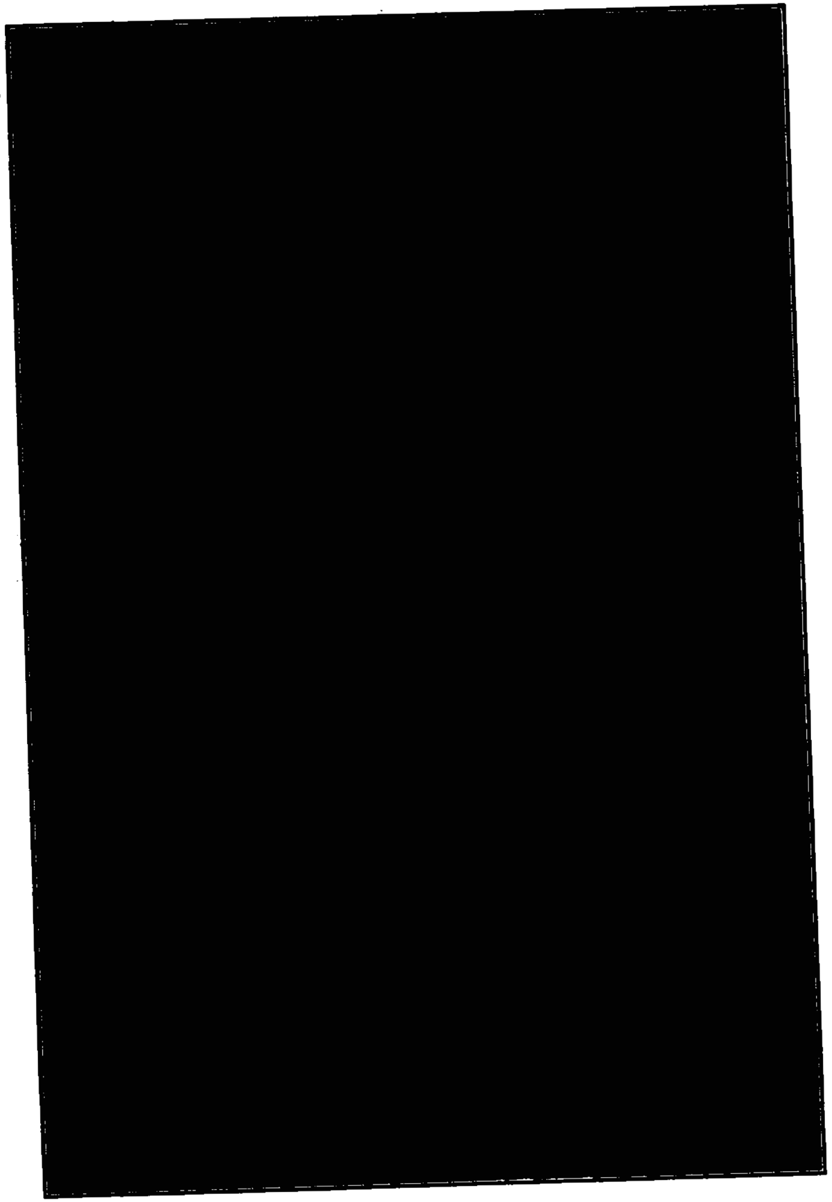

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UNITED STATES ARMY.

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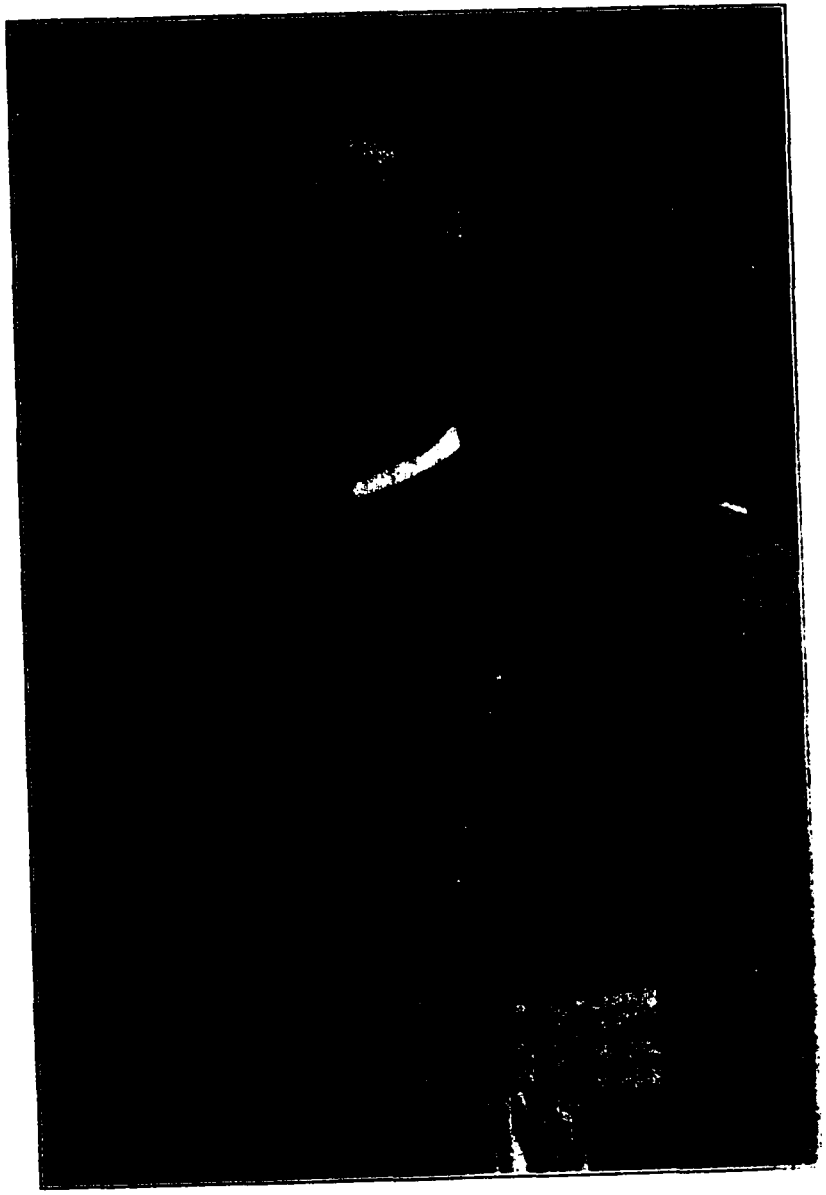

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PORT ARTHUR.

