse-breeding provinces are visited by five different remount commissions, which buy up all three-year-olds, and occasionly even four-year-olds, suitable for military purposes. These raw and unbroken animals are then driven into the remount depots, and are there prepared for the hard military life that is before them by means of special diet and forage. Altogether there are twenty-five of these depots, there being one in Wurtemberg, two in Saxony, four in Bavaria, while all the remainder are in Prussia; the provinces productive of the majority of the remounts are East and West Prussia, Hanover, Posen, the Rhine province and Saxony. From the four first provinces are chiefly drawn the remounts for the cavalry and field artillery; the two last produce mainly the heavier draught horses suitable for heavy guns, and these are not sent in to the depots for treatment, but are issued directly to the heavy batteries. Best of all the provinces is East Prussia, in regard both to the quality and numbers of the remounts there produced, for the Germans claim that the animal from East Prussia is the true type of a charger. The great majority of the cavalry remounts, and very many, too, of those for the field artillery, come from

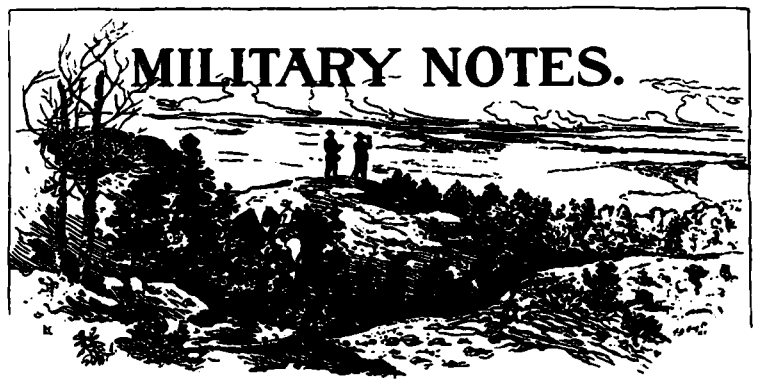
*Translated from the *Neue Militarische Blatter.*

East Prussia or from the horse-breeding districts of West Prussia, whose produce is very nearly equal to that of East Prussia. Posen breeds a good class of light-weight charger, while the horses from Hanover are generally handed over to the heavy cavalry or field artillery.

The remount commissions are responsible for the due distribution of these horses to the parties sent from units to take them over, and the actual issue of four-years old only is then made during the summer from the remount depots. All remounts suitable for officer's chargers are first put on one side, and the remainder are then divided into riding horses, first and second-class, and draught horses, first and second-class. In the case of remounts for certain regiments the color has to be taken into consideration. The First Hussars of the Guard for instance, only take greys; the Fourth Hussars, according to ancient usage, must have a certain proportion of piebald horses. For some time past greys have not been generally accepted as remounts, the color not being now considered suitable for the exigencies of field service. In regiments an attempt is usually made to have horses of the same color by squadrons, while batteries are generally horsed upon animals of the same color. Trumpeters are always mounted upon horses of the same color, while in regiments of field artillery the batteries are usually horsed with chestnuts or black horses. The portion of the First Field Artillery Regiment quartered in the very midst of the horse-producing districts of East Prussia is considered the best mounted of the artillery of the whole army, and is mounted throughout upon black horses. It is said that the old Kaiser William, after attending a parade of these particular batteries, remarked to the commanding officer, "Your horses look so well that I would dearly like to take a pair away with me for my own stables."

During the absence of the troops at the autumn maneuvers the riding establishment, which remains behind in quarters, commences the breaking in of the young horses to saddle, bit and rider, but the actual training only really begins on the return of the troops from the maneuvers. The horses are taken the greatest possible care of, and in

particular with regard to the remount from East Prussia, which is only placed in the ranks as a six-year-old, the utmost care in the training is insisted upon. The training at the remount lasts from the beginning of the winter of one year until the end of the winter of the following year, and at the end of that time the remount, now a six-year-old, is issued for duty to squadrons and batteries. In the autumn those horses which are no longer considered fit for the service are cast and are then sold at open auction, and many a small farmer obtains at a cheap price an animal which suits his purpose admirably. Of late years many horses which are no longer considered fit for cavalry and field artillery are handed over to the mounted detachments of the foot artillery or to the transport.



THE CAVALRY SADDLE.

By Captain ALONZO GRAY, Fourteenth Cavalry.

IN the October number I presented a sketch showing my idea of what a cavalry saddle should be.

At that time I applied to the War Department to have one of these saddles made at the arsenal. The Ordnance Department declined to make it, but offered to do so at my expense for $47.50.

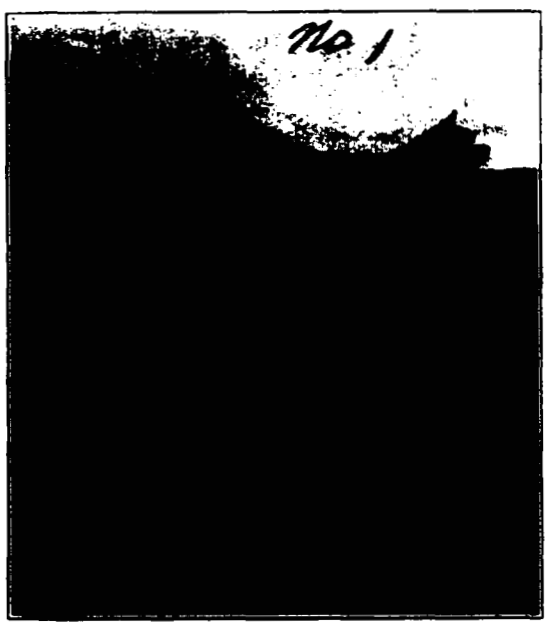
Through a friend I was able to get a saddle-tree company to take up the work, and then I first received a wood tree, which I altered as I thought proper. The next one received was covered with raw hide, and is the one shown in photograph No. 1. It was this tree that Captain A. L. Dade, Thirteenth Cavalry, experimented with. His report is herewith enclosed. The same saddle is shown packed in No. 2. Nos. 3, 4 and 5 show comparative views of this saddle with the McClellan, of side view, pommel arch and bearing surface respectively.

After Captain Dade had made his experiments I had another tree made slightly modifying the first one. This is shown in No. 6.

I had this tree covered with leather and, without cinch and stirrups, it cost an even $10.00. I am, therefore, $37.50 ahead of the game.

I am indebted to Sergeant King of the Signal Corps for the photographs.

The last model is now before the Cavalry Board for further test and report.



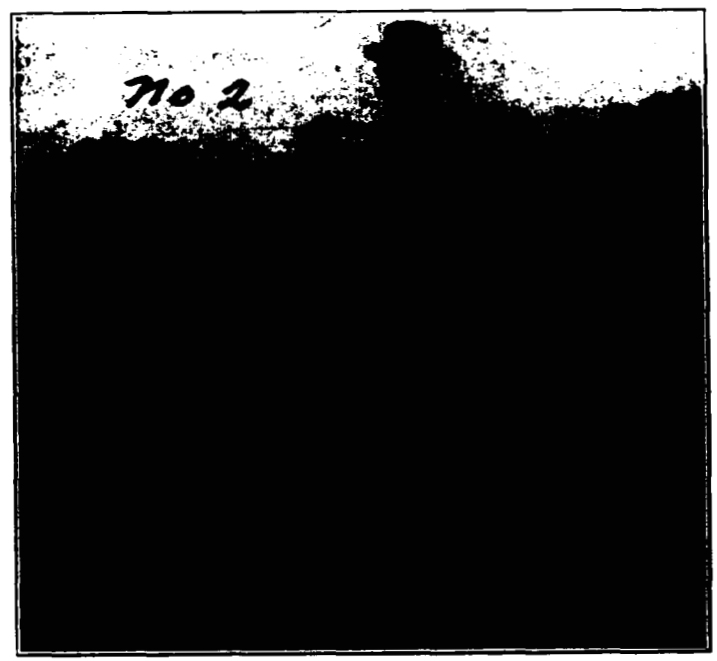
CAPTAIN DADE'S REPORT.

FORT LEAVENWORTH, KAS., February 1, 1909.

MY DEAR GRAY:—With reference to the tests you were kind enough to permit me to make of your experimental cavalry saddle, and the conclusions I have reached therefrom, it gives me pleasure to state that the former were highly satisfactory and the latter entirely favorable.

I will briefly summarize both, in order that you may have them at your disposal for such use as you may see fit to make of them.

My illness during the time I had the saddle prevented me from making my personal test as extensive as I would have liked it to be. However, I used it enough to satisfy me that the seat is the easiest as well as the most comfortable and natural I have ever ridden. I have used saddles having similar seats but none quite as comfortable as this.

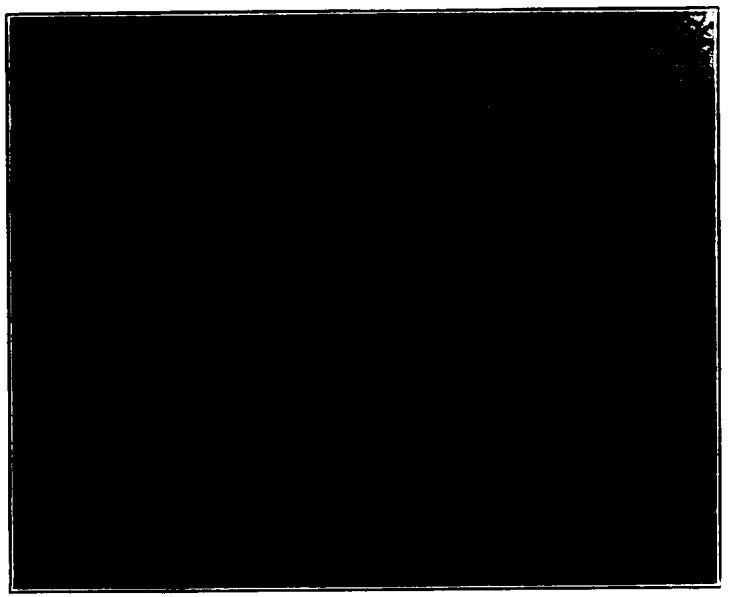


As for that part of the saddle which is in contact with the rider I can suggest no improvement. It fits, and that is the first requirement. The other requirements, that the rider should be able to adapt himself easily to the movements of the horse while maintaining the balance and contact securely and without conscious effort, it also fulfils. The shape of the seat and the position of the stirrups make it easy, if not

imperative, to take and maintain that seat which is admittedly the best for the trooper.

That it can be packed as readily, securely and conveniently as the saddle now issued, your own experiments and the tests of my non-commissioned officers, presently to be taken up, show conclusively.

That part of the saddle which is in contact with the horse, the underbearing surface, is manifestly a vast im-



No. 3.

provement over the corresponding feature of either of the saddles at present in use in the service.

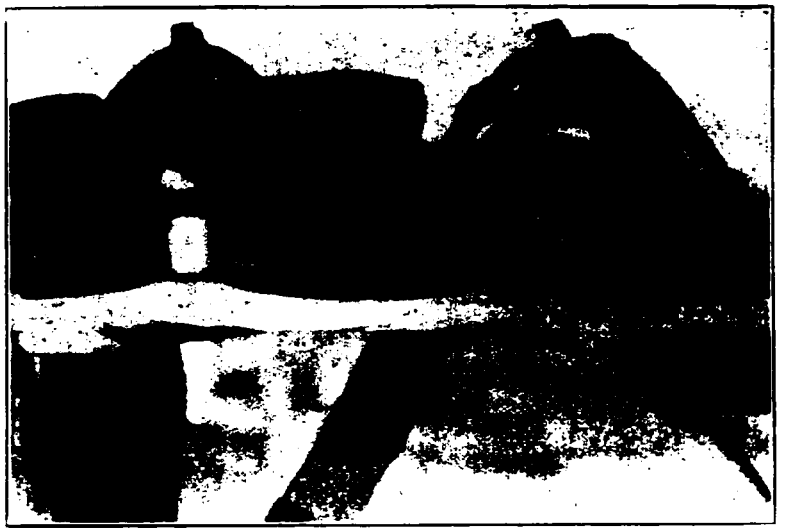
The conviction has long been growing upon me that the amount of time, care and worry that a troop commander is obliged to bestow upon the prevention and care of sore backs, especially what are sometimes called kidney sores, from their location, or cantle sores, is, to say the least, excessive; and at the same time there has also grown the conviction that the short bars in the rear and the narrow pommel arch in

front of the present saddle are in large measure responsible for this state of affairs.

I believe your saddle, with its improvements of the two features mentioned, will go a great way towards remedying these troubles, if it does not eliminate them entirely.

As for shifting of saddle, slipping of saddle blanket, etc., the reports of my non commissioned officers, which I will now take up, dispose of them satisfactorily:

First Sergeant Emil F. Gregor of my troop ("K," Thirteenth Cavalry) made a ride of fifteen miles, approximately,



No. 4.

in two hours and forty five minutes. The weather was cool, the roads good, the country quite rolling (eastern Kansas). He rode at the three gaits, principally at the walk and trot, acording to the character of the road.

He notes:

First. That there was no slipping of the blanket, though his horse has low withers and he usually has this trouble with his blanket on the march.

Second. The seat is superior to the McClellan, in that it is

long and permits the man "to sit erect without being thrown forward with every movement of the horse." Sergeant Gregor is rather short and quite stout, so I conceive this feature to have appealed strongly to him.

Third. The stirrups must be shorter with this saddle than with the McClellan, which also gives a more natural seat.

Fourth. The adjustable quarter-strap is a good feature, as the girth can be shifted forward or back and also short-

No. 5.

ened or lengthened according to the desired position of the saddle on the horse's back or the size of the animal. His horse was "soft," having had nothing but garrison work for over two months.

Sergeant George J. O'Mara, of the same troop, rode approximately thirty-four miles with full pack on December 23, 1908. The horse was rather low in flesh with high withers. The roads were good and the weather cool, the country eastern Kansas, the gaits walk, trot and some gallop. After

going eight miles he dismounted, loosened the cincha and examined the horse's withers. Finding that the saddle was riding properly and doing no harm, he re-cinched the saddle and did not again disturb it during the day. He considers the seat excellent, for the same reasons as advanced by First Sergeant Gregor. (Sergeant O'Mara is below the average height and by no means stout). He considers the saddle in every way superior to the McClellan. The blanket did not slip, the pack rode well and the projecting bars behind the cantle prevented the roll from pressing upon or chafing the horse's backbone.

No. 6.

Corporal Daniel Daly rode eighteen miles in three hours over the same character of country, under the same weather conditions and at the same gaits as the others. He carried full pack. He considers the saddle "easy riding," "well balanced" and altogether a vast improvement over the present saddle.

Corporal Walter A. Adams made a ride of about twenty-five miles in approximately four and a half hours with a full

pack, over the same roads, under the same weather conditions and at the same gaits as the others. After about three miles he found that the saddle had moved forward slightly (he had started with it loosely cinched). After readjusting it he rode to Lowemont, about eight miles, without change in the position of the saddle or blanket or need of readjusting either. At Lowemont he unsaddled for a critical examination of the horse's back. Finding everything satisfactory he returned to the post. To test the saddle more fully, he trotted down steep grades that would ordinarily be taken at the walk. His horse, like the others, was comparatively "soft."

The pack was a little larger than the average, as it was made of heavy winter garments. He found it to "ride" well, resting on the extended bars in the rear. He considers the seat very comfortable and regards the fact that it places the rider over the center of the horse's back especially commendable.

None of the horses ridden by these men showed any sign of bruise or abrasion. They were selected with the view of testing the saddle on horses of normal conformation and on those possessing peculiarities common in cavalry mounts. These non-commissioned officers are men of experience as well as intelligence and their opinions are entitled to no little weight.

I would very much like the opportunity to extend these tests by using several saddles of your model on a protracted march, with full belief that its superiority in all respects would be unquestionably established.

Most sincerely yours,

A. L. DADE

COMPANY RECORD CASE FOR FIELD SERVICE.

IT is now recognized that our most serious problem in future wars will be that of transportation. We will have to reduce our impedimenta in the field and be able to cut loose from all wheeled transportation for months at a time, if necessary.

The present company field desk, I think every one will agree with me, is a nuisance. It is an inconvenient, clumsy

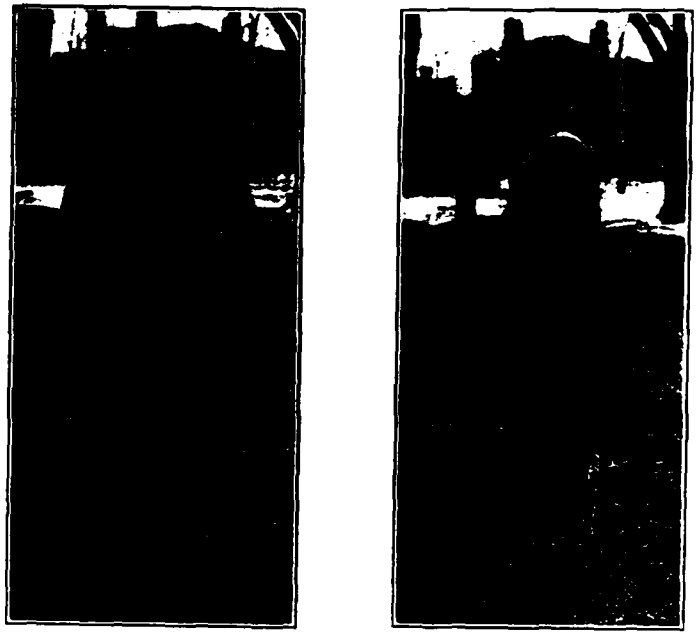
COMPANY RECORD CASE FOR FIELD SERVICE.

affair, which has to be carried in a wagon or on the back of a pack mule. It is never at hand when wanted, and has been in many cases a serious drawback to organizations in the loss of all their records. As a field record case it is out of date and should never be used again.

The company record case for field service, devised by me and illustrated herewith, is designed to meet the requirements of something to take the place of the present field

desk—something that it will not be necessary to haul around in a wagon or even pack on the back of a mule—a light serviceable case made of water-proof material, which will provide a dry place for all the records necessary to supply an organization in the field for three or four months—or longer, if necessary.

The case is made of fair, pebble-grained leather and weighs with the shoulder sling attached 2¼ pounds. It



COMPANY RECORD CASE FOR FIELD SERVICE.

contains several separate compartments made to fit the different articles and forms. It is also provided with a large piece of oiled silk in which the permanent records may be wrapped in case it becomes necessary to swim a stream. It may be worn on the person in several different ways, with the shoulder sling, attached to the field belt, or worn as a knapsack over the infantry pack. It may be attached to any part of the saddle or pack.

Packed for a company of infantry of sixty-five men, with all the records necessary for three months field service, it will weigh less than eight pounds.

For a troop of cavalry of the same strength it will weigh something more on account of the descriptive lists of public animals which should be carried.

The following records will be carried by a troop of cavalry for three months field service:

One company council book, or a small memorandum book from which the entries may be transferred later; one correspondence book; three duty rosters; descriptive lists of all men; descriptive lists of all public animals; three special field returns; six inventories of effects of deceased soldiers; ten monthly returns; three muster rolls, to include the last retained roll; three morning reports; four pay rolls, to include the last retained roll; one book of ration returns; two sick reports; statement of services; three returns of casualties in action; twenty summary court forms; sufficient discharges and final statements required for men to be discharged during expected time of absence in the field; necessary enlistment papers, tri-monthly reports, physical examination blanks, etc., for men to be discharged and reënlisted; ink, in bottle provided in the case; pens, pencils and erasers, in pockets provided for them, and such stationery as may be required and can be conveniently carried.

When the period of field service is expected to embrace the time required for rendering the semi-annual ordnance return, the retained copy and such papers and blank forms as may be necessary would be taken along.

SHERRARD COLEMAN,
First Lieutenant, Ninth U. S. Cavalry.

THE RELATIVE COST OF CAVALRY AND INFANTRY.

ON page 61, "Organization and Tactics," by Wagner, a work which is used as a text book by the War Department, occurs the following sentence under the head "Powers and Limitations of Cavalry:" "Its disadvantages are that it is an expensive arm to equip and maintain, *costing, as it does, three times as much as the same number of infantry.*"

This is the stock argument of many in opposing cavalry increase.

It was also an argument advanced some years ago by others when it was wished to increase the coast artillery arm at the expense of the cavalry corps.

It is heard often in the halls of Congress, uttered by our eloquent representatives, in proposing the reduction of the army.

It is, by our pedagogues, impressed on our second lieutenants as the correct answer to the question, "State the limitations of cavalry."

It is made the text of profound treatises on the art of war written in our text books and service journals.

Wagner says, "Cavalry costs three times as much as the same number of infantry."

* * * * *

In the face of all this I propose to demonstrate that far from costing three times as much as the same number of infantry, *the additional cost of cavalry is an insignificant increase of about one-third.*

In order to ascertain the comparative cost of infantry and cavalry, let us first compare the relative cost to the Government of the infantry soldier and the cavalry soldier, taking the case of a private of each arm in his first enlistment.

In each case the pay is $15.00 per month and the average clothing allowance is $57.51 per year. In each case the same ration is eaten; average value in last fiscal year reported as 18.66 cents per day. Each has the same shelter, light, heat and water service, which is estimated as costing $46.15 per year, fixing the average value of company barracks at $30,000 and allowing ten per cent. for impairment, light, heat and water.

Each has the same medical attendance, estimated as being worth $18.00 per year.

I also take into consideration (charging the excess to the cavalry) the value of the yearly allowance of ammunition, in which the cavalry soldier exceeds the infantryman; the value of the arms carried by each, placing the average life at five years; the value of the soldier's equipment which for the infantryman and for the dismounted cavalryman is about the same, and of which I estimate the life at three years.

Taking the additional cost of the cavalryman into consideration, we have the following items:

The contract price of the horse last year was $136.00. I fix his average price at $140.00 and his average length of service seven years. A horse's forage is reported last year as costing 26.33 cents per animal per day or $96.09 per year. His shelter I estimate at $9.69, by allowing ten per cent. annual impairment of a stable costing $6,500.00, which seems to be about the average cost of a stable. His medical attendance is estimated at $5.00 per year. The cost to the United States of forty-eight shoes per year and the corresponding nails, being four shoes per month, is $2.22.

In estimating the life of the saddle of the cavalryman I put it at five years, of other saddle and horse equipments three years.

It will be seen that many of these items are approximations. They are necessarily so. And yet I believe they will afford a fair estimate, within limits, of the annual cost of the infantry soldier and of the cavalry soldier, and a fair approximation of the fraction indicating the additional cost of the cavalry soldier.

Table A—COST—INFANTRYMAN OR DISMOUNTED CAVALRYMAN.

Pay of private per year, first enlistment	$180 00
Rations, 18.66 cents per day, 365 days	68 10
Clothing, average per year, first enlistment	57 51
Ammunition, value per year, cavalry ($17 25).	
Ammunition, value per year, infantry	14 25
Shelter, light, heat and water service, ten per cent. cost on $30,000.00 (average cost of barracks) divided by 65	46 15
Medical attendance, $18.00 per year	18 00
Arms, infantry, value $17.50, cavalry, $31.70, (average life five years) yearly cost of infantry arms	3 50
Equipment, infantry soldier, $12.66 (average life three years) yearly cost (about same for cavalryman)	4 22
	$391 73

Table B—EXTRA COST OF MOUNTED CAVALRYMAN.

First cost of horse $140.00, average cost per year (life of horse in service seven years)	20 00
Forage of horse, 26.33 cents per day, per year	96 09
Shelter, light, water service, etc., of horse, ten per cent. cost on $6,300.00 (average cost of stable) divided by 65	9 69
Medical attendance of horse, $5.00 per year	5 00
Shoeing of horse, four shoes and nails, $0.18½ per month, per year	2 22
Extra cost of ammunition for cavalryman	3 00
Extra cost of arms, cavalryman, $14.20 (life five years), yearly extra cost	2 84
Cost of saddle and saddle-bags of cavalryman, $28.00 (life five years), per year	5 60
Cost of other saddle and horse equipments, $27.42 (life three years), per year	9 14
	$153 48

It will be inferred by the above figures that in his first three years of service the annual cost of an infantry private soldier is about $391.73 and that the annual cost of the cavalry private soldier is about $545.21, and that the additional cost of the cavalry soldier is about $153.48, or thirty-nine per cent.

But, it may be objected, this estimate is very far from indicating the comparative cost of a *company* or *regiment* of cavalry or infantry.

That is true, and if we look more closely into the matter we will find, I think, that this percentage indicating the additional cost of cavalry must be decreased, not increased.

Take the company, for instance, and compare it with the troop of cavalry.

Table "B" remains the same, representing the average extra cost of the cavalryman with his horse. But Table "A," representing the average cost of the infantryman or dismounted cavalryman, must be radically changed.

Item one. Taking a company of infantry, or a troop of cavalry, the average pay, including officers, non-commissioned officers and privates, and including increased pay for length of service, is over $300.00 per year for each individual member of the company or troop, including enlisted man and officer.

Items 5, 6 and 7. The ammunition, shelter, light, heat, water service and medical attendance of the three officers of a company or troop costs the Government from $1,500.00 to $2,500 00 per year.

Disregarding these last items and taking only the first, that of pay, and substituting $300.00 for $180.00, we have, first table, total cost of dismounted man $511.73. Second table, total additional cost of the cavalryman $153.48. Additional cost of cavalry thirty per cent.