BY SECOND LIEUTENANT HENRY J. REILLY, SECOND CAVALRY.*

FIRST a brief description will be given of the vicinity of Port Arthur. Running almost due north from the harbor of Port Arthur is the valley of the Lun Ho. The Lun Ho and its tributaries drain the major part of the Shuishih valley, a valley running in a general northwesterly and southeasterly direction, about three miles to the north of Port Arthur. On the shore of the harbor, to the east of the Lun Ho and separated from it by a hill, is the "Old (official) Town" of Port Arthur, while to the west of the Lun Ho is the "New (commercial) Town." Between two and two and a half miles from the Old Town is a continuous chain of hills running from the Lun Ho in a general form of a semi-circle to the Yellow Sea. The peaks of this chain run from

*Lieutenant Reilly had the good luck to visit Port Arthur in the fall of 1905. The article is entirely the result of his own observations. All drawings were made by him, and he took the photos given herewith. In his manuscript names were spelled after the Japanese pronunciation. This has been changed by the JOURNAL to the orthography adopted by the War Department. The article was prepared for the Second Division, General Staff, and is here reproduced by its courtesy.

something over 100 meters to slightly over 200 meters. Not quite three and a half miles northwest of the mouth of the Lun Ho, and about two and a half miles west of the river itself, is 203 Metre Hill. North of 203 Metre Hill there is a number of smaller hills and ridges extending for a distance of about two miles. This group faces about north-northwest. Running south from 203 Metre Hill to the Harbor there is a chain of smaller hills facing in general towards the west and interrupted about half way by a small valley running east and west. Just west of the Lun Ho, starting near the mouth, there is a group of hills which trends towards the northwest. Beyond the group containing 203 Metre Hill, which is the highest in the group, is a valley running south from Louisa Bay, and extending on the west to Pigeon Bay, and on the east, interrupted by a few hills, to the harbor. The peninsula between Louisa and Pigeon Bay is occupied by a number of low hills. The southern tip of the Kuantung Peninsula is occupied by a group of hills, the highest of which is 465 meters. The Tiger's Tail Peninsula, which forms the southeast side of the harbor, is joined to the mainland by a low narrow neck of land. The peninsula is occupied by a number of hills, the highest of which is 175 meters. The eastern side of the entrance to the harbor is formed by Golden Hill, 117 meters high. Just north of Golden Hill and between it and the old town is the navy yard and the basin.

At the point where the Lun Ho valley opens into the Shuishih valley, the latter spreads out in the form of a basin about three miles wide. To the west the basin narrows to a little over a mile, just north of the range containing 203 Metre Hill, and then spreads out again to the shores of Louisa Bay. To the east it runs off to the Yellow Sea in a semi-circle, in many places less than a mile across. North of the Shuishih valley there are various ranges of hills.

The railroad coming from the north enters the Shuishih valley at a point somewhat to the west of the center of the semi-circular line of hills to the north of Port Arthur, turns to the east, runs along near the foot of these hills, and

finally, running around their eastern flanks, enters the valley of the Lun Ho, by means of which it reaches Port Arthur.

Port Arthur consists mostly of brick buildings, in the Old Town fairly close together, but in the New Town widely scattered. The water supply came from a pumping station about a mile up the Lun Ho valley and also from some cisterns at the foot of the Sungshushan. This latter supply was cut off by the Japanese.

The hills are bare of timber, entirely uncultivated, and covered with a short grass. The soil is mostly laminated rock in the last stages of disintegration, and while in most cases it is quite soft and crumbles readily, it would be quite hard to work it by hand with pick and shovel. The hills as a rule are very steep. On most of them the angle of slope changes abruptly in two or three places, thus making a number of military crests between the top and bottom. Though the hills are arranged more or less in chains, a continuous ridge of any length is seldom found, the top of the chain generally terminating in a number of peaks whose summits are of small area. There are a great many ravines which towards the bottom of the hills become in many cases fairly wide and almost invariably have vertical sides. The Shuishih valley, which from the hills looks like a gently rolling plain, on closer examination is found to consist of considerable rises and depressions and to be cut up in many directions by deep ravines with fairly vertical sides. These ravines not only twist and wind in such a way that in most cases it would be impracticable to enfilade them for any distance, but are often entirely hidden by the shape of the ground from observation from the hills from the south. The soil is a rich brown loam, easy to dig in, and reaches to the foot of the hills. The whole valley is under cultivation, and during the fall months is covered with millet. There are Chinese villages scattered all over the valley; the houses are of mud and afford little if any protection from fire. Most of them were destroyed during the siege but have since been rebuilt. There are no forests or groves, nothing but small groups or isolated trees. These same remarks apply to the valley running south from Louisa Bay.

POSITIONS OF DEFENSES.

Only those positions that took part in the land defense will be described; as, with the exception of Golden Hill, permission to visit the coast defense positions was withheld. Starting at the east flank of the circular chain of hills north of Port Arthur the first fortification is the line of trenches and bomb proofs called the Sungshushan* Auxiliary. Next is the permanent Sungshushan Fort. On the next spur is the Erhlungshan Fort, a permanent work. The Sungshushan and Erhlungshan are connected by a line of trench, the old Chinese wall. From the Erhlungshan there is a line of breastwork and trench running up over the Hachimakiyama and Panlungshan to Wangtai; on top of each of these three hills there is a semi-permanent battery.

At the foot of these hills on small spurs are semi-permanent redoubts in the following order from west to east: Hachimakiyama, the West Panlungshan, "H" redoubt, Panlungshan East, and the "P" or Ichinohe redoubt which is about at the foot of Wangtai and was named Ichinohe in honor of its captor, the Japanese General Ichinohe. From Wangtai there is a continuous line of breastwork to the Tungchikuanshan (Keikwan), on which are two two-gun semi-permanent batteries connected by a breastwork. On a spur to the south and east of "P" redoubt is a permanent work called the North Tungchikuanshan Fort. Still further to the south and east is another permanent work called the Old Tungchikuanshan Fort. From here to the sea the hills are occupied by the Paiyinshan groups.

From the Erhlungshan the Chinese wall, converted into a trench, runs along well down the side of the range, but above the Hachimakiyama, "H," Panlungshan and "P" redoubts, and the North and Old Forts of Tungchikuanshan. Most of the remaining hill tops had small redoubts on them, while all positions were connected by trenches. On the group of hills just west of the Lun Ho is the Itzushan Fort, a permanent work, with a long line of trench running out

*San, is Japanese for hill; shan, Chinese.