"But," vaguely reply our critics, "in time of war cavalry costs more."

Yes, that is true, too. Horses cost more, and so does forage, and horses die and equipments are destroyed. But the forage and clothing of infantry also increase in cost, and so does recruiting. Nevertheless, I think it can be demonstrated that in order to cost three times as much as infantry in war it would be necessary for the average cavalryman to kill off at least eight horses per year.

It is, of course, in war or peace, very difficult to estimate, accurately, the comparative cost of cavalry and infantry. But when one realizes that the annual appropriation for subsistence of the army is per man over $100.00, and that regular supplies and transportation of the army together figure up to about $300.00 per man, it should not be difficult to see that to put an infantryman on a horse does not increase his cost three times, however much it may his value.

It is difficult to understand how the statement that "cavalry costs three times as much as infantry" got in this text book, or how, having arrived there, it was permitted to remain.

Even in the poorly paid conscript armies of Europe, with the high prices of horses and of forage which reign there, it is doubtful if this statement is approximately true.

Is it possible that this phrase has come down to us from the Middle Ages when the infantry were "a ragged rabble" and cavalry "knights in armor."

If so, let it be relegated back to the Dark Ages, where it belongs.

* * * * *

Here in these United States of America in the year of 1909, in this age of progress, we have especial need of a large force of cavalry; first, because in time of war cavalry can not be improvised; secondly, because in case of war on this continent great masses of cavalry would be indispensable; and, thirdly, because our cavalry on foot, is man for man equal to infantry; and mounted, has a mobility which infantry can never rival. If for this mobility we pay thirty per cent. more, it is worth it.

JAMES PARKER,
Colonel Eleventh Cavalry.

NOTES ON JAPANESE CAVALRY.

In Japan I saw detachments of cavalry, infantry and artillery marching along on the roads; and, through the courtesy of Colonel James A. Irons, Fourteenth Infantry, our Military Attache at Tokio, obtained from the Secretary of War authority to visit the Imperial Cavalry Guard at Tokio, which I did on October 23, 1908.

I was received with the greatest courtesy by the Colonel, his adjutant and other officers and saw the barracks, kitchens, bath rooms, stables, riding hall, paddocks, etc. Each troop of the Imperial Guard has about 160 men.

The work while I was there was altogether by squads, some were in the riding hall, some breaking horses in the paddock, some at fencing and jiu-jitsu, some at school; squads alternating at these duties. All were kept busy under the

supervision of the officers, who appeared intelligent and instructed in their work.

The guard is armed with carbine and saber, and, for ceremonial occasions only, with the lance. For ceremonies they also use a saddle cloth for the men.

Their carbine is very short and light and, in my opinion, is inferior to our rifle. It has a milled circular disk at the base of the breach block which can be moved by the pressure of the flat of the hand and controls the cutoff. This is an improvement due to their experience in Manchuria, where many men froze their fingers when they removed their gloves to use the cutoff. This is worthy of adoption by our army. Their saber is good; the saddles are padded and inferior to ours; they use the double bit.

Their fencing was very good; they used the mask and pads and their fencing sticks are excellent, being made of bamboo sticks fastened together, rendering the stick strong, flexible and yet not dangerous.

In my opinion they used the thrust too little, and their main object seemed to be to beat down their adversary's guard, seize him and, throwing him by jiu-jitsu, thrust the saber through him.

If a man was off his guard, their method is excellent. A good fencer would not need jiu jitsu.

Their cavalry horses are small and inferior to ours; the soldiers are of course small, but very sturdy looking. The general characteristics of the Japanese people are too well known to need description, but I was especially struck with the friendly attitude of all classes to the Americans, not only during the presence of our fleet at Yokohama, but elsewhere and at all times.

The officers of the Imperial Guard seemed to be especially anxious to impress upon me their abhorrence of war in general and their especial anxiety to avoid any cause for the same with United States.

They were also of the opinion that had the Japanese more cavalry in the Russian War, their success would have been greater, as they could then have clinched their victories.

"OBSERVER."

CAMP GREGG, P. I., December 29, 1908.

The Editor Cavalry Journal, Fort Leavenworth, Kansas.

DEAR SIR:—In overhauling some old papers I found the enclosed photographs, which should be of interest to your readers, No. 1 especially to the First and Tenth U. S. Cavalry.

The history of the monuments portrayed is as follows:

MONUMENT AT LAS GUASIMAS IN MEMORY OF THE MEN OF THE FIRST AND TENTH U. S. CAVALRY WHO WERE KILLED HERE IN 1898, DURING THE SPANISH-AMERICAN WAR.

In the fall of 1900 a party of officers riding over the Santiago battlefields stopped at the monument that had been erected by the "Rough Riders" in the memory of their men and to commemorate the action of the regiment at Las Guasimas. The feeling in all was that the action of the regulars and their dead ought to be also commemorated. The Division Commander, General Wood, gave voice to this by

saying: "I would like to have a monument erected on the road to the men of the First and Tenth Cavalry, and San Juan Hill secured and a monument erected there to all the troops engaged." The Department Commander, General S. M. Whitside, heartily approved of the idea and, as I was engineer officer, it fell to me to put them up.

Participators in the Las Guasimas fight will recognize the site of that monument. It stands in front of the ruins of a house on whose wall is a peculiar sun dial. The shadow is cast by a horizontal bar set at the convergence of the lines. The Siboney road, up which the First and Tenth Cavalry advanced, debouches from the jungle just to the right, east of the monument and passes in front of it. To the left (west) is the open space, perfectly commanded by the heights that were occupied by the Spaniards, where our casualties occurred. At X on the picture were buried the men who were killed in the fight. The monument is built of field stones obtained nearby and cement mortar, with an ancient Spanish shell on top. The tablet is of bronze, the brass used being obtained from the wrecks of the Spanish cruisers, molded and given by the founder, Aragon, of Santiago de Cuba. It is inscribed: "In Memory of the Men of the First and Tenth United States Cavalry, Young's Brigade, Wheeler's Division, who were killed in the action here, 23d June, 1898, Spanish-American War."

Getting a monument on San Juan Hill presented more difficulties. The old block house had been destroyed, except its foundation, which had been built over and was occupied by a dairyman. A corral surrounded the house and the space between the Spanish trenches and ours was in a filthy condition. Pending negotiations to purchase the land, the owner was persuaded to vacate the northwest corner of the foundation of the old block house, and the monument was erected there. The land purchased was bounded as follows: Starting at the center of the small stream on the Santiago-Siboney road east of the intersection of that road with the El Caney road, thence east along the Santiago-Siboney road to its intersection with the San Juan River; thence south along that river to its junction with the small stream from the

starting point; thence northwest along the small stream to the starting point. This triangle of land was purchased for a park and, in connection with the new water supply, it includes the bloodiest part of the field and ridge and the surrender tree. It was placed under charge of "Major" Barber, the Sanitary Inspector of Santiago, and he cleaned it up and

MONUMENT ON THE SITE OF THE NORTHWEST CORNER OF THE OLD SAN JUAN BLOCK HOUSE.

In memory of the officers and men of the U. S. Army who were killed in the assault and capture of San Juan Hill and the subsequent siege of Santiago in July, 1898. Spanish-American war.

built a park-keeper's house about one hundred feet to the north of the monument (site of the old block house). The site of the park-keeper's house was mistaken by Richard Harding Davis, who accompanied the Santiago Battlefield Commission in 1906 (see *Scribner's*, 1906,) for the block house

site. The park was accepted by President-elect Palma on behalf of the Cuban people shortly before the withdrawal of our troops in 1902. His address was very eloquent; he charged the Cubans to preserve San Juan Hill as the Bunker Hill of Cuba.

The photograph (2) shows the monument on the occasion of the visit of the North Atlantic Squadron in 1901. It is built of the best concrete, and except for the ravages of tourists would be very enduring. The tablet is inscribed: "In memory of the officers and men of the U. S. Army who were killed in the assault and capture of this ridge and subsequent siege of Santiago, July, 1898, Spanish-American War."

I have never seen any mention of the two monuments at Las Guasimas, that of the Rough Riders and of the First and Tenth U. S. Cavalry, and while memory is now dim as to the action there, it seems proper for the JOURNAL to record that the action of the dismounted cavalry at Las Guasimas is commemorated in stone and bronze.

Very truly yours,

S. D. ROCKENBACH,
Major, Philippine Scouts.

REORGANIZATION.

ARE YOU INTERESTED IN CAVALRY REORGANIZATION? IF NOT, WHY NOT.

BOTH the President and Secretary of War have recommended to Congress that the cavalry be reorganized because its present organization is obsolete. Is it obsolete?

Study the following organization of cavalry in modern foreign armies.

In this table the word "squadron" indicates a major's command and the word "troop" indicates a captain's command.

It should, however, be borne in mind that foreign armies use the word "squadron" to mean a captain's command of about 150 men.

	Platoons in Troop.	Troops in Squad'n	Troops in Regt.	Squad's in Regt.	Men in Platoon.	Men in Troop.	Men in Squad'n	Men in Regt.
U. S.	4	4	12	3	24	100	401	1,236
Germany	4	0	4	0	40	150	0	600
France	4	0	4	0	40	159	0	600
Japan	4	0	4	0	40	150	0	600
Austria	4	0	0	0	40	150	0	900
Russia	4	0	0	0	40	150	0	900
Italy	4	0	6	0	40	150	0	900
England	2	2	6	3	45	93	186	531 to 715

If our organization is obsolete and needs reorganizing, what is the most efficient basis of organization? The cavalry should be able to examine the matter critically. There should be some underlying principle on which to build this organization. I have in mind the following two systems, which could be built about as follows:

THE THREE UNIT SYSTEM.

	IN PLATO'N		IN TROOP.			IN SQUADRON.			IN REGIMENT.			24 REG'TS.	
	Men.	Officers.	Plats	Men.	Officers.	Tr'ps	Men.	Officers.	Sq'd.	Men.	Officers.	Men.	Officers.
Totals	24	.....	3	80	3	3	241	12	3	756	41	18,144	984
Lieuts.	.....	.....	.....	.....	2	.....	.....	8	.....	.....	24	.....	576
Captains	.....	.....	.....	.....	1	.....	.....	3	.....	.....	12	.....	288
Majors	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	3	.....	72
Lt. Cols.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	24
Colonels	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	24

This system is favored by most cavalry officers and is the one recommended by the Reorganization Board. It should possess some advantages; if so, what are they? To me it possesses the following disadvantages: 1. It cannot be used for double-column formations. 2. It does not lend itself to use by wings. 3. If three lines are used, they are naturally the same size. 4. It is not flexible and cannot be cut in two.

THE FOUR UNIT SYSTEM.

	IN PLATOON		IN TROOP			IN SQUADRON			IN REGIMENT			25 REGTS.	
	Men.	Officers.	Platoons.	Men.	Officers.	Troops.	Men.	Officers.	Squds.	Men.	Officers.	Men.	Officers.
Totals	40	1	2	86	3	4	345	15	2	723	35	18,075	875
Lieuts.	.....	.....	.....	.....	2	.....	.....	10	.....	.....	20	.....	500
Capts.	.....	.....	.....	.....	1	.....	.....	4	.....	.....	11	.....	275
Majors	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	2	.....	50
Lt. Cols.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	25
Cols.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	25

ADVANTAGES OF THE FOUR UNIT SYSTEM.

1. It favors all wing formations. Wing formations favor successive withdrawals such as would be used in rear guard actions, one wing withdrawing under the cover of the fire of the other. Von Bernhardi, who is perhaps the best German authority, says, "Against artillery and infantry the wing system should always be used." It lends itself readily to an attack on both front and flank. It will be seen from Table No. 1 that all European organizations are suitable for wing formations. They drill it extensively.

2. It favors placing equal forces on each flank of the infantry line.

3. It favors the double column, which is best for rapid deployments to either front or flank. To the front both wings can be brought simultaneously on to the line.

4. It makes it easy to use or avoid the use of three lines.

5. In any attack, the attacking line should equal the troops held out. That is, the attacking line should equal both support and reserve. It, therefore, favors an attack with one-half in the attacking line, one quarter in support and one-quarter in reserve.

6. It has great flexibility and can be cut in two parts down to a very small unit.

7. It requires no change in the drill regulations.

The above tables showing twenty-four and twenty-five regiments are the equivalent of our present organization at war strength, and provide for no increase of enlisted strength.

All European nations have, in addition to what is shown in Table 1, a depot squadron or troop. In Europe the regi-

ments are localized, and the position of the depot troop never changes. I do not deem such an arrangement suitable to our present needs.

A small regiment enables cavalry to be assigned as divisional cavalry without breaking up a regiment. A regiment of 1,200 sabers is too large to be assigned to a division. An European brigade is the present size of our present regiment. A division is composed of three brigades.