from its western flank. South of it are the Hsiaoantzushan, a permanent fort, and the Taantzushan, a permanent battery, connected by a long line of trench and breastwork. 203 Metre Hill was a semi-permanent work. To its front is a ridge called the Namakayama, while to its northeast is the semi-permanent battery called Akasakayama. To the north is another semi-permanent battery called the Shinhodai, while north of all is a ridge with trenches called the Takasaki. To the south of 203 Metre Hill there are small infantry redoubts on the hill tops until the Taiyangkou Forts, permanent works, are reached. Along the sea the hill tops are occupied by permanent and semi-permanent works, mostly batteries. At the head of the Lun Ho valley, just south of Shuishih village on a small rise of ground called the Turban, there is a group of semi permanent redoubts called by the Japanese A B & C, or Temple Forts. To the east and somewhat to the south of Shuishih village is a semi-permanent redoubt called Kuropatkin. Takushan, a hill about one and one-half miles across the Shuishih valley from the Tungchikuanshan, was occupied by a couple of redoubts. Those hills to which there was more than one military crest had trenches along one or more of the lower of these crests. From the northernmost Taiyangkou Fort across the valley to the Taantzushan there is a continuous line of parapet with a deep ditch. As the Taantzushan and Hsiaoantzushan Forts are connected by a continuous breastwork, this series of works made a second and inner line of defense. There is a line of works running from the Taiyangkou Forts to Pigeon Bay. Around the Old Town there is a parapet and ditch running from the hill at the mouth of the Lun Ho around the town to the coast. This parapet is of sufficient thickness to resist siege guns while the ditch is as much as twenty feet deep and fifteen feet wide. Owing to the rocky nature of the soil the scarp is almost vertical while the counterscarp has been built with an overhang. There are no ditch defenses. All positions are connected with adjoining ones and with Port Arthur by roads; those in the eastern half of the defense are often macadamized On the Laotiehshan the Russians mounted a number of guns, while between the Shuishih valley and Nanshan they had prepared

several positions, consisting mostly of trenches, which they seemed to make no very determined effort to hold.

DESCRIPTION OF INDIVIDUAL POSITIONS.

The Sungshushan Fort (Fig. 1) is a permanent work of a triangular outline surrounded by a dry ditch, and is placed on the very top of the spur which it occupies.

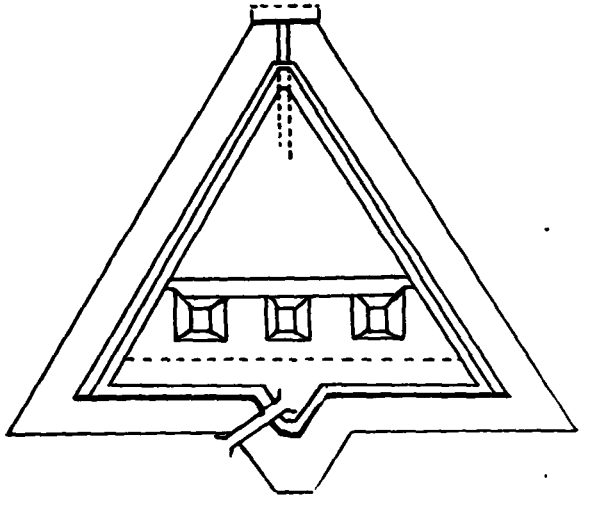
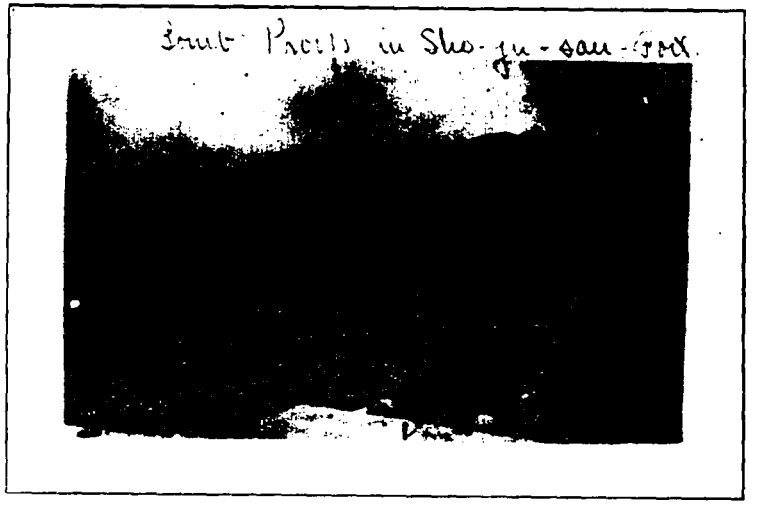


FIGURE 1.

A

2, 15 c. m. quick firing Canet guns.
1, 7½ c. m. quick firing gun.
3, 8.7 c. m. Krupp field guns.
1, 7½ c. m. muzzle loading gun (Chinese).
1, 47 m. m. quick firing Canet gun.
3, machine guns.
1, 15 c. m. howitzer.
2, 8.7 c. m. field guns.
2, 7½ c. m. field guns.
2, 6½ c. m. naval guns.
2, 37 m. m. quick firing Canet guns.
3, 37 m. m. machine guns.

The rear half is occupied by a cavalier battery. The gorge face of the scarp is a concrete gallery, the two front faces of the scarp being the natural soil and almost vertical. The apex of the counterscarp is occupied by a concrete caponier connected with the main part of the fort by a concrete tunnel, the top and part of the sides of which are exposed above the bottom of the ditch. The remainder of the counterscarp is of the natural soil and almost perpendicular. The parapet was of earth with wood revetment, thick enough to withstand siege guns. On top of the gallery in the gorge the Russians had constructed a number of bomb proofs. The armament found on capture consisted of (A).



BOMB PROOF IN SUNGSHUSHAN.

The slope of the spur on top of which this fort is placed is gradual but consists of three angles as shown in Fig. 2.

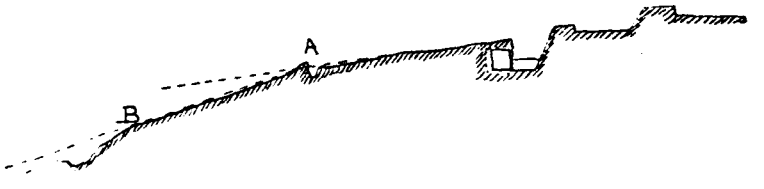


FIGURE 2.

At the military crest (A) the Russians had a trench. The cavalier battery could fire on no part of the glacis, the fire from the front parapet could reach only to (A), while the fire from that trench was useful only to (B). The space

beyond (B) for some little distance at the foot of the hill, not being exposed to fire from neighboring forts, was entirely dead.

The Erhlungshan Fort (Fig. 3) is a permanent work of square outline on the top of the hill on which it is placed.