In arguing that a smaller regiment than our present one is a more efficient one in time of war, it follows that some provision should be made to maintain it at its full strength.

There should be no such thing as peace strength. The cavalry should be kept at its war strength all the time. When war breaks out cavalry will be needed at once, and needed badly.

If, in time of war, cavalry must take on a lot of green men and horses, its mobility will be paralyzed for at least three months.

The same authority above quoted says, "The system adopted by the infantry of raising cadres to war strength by absorption of reserve men is for the cavalry fundamentally impossible," and again, "I protest against any scheme which would seek to swell out the ranks or create new units on mobilization." We all saw how it worked during the Spanish war. By taking on fifty new men and horses, the efficiency of the cavaly was paralyzed for six months. The establishment of a remount depot is in the right direction. If it could also be made a recruit depot, then we would have something of great and lasting value. Our losses in time of war could be filled with trained men and trained horses. Men and horses temporarily disabled could be sent there to recuperate. Old soldiers, too old to take the field, could be sent there to train recruits. Old horses, too old to take the field, could be sent there for the use of recruits. Fort Reno is an ideal place for such a depot. Others should be established without delay.

As regards the machine-gun platoon, it may be that the Benét Mercé or Hotchkiss portable will supply the demand. The present gun does not. In my humble opinion, cavalry

cannot be tied down to a pack train without compromising its mobility. The most modern thought on cavalry is that while its tactical use has been restricted its strategical employment has been very much extended. In its strategical employment the watchword is "Mobility," which is the prime condition of its efficiency. Why, then, tie it down to a pack train?

Every cavalry regiment should have a light wagon with a canvas ponton boat and enough material for two bays. This would be sufficient to bridge a stream about thirty feet wide. To this proposition I would attach the condition, the same as to all other cavaly transportation, that it should be able to follow the column at a trot.

ALONZO GRAY,
Captain, Fourteenth Cavalry.

POSTAL SERVICE IN WAR.

THE following extract* from the personal memoirs of General of Infantry Baron L. v. Seddëler, Aid-de-camp to Emperor Alexander II and Russian attache to the Tenth Prussian Army Corps during the Franco-Prussian War, seems worthy of deep study and emulation in our army, especially so when we recall conditions in regard to the mail service obtaining in our service during the days of Santiago and the Phillipine Insurrection, when it was simply a matter of happy-go lucky whether or not those in the field received or could send any mail matter:

"What struck me as the best feature of the entire interior management, and as the most considerate, during the war was the Prussian Postal Service. The Germans fully realized the vast importance of keeping up close communication between the troops in the field and their homes, and vice versa, and utilized all possible means to gain the confidence of the people and of the army, and the department tried to

*Published in Beiheft to Militär Wochenblatt, February, 1909.

do this through quick and correct transmission and delivery of all mail and parcels of every description. Most of the credit for this should be given to the well known chief of the postal service, v. Stephan. He gave this important matter his entire and unflagging attention; he personally visited the theater of operations several times to infuse energy and activity into the postal system. It was he who originated the franking system of all mail matter from and to the soldiers in the field. There was a central postoffice with each corps (the field postoffice) and its twenty-two officials were apportioned amongst the divisions and the artillery; there were twenty-eight mail carriers (field mail carriers) to each corps, and they were mounted in part. At a fixed hour daily, if ever practicable, and without fail immediately after each battle, these mail carriers went along the lines to gather up mail into their leather sacks, especially the postal cards which the Government furnished each soldier free of charge. On the battlefield it was their duty to ask the wounded whether they wished to write home, furnishing them the materials to do so, and they often wrote themselves at the dictation of the dying. The chief endeavor of the field mail service was to forward letters and cards of the dying with the least possible delay—and that not to the addresses direct, but to the mayor of their town or village or to some minister of the gospel, whose lawful duty it then became to communicate the contents in person to the relatives concerned before delivering the letter or card."

NEW SHRAPNEL GRENADE.

From *Arms and the Man.*

"TESTS have been completed at the factory of the Cotton Powder Co., at Faversham, England, of the new shrapnel grenade.

"The tests proved beyond any doubt that these grenades could be projected from the service rifle with great accuracy

for a considerable distance with absolutely no danger to the man behind the gun. Of course the device is intended for high angle fire, and works on the principle of a ramrod left in the barrel on top of a mere powder charge, *i. e.*, a blank cartridge. The rod which supports the grenade enters the bore for about nine inches or so, the weight of the grenade being about one and one-half pounds, and a special blank load is used.

"The tests, when completed, showed no damage to the barrel of the rifle, and the grenade flew in a line much like that taken by an ordinary sky rocket, the rod of the grenade taking the place of the stick and keeping it nose on. When the grenade is arrested in its flight by contact with any immovable or heavy object, an internal weight slides forward striking a percussion cap and this in turn detonates the explosive charge in the body of the grenade. Tonite was the explosive used.

"A split pin engages the sliding weight and prevents any explosion of the grenade, and this pin is not removed until just before the actual instant of the rifle's discharge. The detonator plug is screwed on the head of the grenade, and this affords greater measure of safety because the plug can be removed easily and the grenade carried without it until it is desired to fire one of them, when the plug is capable of being instantly affixed.

"The tests proved that upon impact or explosion the grenade was going to make the vicinity of the detonation a very uncomfortable and unhealthy locality. Jagged pieces of metal and shell were profusely scattered and did considerable cutting up. The tail or metal rod even, is scattered into fragments, and the charge is sufficiently heavy, four ounces of tonite, to speak for itself.

"The length of rod used on the grenades would increase the range possibilities, and, as the recoil is not excessive, the rifle grenade can be fired either from the shoulder or the prone positions, or with the butt resting on the ground, the last method, of course, being preferable.

"The designer showed during the tests that dropped from a height of four feet, the grenade did not receive suffi-

cient jar to detonate it, but a six foot fall accomplished that. A bullet fired into the four ounce tonite charge suspended from a target merely tore through the shell and powder without causing explosion, so that it is not dangerous for the soldier to have one or two of these grenades on his person.

"The propelling blank charges were approximately the same as standard issue of blank ammunition except that they were loaded with a heavier charge of cordite, and the inventor claims that a full service cartridge, with the bullet removed, would answer for the propelling charge. The range at which the tests were conducted was 300 yards."

A NEW AUTOMATIC PISTOL.

THE Piper Arms Factory, of Liege, Belgium, is making an automatic pistol for the Spanish Army. This pistol was invented by a German named Bergmann and is similar to the Mauser pistol. The magazine is placed in front of the trigger guard and is so arranged that it may be loaded by removing from the pistol, as in the Luger or the Colt, or by leaving the magazine in the pistol and loading with a clip similar to the Mauser. The pistol has a four-inch barrel and is ten inches in length. Caliber .354; number of shots, six.

WIRELESS TELEGRAPH EQUIPMENT FOR CAVALRY.

From *Broad Arrow*.

THE *Fahrbucher fur die deutsche Armee und Marine* reports an important improvement in wireless telegraph equipment for cavalry, whereby a range of about forty-six miles is obtained without any addition to the weight of the outfit (approximately 440 lbs.), and notwithstanding a reduction in the length of the poles from forty-nine feet to about thirty-nine feet. The entire set can be transported by four pack animals or carried by eight men. Recent trials between Berlin and Rheinsberg, distance seventy-five kilometers, are said to have yielded entirely satisfactory results.

SECOND LINE CAVALRY.

IN the militia, under the latest law, we have a second line of infantry of about 100,000 men, but we have practically no such reserve of cavalry. There are a few excellent organizations of militia cavalry in or near large cities. They own their own mounts and are mostly made up of men of means and ability, who, while they are the very best quality of men, will never serve as cavalry in war. The reason is clear. These men are of the kind that would make volunteer officers, and they would inevitably go to such duty in case of war. Only a few other militia cavalry organizations exist. These are, for the most part, cavalry in name only, being mounted only semi-occasionally and then on scratch horses hired by the day. The men best qualified for service in second line cavalry are farmer boys who live in small communities where they are too much scattered to form militia troops. These men are of the rough and ready kind, used to finding their way about in the country and able to makeshift to care for themselves and their horses and equipment with such materials as will be found in the field. The question that I put is this: "Can we secure a second line cavalry made up of men who would be really fitted for cavalry work in war?" The writer will attempt no answer further than a statement of how Switzerland makes up her cavalry from men of scattered rural communities.

Switzerland has no standing army. All her cavalry is thus militia. A remount depot purchases all the horses, which are about three and one-half years of age when purchased. The horses are first sent to a detention station annexed to the depot and kept there until acclimated. After

six weeks training begins. At the end of two months the horses are moved up to the main depot, where training continues. All training is done by civilian trainers, the stable work being also done by civilians. At the end of two to four more months the animals are quite good in the three gaits, can jump in hand, obey the aids without hesitation and *drive easily in harness.* The horses are then divided and sent to the cavalry training grounds, where their instruction continues, still under civilian trainers. With four months here their instruction is completed. The horses are now divided into: 1. officers' mounts. 2. horses with certain curable vices (sold to old soldiers whose horses have died, etc.); 3. horses for recruits, and are sold to the men who are to ride them. Horses are sold at cost price. In case more than one man wishes the same horse they are permitted to bid it off, as at an auction. The buyer pays down one-half the purchase price, draws a set of equipments and rides home. He is entitled to use the horse, saddle and bridle as much as he likes. Thereafter for ten years the recruit serves in training camps a couple of weeks a year and is liable to call in case of war. When called out he reports at the assembly point mounted, armed and equipped. Each year the government returns to the soldier 10 per cent. of the money deposited. At the end of ten years the horse becomes the property of the buyer. If the horse becomes seriously ill the soldier has the privilege of taking him to a remount hospital for treatment; if he dies he is replaced under arrangements varying with the circumstances.

This system does not seem to meet our wants at the present time, but it may be worth remembering for future consideration. E.

Problems.

PRIZE PROBLEM NO. 9.

Editor Cavalry Journal.

DEAR SIR:—Four solutions were submitted to Prize Problem No. 9. Those of "Arab," "Batangas" and "Sheridan's Drive" were along very similar lines and provide for defensive action. "Corporal Dimm" takes the offensive.

While "Corporal Dimm," in taking the offensive, shows commendable dash and audacity, this is a situaiion which requires a stubborn resistance against a superior force, whose superiority must be equalized by the position itself and success made sure. "Sheridan's Drive" leaves his reserve squadron at Atchison Cross and sends his other squadrons, one by Frenchman toward 7, the other by Hancock Hill to 15. His battery goes to Wagner Point. He himself (as Colonel "A") takes position on Atchison Hill. These dispositions disperse his force at the start more than necessary and observation from Atchison Hill is not so good as from Bell Point.

"Arab" and "Batangas" have nearly parallel solutions, except that "Arab" fails to give his intentions as required in the second requirement of the problem. "Batangas" sends one squadron toward Hancock Point, while "Arab" sends three troops, keeping one with the battery. "Batangas" is ready to open fire at 4:33 P. M. with his battery and "Arab" at 4:40 P. M. "Batangas" sends verbal orders to his advance guard commander by a staff officer; "Arab" by a written message.

The committee believes that the solution by "Batangas" is the best and recommends that the prize be awarded to its author.

A. E. SAXTON,
Captain, Eighth Cavalry.
LEROY ELTINGE,
Captain, Fifteenth Cavalry.
MATTHEW E. HANNA,
Captain, Third Cavalry.

In accordance with the above report, the prize for the best solution of Prize Problem No. 9 is awarded to First Lieutenant George W. Winterburn, Ninth Cavalry.

PRIZE PROBLEM NO. 9.

SOLUTION.

ORDERS:

Colonel A is directed to prevent interference by the enemy with the Blue Army. Therefore he must prevent the Brown detachment from reaching the Fort Leavenworth or Terminal bridges or from reaching the flanks of the Blue Army.

As the Blue Army will be across the Missouri River during the night June 30th–July 1st he must, at all hazards, prevent their interference until such time as this crossing is completed.

The methods pursued to block the Brown detachment's movements are left entirely to the discretion of Colonel A.