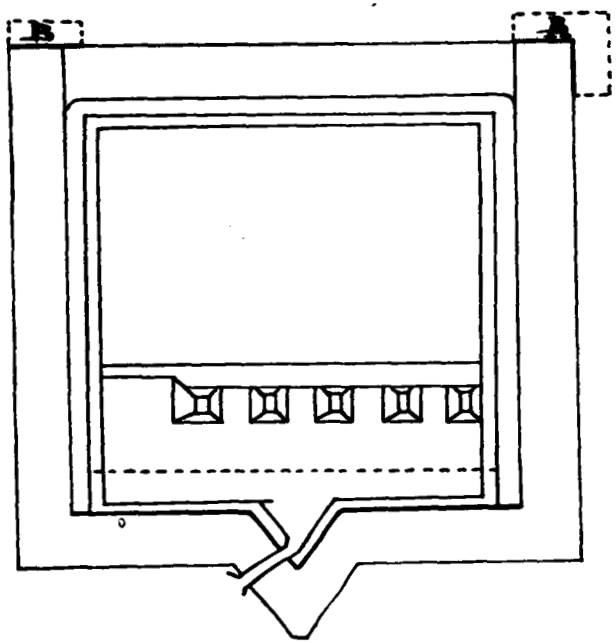


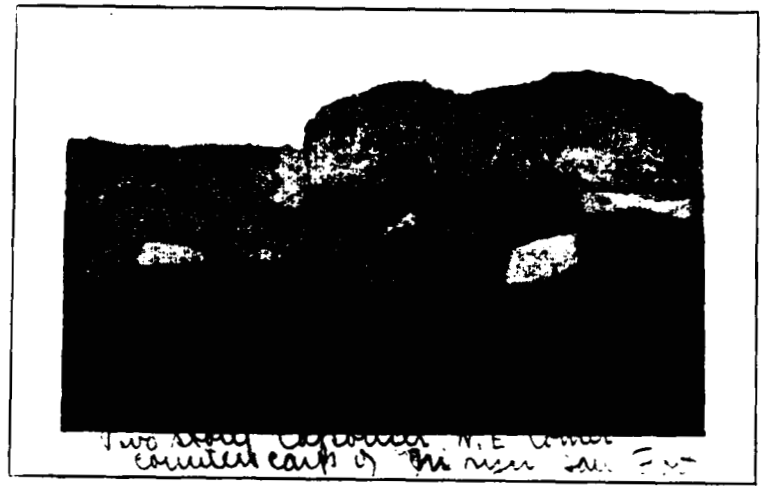
FIGURE 8.

B

5, 21 caliber, 15 c. m. Canet guns.
11, 8.7 c. m. Krupp field guns.
1, 6 c. m. naval gun.
2, 47 m. m. quick firing Canet guns.
4, machine guns.
1, 12 c. m. smooth bore gun (Chinese).
2, 7½ c. m. field guns.
5, 57 m. m. quick firing guns.
16, 37 m. m. quick firing guns.

It is surrounded by a dry ditch, the part along the front face not being as deep as the remainder by about eight or ten feet. Just in rear of the center line there is a cavalier battery for four guns. The parapet was of the natural soil with wood revetment. The scarp of the gorge is occupied by a concrete gallery and ditch defense; the remainder of the scarp, and all of the counterscarp with the exception of the

part occupied by the caponiers A and B, is of the natural soil and practically vertical. The caponier A is two-storied on



CAPONIER IN ERHLUNGSHAN.

account of the difference in level of the ditch along the front face and that along the side. The armament found on surrender consisted of (B). The glacis is similar to that of the Sungshushan Fort, and the same remarks apply as regards the field of fire of the cavalier battery, the front parapet and the trench on the first military crest, and the dead space at the foot of the hill. The capture of this fort and the Sungshushan involved the destruction of so much of them that had it not been for the models in the museum it would have been almost impossible to have told of what they originally consisted.

The Hachimakiyama, Panlungshan, "H" and "P"* redoubts were, as stated before, semi-permanent works on small spurs at the foot of the Panlungshan and Wangtai. They possessed good fields of fire but had some dead spaces in front of them. The armament found by the Japanese consisted of "C" East Panlungshan; "D" West Panlungshan.

C

2, 8.7 c. m. Krupp field guns.
1, 47 m. m. Canet gun.
4, 7½ c. m. quick firing Canet guns.

D

2, 7½ c. m. quick firing Canet guns.
1, machine gun.

*"H" and "P" and Hachimakiyama not known.

Wangtai, or "Watch Tower Hill," had a very steep slope (Fig. 4), and just room on its summit for two 15 c. m. Canet

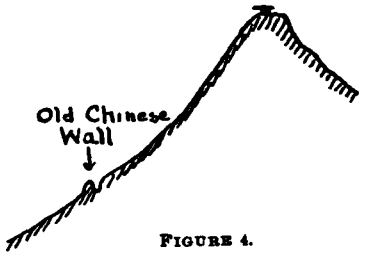


FIGURE 4.

guns, which, though having a good command of all neighboring works and of the country to the front, could not fire on any part of their own slope. The slope could be fired on from the parapet and trenches running to the Panlungshan towards the west, and the Tungchikuanshan to the east.

The north Fort of Tungchikuanshan is of the outline shown in Fig. 5, and is surrounded by a dry ditch.

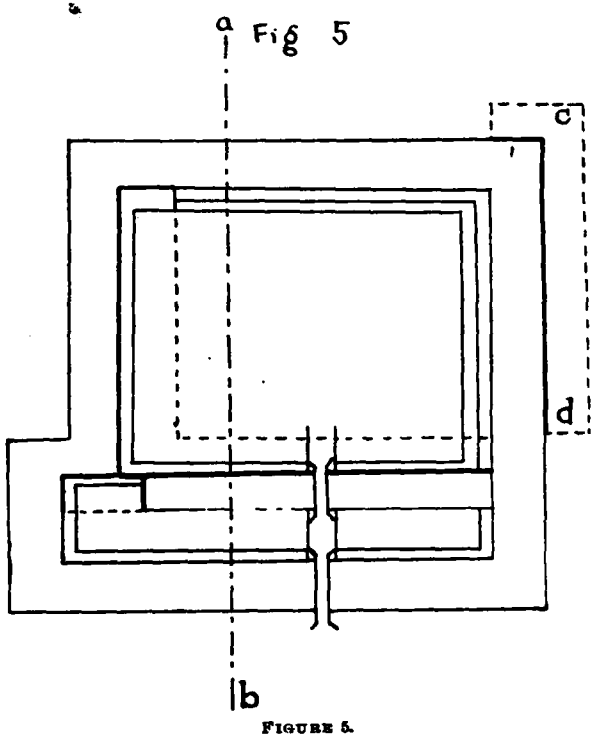


FIGURE 5.

While situated on a spur, it overlaps it to the front so that the ground on its rear face is considerably higher than that on its front face. (Fig. 6).

SECTION ON a b, FIGURE 5.