Enemy.—It would appear that the enemy's column consisted of one regiment of infantry and one battery of artillery. At 4:12 P. M. the advance guard of the enemy is approaching 17 and the main body is at Plum Creek. At this time, 4:20 P. M., it cannot be definitely determined whether the enemy will march via the 17–H–G road or the 17–15–11 road toward Leavenworth. His best chance of success

would seem to be to reach the Fort Leavenworth bridge via the latter road and place himself on the flank of the retreating Blue forces, with the possibility of being able to capture or destroy the Fort Leavenworth bridge and to shell the Terminal bridge. By proceeding toward Frenchman he might capture the high ground in the vicinity of Atchison Cross, which position would command, more or less, the approaches of the Fort Leavenworth bridge. It is possible that he can expect aid, if necessary, within a reasonable time; that is, some time during the night June 30th–July 1st. The advance toward Frenchman would, however, consume more time and expose his forces to a greater extent than by advancing via the 17–15–11 road. It would appear also that the enemy's means of securing information would be more or less slow; being in a friendly country, however, inhabitants with the aid of horses or vehicles might acquaint him with the Blue cavalry's movements. This danger, however, could be minimized by the rapid advance of the Blue cavalry. The movements and reconnaissance of the infantry must necessarily be slow as compared to the cavalry and the point of the enemy's advance guard could not reach Kerns on the 17–15–11 road until 4:37 P. M.; the reserve about 4:50 P. M., and the main body could not effect a deployment until at least 5:10 P. M. An advance toward Frenchman would consume about the same time. It is to be supposed that the Brown commander, having lately been victorious, would be very aggressive and would attack at first opportunity.

It is possible that, instead of moving his entire force on one of the two roads open to him, detachments might be made to operate on the road not selected for the advance of the main body. This as a flanking movement or as a feint.

Any attempt to move toward Fort Leavenworth via the M. P. R. R. would be very difficult, especially for artillery, and would necessitate the counter-marching of troops and could be successfully opposed.

The enemy will not leave the roads until forced to and thereafter his advance would be difficult.

Our forces consist of the Seventh Cavalry and Eighth Horse Battery. The point of the advance guard should be

in the vicinity of Baker and patrols probably at Frenchman. The head of the main body is at Atchison Cross. It cannot be determined which road the enemy will take, but immediate steps must be taken to block both roads in such manner as to be able to oppose the enemy's main body or detachments wherever they may go. All the early movements of the Blue cavalry will be made under cover (except for dust) and all the movements of the Brown detachment can be definitely determined from the high ground along Sheridan Ridge. The Blue advance guard reserve can reach Frenchman by 4:35 P. M. and the First Squadron could reach Hancock Point by 4:34 P. M., or even a minute or two earlier if more than a ten-mile-an-hour gait was maintained. Deployment could be effected almost immediately, which should find the enemy between Schroeder's and 17 (if on the 17–15–11 road). The horse battery could reach Bell Point at about 4:33 P. M. This should find the enemy as above if on the 17–15–11 road and between branch of Salt Creek and 17 if on the 17–H road. All points on both these roads are between 2,000 and 2,500 yards range. Bell Point would also be a central point from which further movements could be made.

The advance guard could reconnoiter beyond Salt Creek and prepare all bridges in the vicinity of Frenchman for destruction. A position in vicinity of Frenchman could be taken up covering Salt Creek with the strong position in the vicinity of Atchison Cross directly in rear. The advance guard could also act on the enemy's flank, if opportunity afforded.

Third Squadron could proceed to E, or slowly along the Atchison Cross–E–Sheridan's Drive road, where further instructions could easily reach it, and it would be in a position to assist either the First or Second squadrons.

Terrain.—But two roads are open to the enemy's advance—these have been discussed. The 15–F road could not be used by the enemy during early movements. The valley of the Salt Creek is open and hilly, being cut into sections by Salt Creek and its branches. The valley is commanded east of the 17–H road by the high ground along Sheridan Ridge,

and the entire valley is open to observation from this point. Sheridan Ridge affords excellent defensive positions along its entire length from M. P. R. R. to 1100 Hill, if necessary, which would connect with the Blue rear guard. Cover and roads are available along the greater part of this ridge. Salt Creek and its branches would be difficult to cross except at bridges and would, therefore, afford an obstacle. These creeks are generally commanded by artillery fire from Bell or Hancock Points. An excellent retarding position is afforded in vicinity of Sentinel Hill, and Atchison and Government hills afford a very strong defensive position. The 17–15–11 road east of Kerns passes through a heavily wooded country. The country directly east of Atchison Cross is open. The country between Missouri Bluffs and Missouri River is marshy and practically impassable except along the M. P. R. R. The country south and southwest of Frenchman is very rough and devoid of roads.

Decision.—Colonel A must act at once to offset probable moves of the enemy, and he therefore immediately notifies the advance guard commander to reconnoiter toward 17; to prepare for destruction of bridges in vicinity of Frenchman; to oppose any movement of enemy along 17–H road; if enemy is not advancing along 17–H road, to hold himself in readiness at G. Colonel A immediately gallops to Bell Point, accompanied by Second Squadron and horse battery.

The Third Squadron will proceed to E, holding itself in readiness. At Bell Point Colonel A acquaints himself with the further movements of the enemy, and if found advancinp on the 17–15–11 road, the Second Squadron is ordered to Hancock Point to oppose this movement, the Third Squadron being ordered to its support and the First Squadron at Frenchman moved as may be necessary.

If enemy is on 17–H road, the Third Squadron at E would be ordered to reënforce the First Squadron, which will resist and eventually fall back to strong position at Atchison Hill. The Second Squadron will observe the enemy's movements from Sheridan Ridge.

The artillery will immediately open fire upon arrival at Bell Point, seeking the enemy's main body and artillery.

If enemy advancing on the 17–15–11 road, artillery could, if necessary, be moved to Hancock Point, two guns at a time.

It is thought Colonel A's command could be readily concentrated to meet any emergency. These movements must be made immediately, as time can not be spared to wait further information.

Colonel A could easily hold the enemy until dark, after which no concerted action could be made by them if roads were properly guarded.

If cavalry buzzer lines were not available to connect the various squadrons and detachments, the high points—Sentinel Hill, Bell and Hancock Points—would be used for visual signal stations.

As orders must be issued immediately, verbal instructions would be sent to the commanding officer of the advance guard and to the commanding officers of the Second and Third squadrons and horse battery. If written, it would take the following form:

HEADQUARTERS BLUE DETACHMENT,
ATCHISON CROSS ROADS, KANS., 30 June, '08, 4:22 P. M.

FIELD ORDERS
No. 1.

1. A Brown detachment. estimated at one regiment of infantry and one battery of artillery, is advancing toward Leavenworth via Kickapoo. Its advance guard is near 17 and the head of the main body is near Plum Creek. Our army is crossing the Missouri River by the Terminal and Fort Leavenworth bridges; crossing will be completed to-night. Our rear guard will hold high grounnd 28–42–50.

2. The Seventh Cavalry and Eighth Horse Battery will prevent the enemy's interference with our main body.

3. (*a*) The Eighth Horse Battery will proceed rapidly to Bell Point and immediately open fire upon the enemy's main body and artillery.

(*b*) The First Squadron (advance guard) will reconnoiter toward 17 and if enemy found advancing in force on Frenchman to destroy bridges in that vicinity and oppose advance. If enemy not advancing in force, hold squadron in readiness at G.

(*c*) The Second Squadron will proceed rapidly toward Hancock Point and oppose any advance of the enemy in that direction.

(*d*) The Third Squadron will proceed to E, holding itself in readiness for further orders.

4. The commanding officer will be found at Bell Point.

By order of Colonel A.

X,
Captain and Adjutant, Seventh Cavalry,
Adjutant.

By staff officer to commanding officer advance guard (it is thought that this method would be faster than by using buzzer line, if available, for this short distance).

To commanding officers, Second and Third Squadrons and Horse Battery and staff, who would be assembled, if time permitted. By orderly to commanding officer Blue forces at Leavenworth.

If no buzzar communication visual signal stations would be established on Sentinel Hill, Bell and Hancock Points.

(Signed) BATANGAS.

PROBLEM NO. 10.

(CAVALRY JOURNAL, January, 1909, Page 671.)

SOLUTION.

Major A's orders are "*to reconnoiter to the north and west of Leavenworth and to drive back small parties of the enemy.*" In other words, he has an offensive mission. Several courses of action are open to him. He may attack; he may occupy positions and stand on the defensive; he may fall back on his infantry, or he may ride around the enemy and reach his rear. He must first decide which of these he should undertake, in view of his mission, and then he must decide on the detailed tactical dispositions to accomplish what he has undertaken.

At 11:05 A. M. Major A is on Avenue Hill with his staff and advance guard commander and his command is located as stated in the problem. From his patrols to the west of 60 and north of Leavenworth he has received no information; this indicates that no enemy has appeared in those directions. For the time being the only enemy to be considered is that approaching on the Atchison Pike.

The information of the enemy from the patrol on Atchison Hill is positive so far as it goes. It consists of cavalry only and was two miles west of Atchison Hill at 10:45 A. M. As to its strength nothing definite is stated and it is useless

to speculate on this point. Major A has seen the led horses of half a troop but for all he knows this is the leading element of the advance guard of a strong cavalry column. That the enemy has dismounted indicates nothing, except that he intends to fight, but as yet it is not clear whether he will attack or defend. There can be little doubt but what this is the column or head of the column seen by the patrol from Atchison Hill, for it could easily make the two miles and dismount to fight on foot in the twenty minutes that have elapsed since 10:45 A. M.

Major A must make his decision with but very little knowledge of the enemy unless he simply waits where he now is while seeking more information by reconnaissance or otherwise. That he should not do this will become apparent as the situation is more thoroughly analyzed.

Much may be fairly inferred as to the enemy's probable intentions. It is known that a Red force is, or recently has been, in the vicinity of Atchison. It may have heard of the intended junction of the two Blue columns at Leavenworth and may have marched to prevent this junction by seizing the bridges over the Missouri at Leavenworth and Fort Leavenworth. The possession of the range of hills through 28, 22 and 16 is necessary to carry out such an enterprise. If this assumption that the enemy is in the vicinity in force be true, the possession of these hills is no less necessary for the Blue brigade if it is to succeed in joining its reënforcements from Missouri. In the event that these hills play so important a part in this operation, that side will have a great advantage which gets possession of them at the outset. This is a view of the situation that Major A must consider, although it may later develop that the enemy's infantry and artillery are nowhere near Leavenworth.

This view of the situation furnishes the most important reason why Major A should attack at once and without waiting for further information, for by attacking at once he may succeed in obtaining possession of the hills, whereas, by waiting, the force at Atchison Cross may speedily be reinforced by additional cavalry, or even by infantry, within the next half hour or hour. But there are other reasons why he

should attack. His general mission is aggressive. He is to drive back small parties of the enemy and he is to reconnoiter to the north and west of Leavenworth. To do either effectively, he must attack. If the hostile cavalry is strong and is well handled, it will meet and block Major A at some other point on the ridge if he attempts to ride around the Atchison Cross position and he will have to fight just the same, only at a later hour and different place. If it is weak, he should, under his orders, attack and drive it back.

With the ridge in his possession he may be able to hold it, even should the hostile infantry be near, until his own infantry can come to his support. At 10:45 A. M. it was five miles in rear and now, at 11:05 A. M., about four miles in rear. It can be up in an hour and twenty minutes.

So Major A's initial decision is to attack at once. Now as to how the attack will be made. The country north of Leavenworth is open and easily traversed by cavalry, but movements across it would be plainly seen by the hostile cavalry on the hills and it could move with absolute certainty to meet Major A's advance should it be made across this open ground. Moreover, the dismounted attack, when it began, would be made over ground furnishing poor cover. A wide turning movement through Fort Leavenworth and the woods to the west, as well as a wide turning movement in any other direction, is open to the objection that it takes too much time, even were it advisable for other reasons. The terrain west of the 62–14 road furnishes good cover for an enveloping or turning movement against the enemy's right flank. In view of the uncertainty as to the enemy's strength, it does not seem wise to make a frontal attack with the whole force along the 62–14 road. The best plan will be to combine an attack along this road with an attack against the enemy's right flank.

The force sent against the hostile right had better be kept in close supporting distance, during the movement, to the remainder of the force attacking along the road, for the enemy may be quite strong and might make the most of any such splitting up of the Blue squadron. For this reason it is taking chances to send a part of the force via the 60–56–

58–22–20 road and trail to strike the hostile right. At 58 it would be nearly a mile from Atchison Cross with very broken country intervening. It would be safer to send this part of the force across country from 62 to the trail along the spur west of 62, thence via this trail to 20 and the vicinity of the enemy's right.

For similar reasons, the force attacking along the road should be strong enough to look out for itself for some minutes and to hold the enemy by its attack to his position at Atchison Cross and thereby prevent him, as far as possible, from meeting the attack against his right. The reserve may follow the attack along the road or the force sent along the trail. Along the road is the safer place for it, but along the trail it may have the best chance for brilliant results. Due to the uncertainty as to the enemy's strength, the more conservative plan is the wiser. By attacking with the bulk of the troops along the road victory will be about as certain as it would be were the bulk of the troops sent along the trail, and defeat in the former case is not nearly so liable to be disastrous, for the troops on the road can fall straight back on their infantry, while those on the trail are in danger of being cut off. However, any one of the following combinations is good, although the last probably is the safest. One troop along the road and three along the trail; two troops along both trail and road, and three troops along the road and one along the trail.