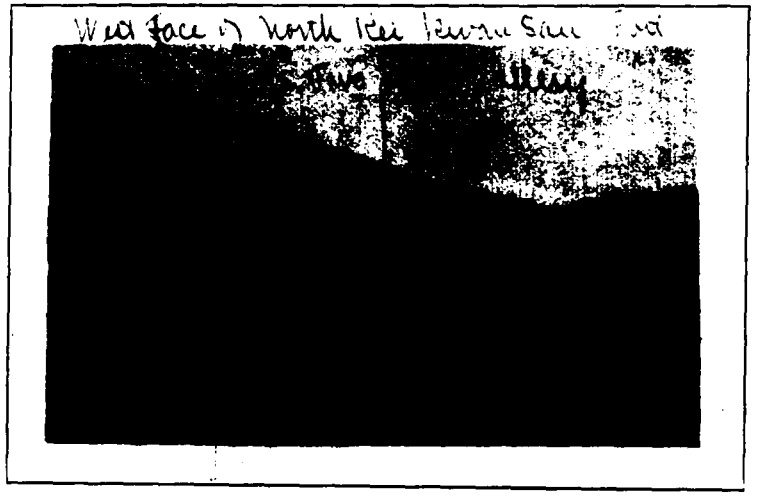
FIGURE 6.

E

6, 8 c. m. Krupp field guns.	2, 7½ c. m. field guns.
1, 7 c. m. Chinese field gun.	1, 7½ c. m. smooth bore gun.
2, 57 m. m. casemate guns.	2, 37 m. m. quick firing Canet guns.
4, 25 m. m. san patsu* guns.	2, machine guns.
2, 47 m. m. quick firing Canet guns.	3, 37 m. m. machine guns.

*Machine gun.

There is a concrete counterscarp gallery along the east face (c d Fig. 5), one along the scarp of the gorge of the main work, and a two storied gallery along the scarp of the west face of the main work. The lower story is for ditch defense, the upper sweeps the glacis to the west. The para-



WEST FACE OF TUNGCHIKUANSHAN.

pets are of earth, wood revetted, thick enough to resist siege guns. The counterscarp and scarp, except in those places

indicated, are of natural soil and either perpendicular or almost so. The Fort had a good field of fire, but had to depend on "P" Fort and the Old Tungchikuanshan to cover some of its glacis. The armament found by the Japanese on capture was "E".

The Old Tungchikuanshan Fort is situated on a spur. It was a narrow work built of concrete. It was blown up by the Russians, and is so much of a ruin that little can be determined as to its outline, other than the fact that it was very narrow and that its greatest dimension was perpendicular to the main range of hills. The armament found by the Japanese was the following, "F." The two batteries on the Tungchikuanshan (semi-permanent works) have a glacis of moderate slope. Their field of fire was good. Their armament was 4 15-c. m. quick firing guns.

F.

2, 15 c. m. howitzers.
4, 47 m. m. Krupp field guns.
4, 7½ c. m. quick firing Canet guns.
3, 47 m. m. quick firing Canet guns.
1, 12 c. m. naval gun.
1, machine gun.

F (continued).

1, 7½ c. m. field gun.
1, 6½ c. m. naval gun.
1, 37 m. m. machine gun.

G.

4, 8.7 c. m. Krupp field guns.
2, machine guns.

The redoubts on the Turban, and Kuropatkin redoubt have gently sloping glacis and good fields of fire. The armament found in the Kuropatkin redoubt on capture was "G." The redoubts on the Turban probably had similar armaments.

To the west of Lun Ho the first works are those on the Antzushan. The Hsiaoantzushan fort is a concrete battery (Fig. 7 a) situated on the top of a high hill of steep profile (Fig. 7 b).

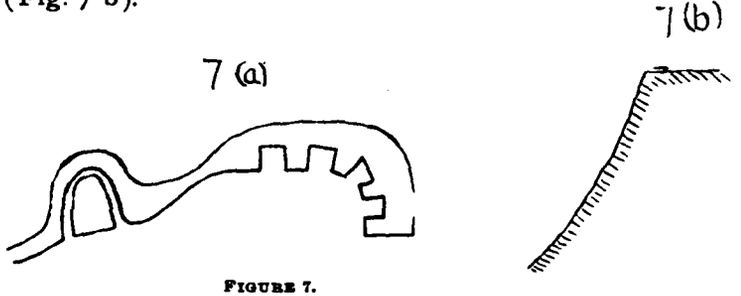


FIGURE 7.

The battery commands all the surrounding country, but is unable to fire on any part of its own slope. Its armament was "H."

H

4, 22 caliber, 15 c. m. Canet guns.
3, 7½ c. m. naval guns.
2, 57 m. m. quick firing Canet guns.
3, 37 m. m. quick firing Canet guns.
5, 47 m. m. quick firing Canet guns.

The Taantzushan fort is a permanent work of a square outline surrounded by a dry ditch. (Fig. 8.)

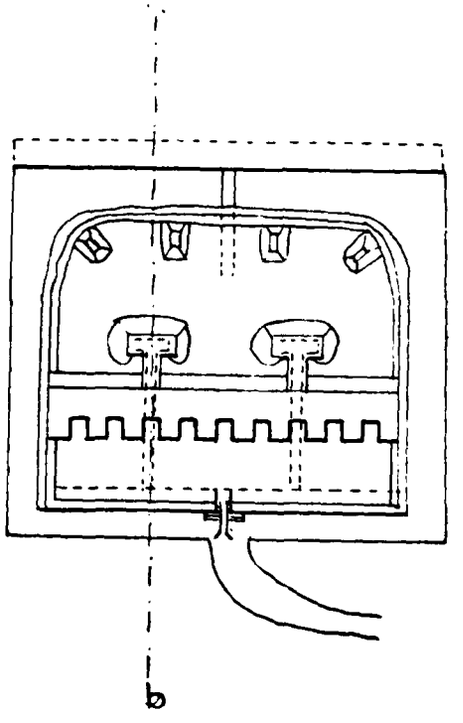


FIGURE 8.

It is somewhat down the side of the hill occupied by it. Just in rear of its right and left axis is a concrete cavalier battery with nine emplacements. The counterscarp of the front face is occupied by a concrete gallery connected with the main work by a concrete tunnel, the top wholly and the

sides partially of which, are exposed above the bottom of the ditch. The scarp of the gorge is a concrete gallery connected with the terreplein in front of the cavalier by two concrete tunnels running underneath the cavalier. The head of each tunnel is protected by a traverse occupied by a magazine. All other parts of the scarp and counterscarp are of the natural soil and perpendicular. The parapets are of earth, wood revetted, and along the front face there are numbers of traverses. The armament found was "I." The glacis is a gentle slope of two angles, the military crest being occupied by a line of trench. Fig. 9 is a section on a b, Fig. 8.

FIGURE 9.

I

4, 21 caliber 15 c. m. Canet guns.
1, 15 c. m. howitzer.
2, 7½ c. m. naval guns.
1, 9 c. m. mortar (old).
4, 8.7 c. m. Krupp field guns.
7, 37 m. m. quick firing guns.

The entrance to practically all permanent works was by means of draw-bridges. The Itzushan Fort (Fig. 10) is a permanent work of irregular outline.