Consequently, Major A decides to attack the enemy at Atchison Cross, enveloping his right flank; to have Captain A (commanding the advance guard) attack along the 62–14 road with the advance guard troop and Troop "B"; to have Captain C move along the trail on top of the ridge, via 20, with Troop "C" and attack the enemy's right and rear; to have Troop "D" follow Captain A as reserve.

He then issues the following verbal orders to Captain A, who is with him:

"We will attack the enemy at once in front and on his right flank. Attack with your troop and Troop "B," dismounted, along the west of the main road. Captain C will take his troop, mounted, along the trail on top of the ridge and attack the enemy's right and rear. Troop "D" will follow you as reserve. I will direct Captain B to you immediately. I will be with the reserve. Move out at once."

He then directs the adjutant to prepare a message for the brigade commander and gallops back to the main road, tells Captain B to report with his troop to Captain A, assembles the officers of Troops "C" and "D" and issues the following verbal orders:

"The enemy's cavalry is in position across the road about 1,500 yards to our front. About fifty of his led horses were seen moving along the road up the hill. Further than this I know nothing definite of his strength. Our infantry is about four miles in rear. We will attack at once against the enemy's front and right flank. Captain A will attack, dismounted, along and west of this main road, with Troops "A" and "B." Captain C, take your troop through the woods to the west, follow along the top of the ridge and attack the enemy's right and rear. Patrols are now out on roads to the west. Captain D, your troop will follow Captain A as reserve. Remain mounted for the present. I will accompany the reserve."

The message to the brigade commander is now signed and sent.

PROBLEM NO. 11.*

(See Map of Fort Leavenworth published in the Cavalry Journal for July, 1907.)

General Situation.

A Blue (Southern) and a Red (Northern) army are approaching each other but are not in contact. Each knows of the existence of the other, but not of its exact location.

Special Situation—Blue.

The Blue army is advancing, its cavalry about thirty miles ahead of the army. The extreme right of the cavalry screen is the First Cavalry, Colonel A commanding, without field train, which, having accomplished a special mission at

*Solution will appear in the next number of the CAVALRY JOURNAL.

Leavenworth, has resumed its march towards Kickapoo. No hostile forces have been encountered. At 4:00 P. M., when then the head of the main body has reached 17, Colonel A received the following message:

HEADQUARTERS CAVALRY DIVISION,
ST. JOSEPH'S CHURCH, KANSAS.
May 1, 1909, 2:40 P. M.

Commanding Officer First Cavalry, Leavenworth:

Our advance parties have had a few skirmishes with hostile cavalry. To-night Division Headquarters will be at St. Joseph's Church, (six miles west of G). Halt for the night and send officer for orders at 9:00 P. M.

By command of Major General X.

Y Z,
Chief of Staff.

NOTE:—Fort Leavenworth is an ungarrisoned village. Missouri is a neutral State. The country is hostile to the Blues.

Required:

1. Colonel A's dispositions.
2. His reasons for same.

Editor's Table.

OUR BOOK DEPARTMENT.

As was stated when this department was first started, its object is to supply our officers, particularly our members and subscribers, with such new military works as were deemed of worth to the military student and at the lowest practicable cost.

Many officers are so stationed that they do not have the opportunity of examining books before ordering them; in many cases they have no idea where they are published or can be purchased, and in other cases they do not know exactly the title of the book wanted or simply want a book or books on certain subjects. In such cases it was thought that the Association, being here, where it has access to the Army Service Schools library, and in touch with student officers and instructors as well as having at hand book catalogues from all military publishers, could be of assistance to our brother officers in securing what they desired and at the same time at a reduced cost.

The growth of the department has been far beyond our expectations and it is believed that it is rendering valuable service to our members.

Where our contract with the dealer does not forbid it, the discount obtained is divided between the Association and the purchaser, if he be a member of the Association or a subscriber to the JOURNAL, but in other cases the full list price is charged. Of course it is necessary to make a profit on this business in order to cover the cost of the extra postage, wrapping material, advertising certain books, where we are the special or general agents, etc., which is no small sum, and the extra clerical service this work entails.

In some cases the Association has assumed the work of publishing books written by officers where the authors have not the time or, owing to their frequent changes of station, the opportunity to attend to the business and, in some cases, the inclination to assume such work. These books that have been published by the Association so far are those written or compiled by instructors at the Service Schools, and which they have been urged to have published in order that the service at large might benefit by their work. In other cases the Association has assumed the special or general agency of certain books which are advertised in the JOURNAL.

Recently the association has accepted a proposition to become the general agents for the United States for the English translation of the "German Official Account of the Russo-Japanese War," and the new work on Grant's Campaign, 1864–5, "The Wilderness and Cold Harbor," of the Pall Mall Military Series.

A review of the first volume of the German Official Account of the Russo Japanese War, "The Yalu," appeared in the last number of the JOURNAL and it was hoped to have the review of "The Wilderness and Cold Harbor" ready for this number, but the reviewer has not found time to prepare it, although he states that it is an excellent work. The second volume of the German Official Account of the Russo-Japanese War, "Wa-fan-gou," is just off the press and the third volume, "Liao-yan," will be published in the autumn.

ANNUAL MEETING OF THE U. S. CAVALRY ASSOCIATION.

The annual meeting of the Cavalry Association was held on Monday, January 18, 1909, with over three hundred members present or represented by proxy. Officers for the year were elected, as shown by the list given on the title page of this number of the JOURNAL.

The report of the Secretary and Treasurer, a synopsis of which is printed herewith below, shows a satisfactory growth

financially, if not otherwise. Notwithstanding that there was quite a large falling off in the receipts for advertising, largely due to the panic of last year, the net resources show a gain of over $800.00. There was also a falling off in subscribers to the JOURNAL, which it is believed was due also to the prevailing hard times during the year. On the other hand, there was an increase in regular and associate membership and of infantry subscribers, but not sufficient to compensate for the loss of subscribers, as the net loss during the year was forty-three.

While it is a great satisfaction to have the Association on a safe financial basis, yet this is unimportant compared with the fundamental idea of having every cavalryman interested in the Association and its work and to have this interest manifested by their becoming members of the Association. It is not now and never has been the intention of the Association to simply publish a journal and to thereby make money, but to work up and maintain an interest among the cavalry officers of our service in their professional advancement; to cultivate the "*cavalry spirit*" and to effect, through discussions and arguments to be brought to bear on those in authority, changes in organization, equipment, etc., and generally for the betterment of the mounted service.

To do this requires the active coöperation of a large majority of the cavalry officers, particularly of those on the active list.

Notwithstanding the fact that several of the regimental representatives of the Association, that had been selected by their colonels, did good work in inducing many young officers to become members, yet the net gain of only five in the regular membership is disappointing. However, the gain from those on the active list was quite large and the losses were mainly from those on the retired list, by deaths, and from those in civil life, and to this extent the report is encouraging.

It is hoped that the change in our constitution which authorizes a sub-council, to consist of one member from each of the cavalry regiments, will have the desired effect of working up a greater interest in the Association among the

younger officers of cavalry. The younger officers are particularly mentioned because, with three or four exceptions, all of the field officers of cavalry are now members and very few of the captains are not on our list of membership and the over twenty-five per cent. of our officers of cavalry on the active list that are not members, are nearly all from the list of lieutenants and principally the second lieutenants.

The proposed amendments to the constitution were all adopted, nearly all of them almost unanimously, there being a few scattering negative votes only on all of the propositions, with the exception of the one to admit non-commissioned officers to associate membership, against which there were more, although that was carried by a large majority over the required two-thirds vote. The constitution as amended is published in full in this number.

An important matter that was brought up and fully discussed at the meeting was that of forming branch associations at all, or at as many as possible, of the cavalry garrisons. It was argued that these branches, which formerly existed at several cavalry posts, would be of great assistance in carrying out the main ideas of the association, and that through them harmonious action on many important matters of vital interest to our branch of the service might be engendered. It was also suggested that, in case this idea should be adopted, it might be well for the Executive Council of the Cavalry Association to select such subjects as they deemed most important for discussion at all of these several branches, at about the same time, and that thereby each particular subject could receive the best thought and attention of our cavalry officers and the subject thoroughly threshed out at once. The resulting action or best opinion of each branch to be communicated to the Secretary of the Association for publication in the JOURNAL, or a synopsis of all views to be so published. However, this thought was thrown out as a suggestion for future action should other such branches be formed.

It was then determined to form such a branch here at once and a committee was appointed to draft a proposed constitution or rules, to be simple in form, and to arrange for the first meeting.

The question of the petition for a Chief of Cavalry was also discussed and the action of the Executive Council in determining not to forward those received—on account of the knowledge that the War Department authorities did not favor such action—was approved by the Association.

REPORT OF SECRETARY AND TREASURER.

FINANCES.

Cash on hand January 1, 1908	$ 1,045 09
Received from members and subscribers	3,109 66
Received from advertisers	1,393 00
Received from sales of books	2,463 91
Received from interest on funds	39 05
Total receipts	$ 8,050 71
Expended as per classified list	6,648 16
Balance on hand December 31, 1908	$ 1,402 55

Assets and liabilities December 31, 1908:

ASSETS.

Cash on hand	$ 1,402 55
Due from members and subscribers	1,418 00
Due from advertisers	396 30
Due for books	409 05
Books on hand, bound and unbound	190 92
Total assets	$ 3,816 82

LIABILITIES.

Due for books	$ 54 84
Net assets, December 31, 1908	3,761 98
	$3,816 82
Net assets, December 31, 1907	$2,959 97
Gain in resources during 1908	$ 802 01

MEMBERSHIP BY REGIMENTS.

Regiment.	*Members.*	*Per cent.*	*Order.*
First Cavalry	42	80.77	2
Second Cavalry	33	62.27	12
Third Cavalry	38	73.08	4
Fourth Cavalry	29	55.77	14
Fifth Cavalry	40	75.48	3
Sixth Cavalry	37	71.16	7
Seventh Cavalry	27	51.93	15
Eighth Cavalry	36	67.95	10
Ninth Cavalry	34	65.89	11
Tenth Cavalry	43	81.14	1
Eleventh Cavalry	36	69.24	8
Twelfth Cavalry	38	71.69	6
Thirteenth Cavalry	37	72.55	5
Fourteenth Cavalry	34	63.00	9
Fifteenth Cavalry	32	60.56	13

CONSTITUTION.

ARTICLE I.

TITLE.

This society shall be known as "The United States Cavalry Association."

ARTICLE II.

HEADQUARTERS.

The headquarters shall be at Fort Leavenworth, Kansas.

ARTICLE III.

DESIGN.

The aim and purpose of this Association shall be to unite all persons directly or indirectly interested in the cavalry arm of the military service, for the professional improvement of its members and the advancement of the mounted service generally.

ARTICLE IV.

MEMBERSHIP.

SECTION 1. This Association shall consist of (1) regular members, (2) associate members, and (3) honorary members.

SEC. 2. The following shall be eligible to regular membership: (*a*) Commissioned officers of the cavalry of the regular army. (*b*) Former commissioned officers of the cavalry of the regular or volunteer services, provided their services are honorable. (*c*) General officers of the regular army and former general officers. Those regular members who are on the active list of the army shall be known as *regular, active* members.

SEC. 3. The following are eligible to associate membership: (*a*) Persons who are, or who ever have been commissioned officers of honorable record in the regular army (other than those mentioned in Section 2), or in the navy or marine corps. (*b*) Persons who are, or who have ever been commissioned officers of honorable record of the National Guard or naval militia of any State or Territory. (*c*) Former general officers and former commissioned officers of cavalry of honorable record in the Confederate army. (*d*) Non-commissioned officers of the cavalry service and former non-commissioned officers of the cavalry service of honorable record.

SEC. 4. Honorary members may be elected from men distinguished in military and naval service and from eminent men of learning. They shall be elected as such for the period of five years. Honorary members shall be elected by the Executive Council, and it shall require a two thirds vote of all members of the Council to elect.

SEC. 5. Any person eligible to regular or associate membership may become such upon making application to the Secretary, accompanied with the amount of the annual dues for the first year and upon furnishing satisfactory evidence of his eligibility to such membership.

SEC. 6. Any person or society may become a subscriber for the JOURNAL of the Association; and all persons paying for and receiving the same, but who are not regularly admitted and entered as regular, associate, or honorary members shall be considered merely as subscribers.

SEC. 7. Any member may withdraw from the Association at any time by tendering his resignation in writing, provided he be not in arrears.

SEC. 8. Any person may be expelled from the Association for cause by the Executive Council, but it shall require the consent of two-thirds of the members of the Council, unless the cause be the non-payment of dues or other obligations to the Association, in which case a majority vote of the members of the Council present shall suffice. Any member may be expelled whose indebtedness to the Association is $4.00 or over.

SEC. 9. Membership shall date from the first day of the month in which the member joins, and his annual dues shall be paid on or before that date in each succeeding year.