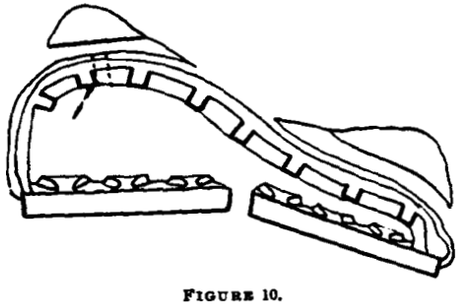
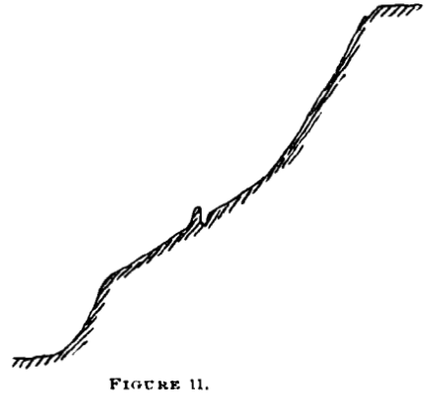


FIGURE 10.

Due to the small area of the summit (Fig. 10) of the hill on which it is placed, there is a ditch along but two parts of its front face. The gorge is a concrete gallery. Its front

face consists of concrete and earth barbette emplacements, the traverses being occupied by magazines. One of the ditches is connected with the main work by a concrete tunnel. There are no ditch defenses. The armament was "K." The Itzushan being a high hill of steep profile (Fig. 11) the fort could not fire down its glacis, though commanding all the surrounding country.



K

1, 15 c. m. howitzer.
3, 7½ c. m. naval guns.
4, 8.7 c. m. Krupp field guns.
2, 57 m. m. quick firing guns.
4, 47 m. m. quick firing guns.

FIGURE 11.

The spurs towards the bottom of the hill were occupied by infantry trenches, but not in such a manner as to prevent there being a dead space at the bottom. (Fig. 11.)

203 Metre Hill is a saddle back, something of the shape shown in Fig. 12.

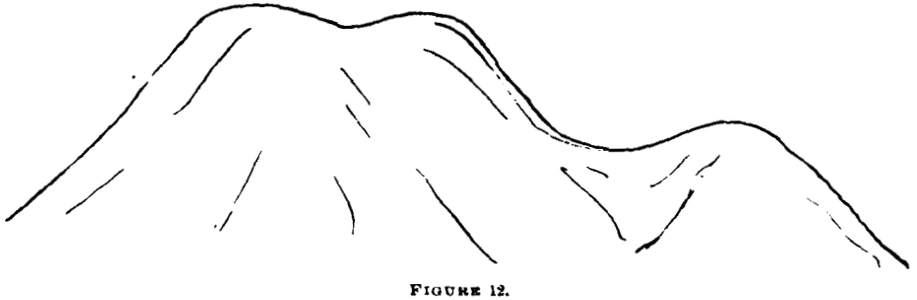


FIGURE 12.

The top was occupied by trenches and semi-permanent batteries. These works, and in fact the whole top of the

hill, was so torn up by shell fire and the struggle which had taken place on it, that hardly a trace of the works is left. The summit is of small area and narrow, especially at the western end. The slopes are steep. The front face was occupied by several tiers of trenches. At the west end there were five tiers. At the time of its final occupation by the Japanese the following armament was found:

1, 21 caliber 15 c. m. Canet gun.
1, 37 m. m. machine gun.
1, 47 m. m. machine gun.

Of course when the Russians finally retreated they carried off what they could, while many of the guns were destroyed by the heavy fire concentrated at times on this hill. The remains of some of them can still be seen, partially buried in the debris. While this position has a fine command to the right, left and rear, and though it was higher than the hills to the front. the field of fire to the front was greatly limited by an almost parallel ridge. The Namakayama was on the other side of a small valley, which at the narrowest part of its bottom, near the west end of 203 Metre Hill, could not have been more than 100 yards away. Fig. 13 shows roughly the general outline of 203 Metre Hill and the adjoining ridges.

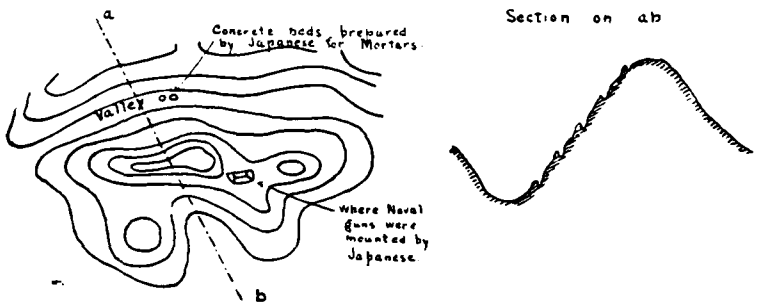


FIGURE 13.

The semi-permanent battery Akasakayama is on the summit of a steep hill that comes to a peak. It had the following armament:

2, 22-calibre 15 c. m. Canet guns.
2, 37 m. m. quick firing guns.

The Shinhodai is a similar position, and probably had the same armament.

The battery on Golden Hill consists of five concrete emplacements, in each of which there is mounted a 15 c. m. howitzer. At the foot of and paralell to the hill is a concrete barbette shore battery of what appeared to be six 12 c. m. quick firing guns. Between this battery and the foot of Golden Hill, perpendicular to both, is a two-gun barbette battery of rapid fire guns, probably about 57 m. m.

All the positions on the north line east of the Lun Ho were commanded wholly or in part by hills to their rear. To the west of the Lun Ho 203 Metre Hill commanded everything. From this hill practically all of the harbor, including the dock yard, could be seen, as could all the New Town, and part of the Old. The battery on Golden Hill was looked into directly from the rear. All positions were supplied with searchlights.

TRENCHES, ETC.

The typical Russian trench (Fig. 14) is a narrow one, dug about five feet deep, that is just deep enough for a man standing to fire from.

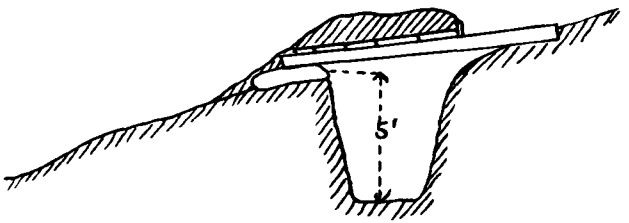


FIGURE 14.

Loop holes are constructed by means of sand bags and a parapet built high enough to protect a man standing. A head cover is then added by laying supports across the trench, placing on these supports planks, and covering the whole with the excavated earth. From the front nothing appears but a low parapet with loop holes at its bottom (Fig. 15).

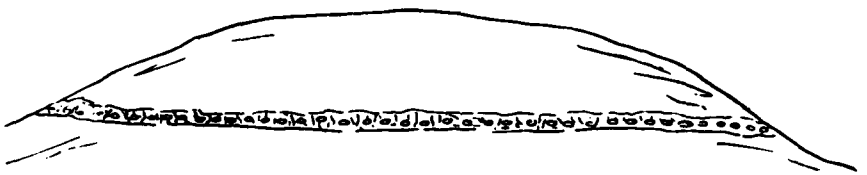


FIGURE 15.

The earth is kept from falling from the rear part of the head cover by a small plank laid on edge and nailed to the supports. Often on account of the shape of the ground, breastworks were built. In these cases the rear end of the support was held by uprights, generally braced to the rear. (Fig. 16)

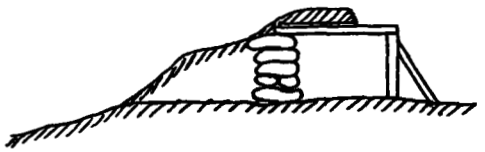


FIGURE 16.

In such cases a curtain of gunny sack was hung from the rear edge of the head cover. This for the purpose of preventing fragments from the rear hitting the men in the backs. Revetting, when necessary, was done either with planks, sand bags or boxes, or cans filled with earth. Timber seems to have been fairly plentiful. Toward the end of the siege, having run out of the regular sand bags, the Russians used different colored calicos, so that some parts of the works have a very peculiar appearance. The loop holes were rarely mere open holes made by sand bags, but generally contained a steel plate approximately square, about 3/8 inch thick with an oblong hole in it for the rifle. (Fig. 17.)

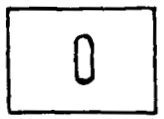


FIGURE 17.

Sometimes these plates were fastened to a wooden box with considerable splay. (Fig. 18.)

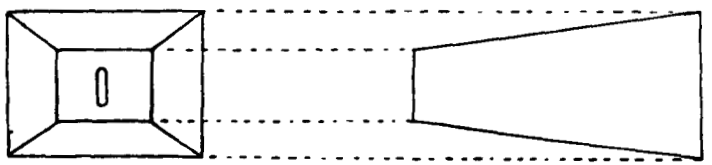


FIGURE 18.

The bomb proofs (Figs. 19 and 19 a) were of various kinds, ranging from several thicknesses of heavy timber supporting the necessary amount of earth to regular huts, high enough to stand in, with stoves and bunks inside, used by the Russians for quarters.

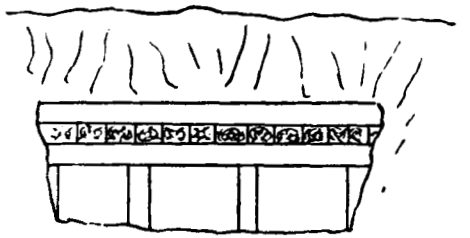


FIGURE 19.

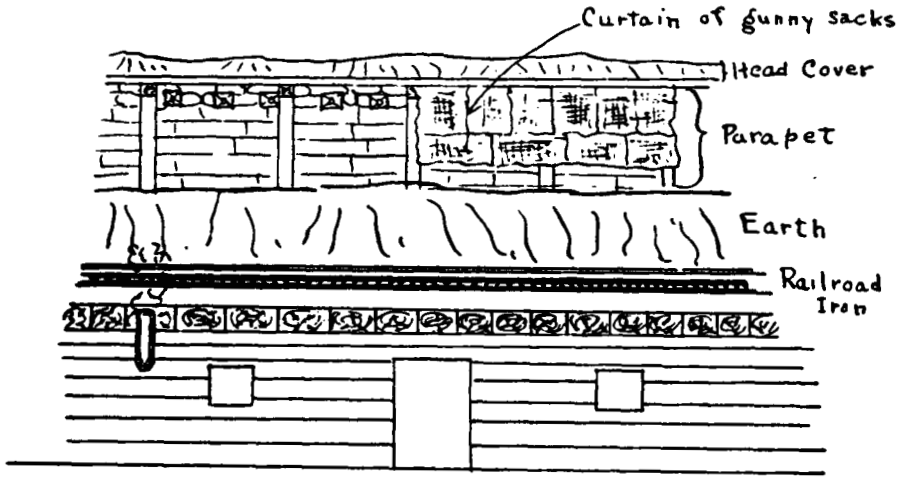


FIGURE 19 a.

The roof generally consisted of one or more thicknesses of heavy timber with one or two of railroad iron, on top of which would be several feet of earth. They were to be found on the reverse slope of all hills on which there were defenses. In many cases a breastwork would be on the actual crest of some narrow ridge with a steep slope. In such cases

it would often be on the roof of a bomb proof on the reverse slope. On the extreme left flank of the auxiliary Sungshushan there was a bomb proof, probably used also as a magazine, in the shape of a dome. It was built of concrete and covered with earth. (Fig. 20).

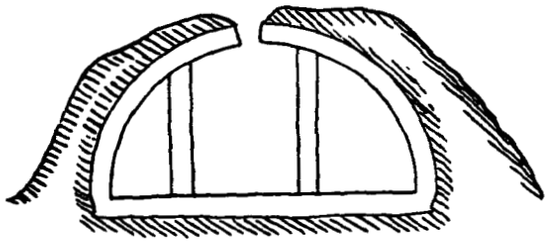


FIGURE 20.

When the bomb proofs could not be near the trenches, they were connected with them by covered ways.

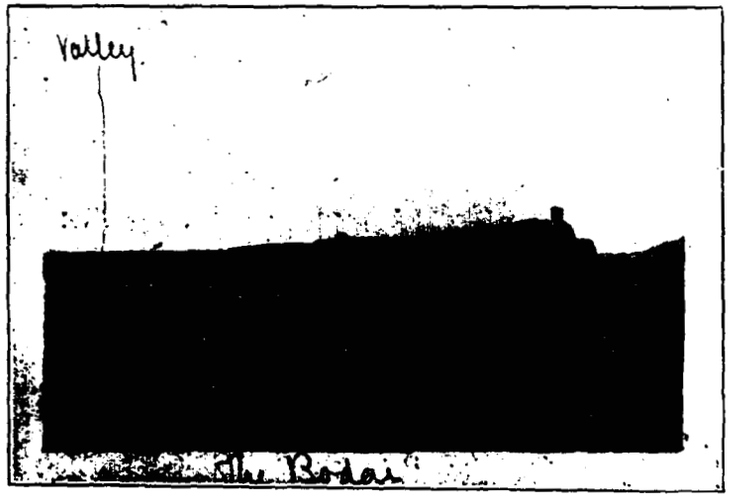
The batteries, other than the permanent ones, were barbette earth batteries with every two guns as a rule separated by bomb proof traverses or magazines. The revetment was the same as that used in the trenches. The gun platforms were of wood. Where there were field guns, recoil wedges were used to run them back in battery. (Fig. 21).