ARTICLE V.

RIGHTS AND OBLIGATIONS OF MEMBERS.

SECTION 1. Every member of the Association of whatever class shall be entitled to one vote at all regular or special meetings of the Association. This vote may be cast in person or by proxy, in which latter case the authority therefor must be in writing.

SEC. 2. Regular members only shall be eligible to hold office, and only *regular, active* members can vote upon amendments to this Constitution. With these exceptions all members of whatsoever class shall have equal rights and privileges, and be subject to the same obligations, except that honorary members shall pay no annual dues.

SEC. 3. All members, of whatsoever class, shall receive the JOURNAL without other cost than the annual dues. The subscription price to non-members shall be fixed by the Executive Council of the Association, provided that it shall never be less than the annual dues for members.

SEC. 4. The annual dues for all members, except those on the honorary list, shall be two dollars; provided, that whenever the JOURNAL of the Association shall be published bi-monthly, the annual dues shall be two dollars and fifty cents; and, provided further, that whenever it shall be published monthly the annual dues shall be three dollars. All dues and subscriptions shall be paid in advance.

SEC. 5. Additional pecuniary obligations can be imposed upon the members only by an act of the Association at a regular or special meeting, a two-thirds vote of the members present or duly represented by proxy being required to carry such measures; provided, that notice of such intended action shall have been given the members at least three months in advance of such regular or special meeting.

ARTICLE VI.

MEETINGS AND ELECTIONS.

SECTION 1. The regular meetings of the Association shall be held once each year at Fort Leavenworth, Kansas, on the third Monday in January.

SEC. 2. Special meetings shall be called to meet at the same place by the President upon the written request therefor signed by fifty members. When such special meetings are called, at least three months' notice shall be given thereof to each member by the Secretary. The same notice shall be given in case of regular meetings. Due notice of any regular or special meeting or of any proposed action to be taken at such meetings shall be deemed to have been given when such notice shall have been published in the JOURNAL of the Association and a copy of the same mailed to each member at the last address furnished the Secretary, or in case of officers of the regular army, the address given in the last Army List and Directory at least three months in advance of such meeting.

SEC. 3. Ten per cent. of the *regular, active* membership of the Association, either present in person or represented by proxy, shall constitute a quorum for the transaction of business.

SEC. 4. The election of officers shall take place annually at the regular meeting of the association. The election shall be by ballot, and a plurality of all votes cast in person or by proxy shall elect.

ARTICLE VII.

OFFICERS.

SECTION 1. The elective officers of the Association shall be: A President, a Vice-President, five members of the Executive Council. Their terms of office shall be one year, or until their successors are elected, and all except the President shall be residents of Fort Leavenworth, Kansas.

SEC. 2. The appointive officers of the Association shall be two, viz: An Editor, a Secretary and Treasurer. They shall be appointed by the Executive Council, and shall hold office at the pleasure of the same; provided, that in its discretion, both of these offices may be filled by the same person.

SEC. 3. The duties of the officers shall be such as usually pertain to their respective offices, and such additional ones as

may be prescribed in this Constitution or the By-Laws enacted by the Executive Council under the authority granted by this Constitution.

SEC. 4. There shall be a Sub-Council to consist of one member from each of the regiments of cavalry, the same to be selected by the members of the Association in their respective regiments. The duties of the members of the Sub-Council shall be to solicit articles for publication in the JOURNAL; to collect proxies or obtain the votes or opinions of the members on any matter that may be brought before the Association and forward the same to the Secretary; to submit suggestions regarding the work of the Association; to secure new members to the Association, particularly from the newly assigned officers to their respective regiments, and, generally, to advance the interests of the Association. While so serving, they shall be exempt from dues, and shall be reimbursed for such actual expenses for postage, etc., as may be approved by the Executive Council.

Whenever present at any of the meetings of the Executive Council, they shall be members of the same.

ARTICLE VIII.

EXECUTIVE COUNCIL.

SECTION 1. The Executive Council shall consist of the President, the Vice-President, the five elected members, the Editor, and the Secretary and Treasurer. But when the President is not a resident of Fort Leavenworth, he shall for all purposes be considered as not belonging to the Executive Council, unless actually present.

SEC. 2. The Executive Council shall meet from time to time at the call of its chairman, who shall be the senior member of the Council present at the headquarters of the Association.

SEC. 3. Five members shall constitute a quorum for the transaction of business. But if through the removal of officers from Fort Leavenworth, or other cause, the Council be reduced below five members, such number as remain shall constitute a quorum for the purpose of filling vacancies, but for this purpose only.

SEC. 4. It shall require a majority vote of all members of the Council to carry any proposition, except an adjournment, which shall require a majority of those present.

SEC. 5. The several members of the Executive Council shall have an equal voice and vote in the determination of all questions acted upon by the Council, except that the Editor and the Secretary and Treasurer shall have no vote upon questions connected with their own appointment or removal, or their own compensation.

SEC. 6. The Executive Council shall be responsible for the general administration of the affairs of the Association. To this end they are empowered to carry out any measures whatsoever, which, in their judgment, seem expedient in order to further the interests of the Association, or to attain the ends and aims of the organization; *Provided, however,* That such measures do not conflict with any of the provisions of this Constitution. Within such limits the Council shall have power to make permanent regulations which they shall in such cases designate as By-Laws in contradistinction to their ordinary regulations, and such By-Laws shall be binding upon the Association and its members, and shall remain in force until duly revoked.

SEC. 7. The Executive Council shall have power to fill vacancies for unexpired terms which may occur in its membership.

SEC. 8. The Executive Council shall carefully examine and audit the accounts of the Secretary and Treasurer as soon as practicable after the close of the fiscal year, and at such other times as they may deem expedient.

SEC. 9. Funds of the Association can be expended only upon the order of the Executive Council, and money paid out or obligations incurred by the Secretary and Treasurer without such order shall be at his own risk, and if not subsequently approved by the Council he shall make the same good to the Association; but the auditing and approving of the accounts by the Council shall be considered as authorizing all transactions and expenditures previous to such action.

ARTICLE IX.

THE JOURNAL.

The Association shall publish a JOURNAL devoted to the interests of the organization, and in furtherance of its ends and aims, as laid down in Article III of this Constitution. This JOURNAL shall be published at least quarterly and, as nearly as practicable, at the close of each quarter of the calendar year: provided, that whenever, in the opinion of the Executive Council, the financial condition of the Association will warrant the same, the JOURNAL may be published bimonthly or monthly.

ARTICLE X.

THE EDITOR.

The Editor shall edit the JOURNAL and such other document as may from time to time be published by the Association. In the performance of this duty he shall be subject to the supervision of the Executive Council, to whom he shall be directly responsible.

ARTICLE XI.

THE SECRETARY AND TREASURER.

The duties of the Secretary and Treasurer shall be such as usually devolve upon such officers. He shall keep a journal of the proceedings of the Association, and a separate record of the proceedings of the Executive Council. He shall generally be the organ of the Association in matters of finance, business and correspondence.

In the performance of these duties he shall be subject to the supervision of the Executive Council, to whom he shall be directly responsible. The books, papers and accounts pertaining to this office shall always be subject to examination by the Council. At each regular annual meeting he shall submit a report showing the financial condition of the Association at the time. After the close of each fiscal year of the Association (which shall be considered as identical with the calendar year) and prior to the annual meeting he shall submit to the Council a detailed report of the business transactions of his office during the preceding twelve months. This report shall show: The cash on hand at the beginning of the fiscal year; the receipts and expenditures during the year; the cash on hand at the close of the fiscal year; the assets of the Association; the outstanding obligations of the Association; the membership in the various classes at the beginning of the year and the gains and losses in the same during the year; and such other matters as may be called for by the Council. He shall also make such additional reports at such times and upon such subjects as the Executive Council may desire.

ARTICLE XII.

SECTION 1. This Constitution shall go into effect upon the day of its adoption, and amendments made to the same shall be effective on the date of their adoption.

SEC. 2. Although life memberships are no longer contemplated, such as are in existence at the time of the adoption of this Constitution shall continue to exist under the same conditions as originally granted.

ARTICLE XIII.

ALTERATION OF THE CONSTITUTION.

SECTION 1. The Constitution may be amended by a two-thirds vote of the *regular, active* members present or properly represented by proxy, at an annual meeting of the Association. Proposed alterations shall be furnished the Secretary in writing, signed by five or more members, not less than four months prior to the meeting at which they are to be acted upon. The Secretary, under the direction of the Executive Council, shall publish such proposed alterations to the Association not less than three months prior to said meeting.

BRANCH CAVALRY ASSOCIATIONS.

The idea, which was advanced at the annual meeting of the Cavalry Association, of having branch associations at all, or at least all the larger cavalry garrisons and to form one here, has since been carried out to the extent of organizing the one at Fort Leavenworth.

The first preliminary meeting was held on February 13, 1909, which was attended by all the cavalry officers present for duty and which resulted in taking steps to form the permanent organization, adopting a constitution and electing officers. All this has since been done and the Fort Leavenworth Branch is now fully organized. Its constitution is printed below, and, while it will be found to be simple in form, it is believed it will answer all purposes.

Since the annual meeting it has been learned that others have conceived this same idea and that early in November last the cavalry officers on duty in and near Manila took steps to form a similar branch in the Philippines, and that later, on December 20, 1908, such an organization was formed with over sixty cavalry officers present. From the report of these meetings furnished the Secretary of the Cavalry Association and from the list of officers present at them, it is evident that they are starting out with the correct spirit and that they have the material with which to make their branch a strong factor in the work to be carried on by these branch associations.

The following extract is made from the above mentioned report:

"Believing that the strength of any movement lies in unity of action, we desire to lay before the Cavalry Association the question of admitting this Philippine association as a branch of the parent association under any appropriate name, such as, for instance, 'Philippine Branch U. S. Cavalry Association'

"The object in such a step would be to insure our efforts not being counter to or along different lines from those being made in the States with like purposes in view and having some central committee to inspire and control the

otherwise opposed, scattered and ineffective efforts of cavalry officers and associations of cavalry officers here and elsewhere."

This report of the action taken by the cavalry officers in the Philippines was received too late for consideration at the annual meeting of the Association, but it has been replied to by the Executive Council to the following effect:

"Our constitution is now silent on the question of branch associations, although they were provided for in the first one adopted and for this reason the Executive Council believes that it is without authority to approve or disapprove of their formation. At the same time it wishes to be recorded as being heartily in favor of the movement and, in case it is thought desirable to have the Constitution amended in this respect and provide some plan of supervision whereby unified and harmonious action may be secured in the work to be carried on by these branches, the Council will be pleased to prepare and send out proposed amendments to the Constitution embodying this idea."

The Constitution adopted November 9, 1885, when the Association was first organized, contained the following provisions regarding branch associations:

"Branches of this Association may be established at any station where there are eight regular members. At a station where there is no branch a corresponding secretary shall be appointed by the President, who shall attend to the business pertaining to the Association for that station.

"The officers of a branch shall be a vice-president and a corresponding secretary.

"The vice-president shall perform the same duty for the branch as prescribed for the President of the Association.

"The corresponding secretary of a branch shall keep a register of the members residing in his vicinity and an account current with each. He shall keep a journal of the proceedings of each branch and a copy of the Constitution and By-Laws. He shall give due notice of the meetings of his branch. He shall forward to the Secretary and Treasurer of the Association all papers read before his branch and keep

himself informed of all business relating to his branch. He shall receive and distribute publications. He shall collect dues from members of his branch and give receipts therefor. He shall be authorized to expend such part of the funds in his possession for stationery, postage and other incidental expenses as may be necessary. He shall, at the end of each quarter, render to the Secretary and Treasurer a detailed statement of moneys received and expended, and shall forward the funds remaining on hand, retaining only sufficient to defray the estimated current expenses of the branch for the ensuing quarter.

"Monthly meetings of each branch may be held upon such dates as the branch may decide; but if there be no paper to be read or business to be transacted at the appointed date, the corresponding secretary may omit the call for the regular meeting. Special meetings may be called when necessary.

"Branches will make such by-laws, not inconsistent with this Constitution, as may be deemed necessary for a proper transaction of business."

When these provisions of the Constitution regarding branch associations were stricken out is unknown, as the records fail to show what the amendments were when the Constitution was amended—on February 13, 1888, March 9, 1891, and January 17, 1898—certain amendments having been adopted on those dates, but it is certain that it was on or prior to the last mentioned date. The Constitution, as amended January 17, 1898, has been in force from that date to the annual meeting of this year, and the provisions as to branches does not appear in it.

Inasmuch as we once did have branch associations, and the authority for them has been stricken from the Constitution, the Executive Council does not feel authorized, as stated above, in taking any action pro or con, beyond that of encouraging the movement until the wishes of the Association in this respect are obtained.

CONSTITUTION

OF THE FORT LEAVENWORTH, KANSAS, BRANCH OF THE UNITED STATES CAVALRY ASSOCIATION.

ARTICLE I.

TITLE.

This society shall be known as the Fort Leavenworth Branch of the United States Cavalry Association.

ARTICLE II.

OBJECT.

SECTION 1. The object of this association shall be to interest all officers of the cavalry stationed at Fort Leavenworth, Kansas, in the professional advancement of its members and the advancement of the cavalry service generally. To attain these ends meetings shall be held at frequent intervals, when papers of interest may be read and subjects relating to the improvement of the cavalry discussed. The branch will also endeavor to supply the Executive Council of the United States Cavalry Association with such papers as are believed may be desirable to publish in the JOURNAL of the Association. All propositions which it is believed by the branch might be of interest to the cavalry service will be submitted to the Executive Council for such action as it deems advisable and may be published in the CAVALRY JOURNAL or otherwise communicated to the service.

ARTICLE III.

MEMBERSHIP.

SECTION 1. All officers belonging to the United States Cavalry stationed at Fort Leavenworth are eligible to membership.

SEC. 2. Any person eligible to membership may become such upon signing the Constitution. No dues will be charged, but an equal assessment upon all members of the branch may be made to pay any authorized expenses upon a majority vote of the membership.

SEC. 3. Any member may withdraw from the Association at any time by tendering his resignation in writing. A change of station will terminate membership.

ARTICLE IV.

RIGHTS AND OBLIGATIONS OF MEMBERS.

SECTION 1. Every member of this branch shall be entitled to one vote at all regular or special meetings of the branch and all shall have equal rights and privileges. Votes may be cast in person or by proxy, but in the latter case the authority therefor must be in writing.

ARTICLE V.

MEETINGS.

SECTION 1. The regular meetings of the branch shall be held at 8:00 P. M. on the last Saturday of February, April, June, August, October and December.

SEC. 2. Special meetings shall be called by the president upon the request of five members. When meetings are called, three days' notice thereof shall be given to each member by the secretary. Twenty per cent. of the total membership of the branch present shall constitute a quorum.

ARTICLE VI.

OFFICERS.

SECTION 1. The officers of the branch shall be: A President, a Vice President, a Secretary and Treasurer. Their terms of office shall be one year, or until their successors are elected.

SEC. 2. The duties of the officers shall be such as usually pertain to their respective offices, and such additional duties as may be prescribed by this branch of the Association in By-Laws or resolutions.

SEC. 3. The officers shall constitute an executive committee to carry out the object expressed in Article II.

ARTICLE VII.

AMENDMENTS TO THE CONSTITUTION.

SECTION 1. The Constitution may be amended by a majority vote of the regular members of the branch. Proposed amendments shall be furnished the secretary in writing, signed by five or more members, not less than thirty days prior to the meeting at which they are to be acted upon. The secretary shall publish such proposed amendments to the branch not less than fifteen days prior to said meeting.

THE MASON SHELTER TENT CAPE.

There has been received recently a pamphlet describing a combined cape and shelter tent that has been devised by Lieutenant Charles H. Mason, Eighth United States Infantry. If the claims made for this combination for providing in one garment, if it may be so called, an improved shelter tent, a rain cape and a water-proof covering for the blanket roll, are fulfilled in practice, it will be a welcome addition or rather substitution for the soldier's present equipment in this line.

The apparent objection to this combination, judging from the cuts, are that inasmuch as it provides shelter for but one man, too much room would be required for making camp, and also that it appears to be bulky.

However, this invention has been tested by the Infantry Board and at the Fort Riley maneuvers and it is understood that the reports have been favorable.

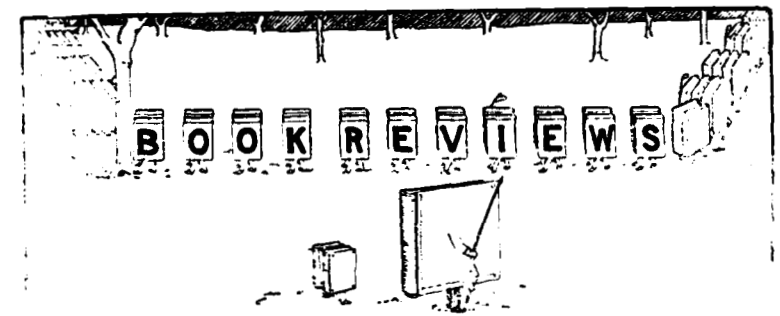
HISTORY OF THE NINTH U. S. INFANTRY.

There is soon to be published and delivered to subscribers the "History of the Ninth U. S. Infantry." This book, of about 400 pages, will cover the history of the regiment from its organization in 1799 to the present time. It will be illustrated with many photographs of companies and officers,

present and past, and will be of particular interest to those connected at any time with this regiment.

It should be in every military library and others where the history of our country is made a feature.

Inasmuch as only the required number to fill the advance orders will be printed, those desiring to subscribe for the book should communicate with the Regimental Adjutant, Captain F. R. Brown, without delay.



Field Fortifications for Line Officers.*

As the name implies, this book is written principally for line officers and comes to fill what has heretofore been an absolute gap in the texts available in English on applied principles of preparation for and conduct of battle.

Our books on field fortifications have presented to the line officer either a condensed mixture of old and new methods with little or no guide to their application, or have gone into the minute details of fortifications of such an elaborate and complicated nature as would only be prepared under the supervision of skilled engineer officers, and therefore would not be of immediate importance to line officers. Captain Woodruff's book shows the result of the most careful consideration of all reports, etc., of the military observers, American and foreign, of the late Russo-Japanese War, as well as the views of military experts on this subject and his own observations as an instructor in applied field fortifications at the Army Service Schools.

The following sentences from the first paragraph of the

*"APPLIED PRINCIPLES OF FIELD FORTIFICATIONS FOR LINE OFFICERS." By Captain James A. Woodruff, Corps of Engineers, U. S. Army. Published by the author and supplied to officers of the army by the Secretary of the Army Service Schools, Fort Leavenworth, Kansas. General agents, the U. S. Cavalry Association, Fort Leavenworth, Kansas. Price $1.00.

book are indicative of the practical nature of the entire text: "In the following discussion no attempt will be made to lay down rules or to establish typical forms of works that will be suitable to all circumstances. * * * As the tactical considerations will vary greatly in different cases, it would be impossible, even if it were advisable, to lay down any system which would be applicable to all. Even the design of the individual works depends solely on the tactical considerations."

Chapter I deals with the general principles of field fortifications, covering their adaption to natural ground features, the different classes of defensive positions, advance positions, first and second line, tactical situations of works, supporting points, artillery positions, intervals, a lengthy discussion of the belt type of defensive works, etc. These subjects are presented and discussed in a direct, practical manner, not in the dry, stereotyped fashion so common to military writers.

In Chapter II the tactical organization of infantry in defense is thoroughly discussed, giving the reader an active idea of how an infantry garrison should be disposed.

The tactical employment of artillery in defense furnishes the subject of the next chapter. The questions of mobility, armament, locations of emplacements, dispersion, positions with reference to infantry, etc., are fully covered.

Under Chapter IV appear the discussions and drawings of infantry works. It is very complete and shows the most advanced ideas on redoubts, trenches, bomb proofs, communicating trenches, etc.

The approved type of profile, the triangular, bears little resemblance to the plates in our old text-books. It is quite interesting to read that our favorite shelter trench, about the only form of fortification our line officer ever attempts to teach his men, is obsolete except in the attack, and is there rapidly altered into something better. The author gives the following from a Manchurian observer's report: "The lying down trench I never saw. The character of the schrapnel is such that the lying down trench provides cover against it only, not shelter. The man who lies down converts his vertical target into a horizontal one, but does not diminish

it, and if his presence is known or suspected by the opponent's artillery he will not derive much advantage from the lying down trench." The plates are very clear and easy to understand.

Chapters V to X deal with artillery positions, auxiliary means of defense, determination of strength of garrison, defense of small isolated posts by detachments, fortifications on the offensive and the calculation of men and time required to execute defensive works. An appendix gives tables showing the tools, etc., carried by the troops in their regimental trains, in pack and other trains.

To complete the book and more than double its value to the line officer three problems in field fortification are given in Chapter XI with solutions worked out in detail and shown on excellent maps. Here are examples and a full description of how to apply field fortifications in the training of officers and troops in garrison or at summer maneuvers just as satisfactorily as you can apply your drill regulations covering the ceremony of dress parade. A regiment of infantry, battery of artillery and a troop or more of cavalry are placed in situations requiring them to take up a defensive position, with from two hours in one case to a day or two in another in which to select and prepare the position. All the requirements of such a situation are brought out, the selection of the line, its division, disposition of troops, location of artillery, character and design of firing, cover, and communicating trenches, time and labor to prepare them, obstacles, demolitions, etc.

A description is given of how a company, battalion or regimental commander can take out his officers, without troops, and in an hour or two solve, in the most practical manner, a very instructive problem.

Heretofore our officers have read or studied books on field fortifications casually or in preparation for examinations. The dry, unapplied principles have gone in one ear, and, mostly, out the other. A few dimensions of earth works, formulæ for powder charges and designs of bridges have lingered in their heads to remind them of a dull subject. This book does not deal with bridge building, rope fasten-

ings, the construction of gabions, etc. You can get that in our official military Trautwine—the Engineer Field Manual. It does make clear how to examine ground, lay out a line, prepare it and dispose your force in a tactically correct and rapid manner.

The book is well bound, printed in clear type on good paper, and furnished with numerous plates and an elaborate index. G. C. M.

Recollections of a Cavalryman.*

"The Personal Recollections of a Cavalryman," by Colonel J. H. Kidd, late Colonel Sixth Michigan Cavalry, has just been issued by the Sentinel Printing Company of Ionia, Michigan.

It is a well written and most interesting recital of the experiences of the author during the Civil War. While it relates largely to the personal experiences of the author, it necessarily includes the operations of the Sixth Michigan Cavalry and the brigade and division to which the regiment was attached. This regiment served in General Custer's Brigade from July 1, 1863, to the close of the war. This is sufficient testimony that the regiment had some very exciting and thrilling experiences.

In addition to the many interesting recitals of personal, regimental and brigade experiences, the book contains a number of valuable lessons for the professional reader. In Chapter IV the author ably discusses the apparent lack of appreciation on the part of the commanders of the Army of the Potomac of the tactical and strategical value of a well organized cavalry force. In his closing remarks the Colonel says: "Sheridan did not take command of the cavalry corps to handle it as such until the spring of 1864. Even then, as we shall see later, he had to quarrel with the commander of the army in order to compel recognition of its value as a tactical unit upon the field of battle."

*"Personal Recollections of a Cavalryman." By Colonel J. H. Kidd, formerly Sixth Michigan Cavalry and Brevet Brigadier General of Volunteers. Published by the author, Ionia, Michigan. Price, $2.00.

On page 96 the Colonel describes a raid through Northern Virginia led by Sir Percy Wyndham, temporarily commanding the brigade. He says that the command had no apparent objective, but did a lot of wild riding over muddy roads during cold and disagreeable weather. He explains that in addition to the folly of such trips, it is very disastrous so far as the horses were concerned. When the command had returned to camp he found that out of eighty horses in his troop only twenty were fit for duty, part of which had been left in camp and did not accompany the expedition.

This is a very interesting and instructive book and a valuable addition to any cavalry officer's library.

E. E. B.

History of the Army Service Schools.

This is a pamphlet from the Staff College press that should be of interest to the graduates of the several schools located at Fort Leavenworth and to others who have watched the development of this institution. It is compiled by Henry Shindler, who has been so long connected with the schools and with Fort Leavenworth. It is well illustrated with cuts showing the old and present academic buildings, the Signal School laboratory and various other views and portraits.

It has a complete list of graduates and of the commandants and other officers who have been on duty at these schools and the present curriculum of the schools.

Fifteen Decisive Battles.*

The first part of this new work, under the old and familiar title, is a reprint of Creasy's book, which first appeared in 1851, to which had been added accounts in a similar style

*"Fifteen Decisive Battles of the World, from Marathon to Waterloo." New edition, to which are added Quebec, Yorktown, Vicksburg, Gettysburg, Sedan, Manila Bay, Santiago and Tsu-Shima (the Sea of Japan). With maps and illustrations. Price, $1.25. Harper & Brothers, New York. 1908.

of the battles of Quebec, Yorktown, Vicksburg, Gettysburg, Sedan, Manila Bay, Santiago and Tsu-Shima.

Each battle is described in a concise manner and the important details are accurately stated. For the general reader this book is valuable. The subjects, however, are handled too briefly to be of any particular value from a tactical or strategical standpoint. As a book of reference containing a brief history of each of the campaigns it is splendid.

With each battle there is a very good general map of small scale. E. E. B.

JOURNAL U. S. CAVALRY ASSOCIATION.

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