FIGURE 21.

The redoubts varied from trenches enclosing a small area, to works with parapets thick enough to withstand siege guns, and deep ditches with ditch defenses.

OBSTACLES.

On the slopes in front of all positions and in the ditches of the forts and redoubts every kind of obstacle was used. On all slopes were long lines of barb wire entanglements, on the outer strands of which were hung tin cans full of pebbles, so that the slightest disturbance created a noise; lines of chevaux-de-frise with barb wire holding them together and tangled up in them; crow's feet of all sizes and shapes with the points sharpened; boards filled with long spikes planted in the ground, with the points upwards; small sharpened stakes stuck up in the ground so close together that from a short distance they looked like wooden gorse; lines of wire charged with a strong current of electricity; lines of trous-de-loup; fougasses and mines carefully sodded over so that their whereabouts could not be known until they exploded; while in the ditches, in addition to many of these obstacles, were iron fences about ten feet high with sharp points sticking out in all directions.



WANGTAI.

POSITIONS OF FORTS, ETC.

The Russian fort, redoubt or battery was as a rule placed on the very top of the hill which it occupied. Along the greater part of the north line, in addition to the works on the hill tops, there were others on the spurs running out from the bottoms of the hills, such as the Hachimakiyama, the Panlung and Ichinohe redoubts, the north

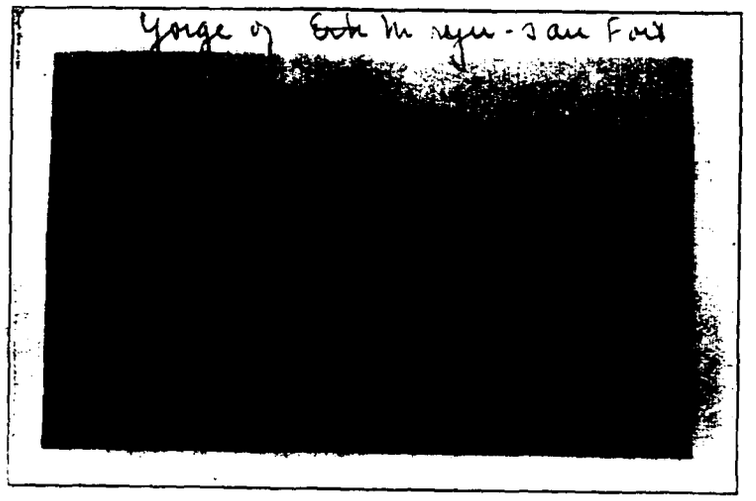
and east forts of Tungchikuanshan. Generally military crests were occupied by trenches, though in many cases, where near the bottoms of hills, they were not so occupied, as often the ground below, either wholly or in part, was not covered by fire from neighboring works; this left many dead spaces. Two examples of their failure to occupy military crests are shown in Figures 2 and 11, showing the profile of the Sungshushan and the Itzushan.

On some of the hills, due to the steepness of the slope, it was impossible to build trenches whose fire would sweep the slope; this was true of the upper part of Wangtai, the Itzushan, part of the Hsiaoantzushan and several others. The favorite type of permanent work was one in which the heaviest guns were mounted in a cavalier battery, generally well towards the rear of the fort. While they had good command and were well fixed for far defense, they were of no use whatsoever for near defense, and were often unable to fire even on the first parallel built by the Japanese in attacking the fort in which they were placed. Neither could they always cover the slopes of neighboring hills. Thus the Japanese parallels and approaches had often to resist nothing heavier than field and smaller caliber guns. The Russian trenches connecting positions in many cases ran up and down hill instead of following the contour. Sometimes the reason for this could be seen; more often a better field of fire could have been obtained by following the contour, the men in the trench would have been less exposed to an oblique fire from the down hill side, and the whole of a long line of trench would not have had to have been abandoned on account of an enfilading fire delivered from a just captured position at one of its extremities.

METHODS OF ATTACK.

As far as could be learned the attack on one position was similiar to that made on every other. The Japanese would cross the Shuishih Valley, taking advantage of all cover and establishing themselves in some dead space near the foot of the hill, on which the fort to be attacked was placed, would dig their first parallel, this generally at night. Thanks to

the shape of the ground this parallel was often very close. The first one in the attack on the Sungshushan was about 600 meters from the fort. From this they would break out



GORGE OF ERHLUNGSHAN.

single, alternately right and left hand saps. The next parallel would be established at some convenient distance, and so on. Whenever a Russian trench occupied a military crest, the Japanese would sap to it, take it by assault and convert it into a parallel. From a convenient parallel they would mine to the ditch defenses and either blow them up or drive the Russians out. Up to this point a number of assaults have been made and as a rule failed. This stage of the siege marks another point at which an assault is generally made and generally fails.

The ditch defenses having been destroyed or captured, and the ditches being dry there is no trouble about crossing the ditch and mining under the scarp. As a rule the part of the fort in front of the cavalier is blown up, and after one or more assaults the Japanese succeed in occupying all of the fort except the cavalier, on which the Russians make a final stand and from which they are finally driven.

During the siege the Russians made a great many sorties, especially at night. One of the favorite methods was for parties to descend the ravines on each flank of the Japanese

GORGE OF TUNGCHIKUANSHAN.

parallels and when opposite them make a simultaneous assault on both flanks. The Japanese were often driven out, but later would recover the position. In this way parallels changed hands, temporarily at least, a number of times. During these sorties a great many hand grenades were used. To guard against these the Japanese had all their trench headquarters, telephone stations, etc., covered at the top by a wire netting. All regiments in the trenches had their headquarters in some convenient parallel, and these headquarters were not only connected with the rear by telephone, but also with all parts of the trenches occupied by the regiment. As they dug new approaches and new parallels they established new stations. The troops taking part in the attack on any fort were divided into three reliefs: one relief being in the front trench, another at headquarters, while the third would be resting in some safe locality further to the rear.

In changing reliefs, the one in the rear would go to headquarters, the one from there to the front, and the one at the front to the rear. As the siege became more advanced, two reliefs were kept at the front and one at headquarters.

While the Japanese constantly mined, the only occasion that could be learned of on which the Russians did so was during the attack on the north Tungchikuanshan Fort, during which the Russians countermined at the northeast angle. The Japanese became aware of it, so that practically no damage was done when the Russians exploded their mines. During the assaults the Japanese carried with them a number of wooden mortars used for throwing hand grenades into the Russian works.

In the attack on each position there was a great deal of hand to hand fighting, especially at the north Tungchikuanshan Fort and at 203 Metre Hill.

The trenches on 203 Metre Hill were captured one at a time and only after hard fighting during which they changed hands a number of times. Finally the Japanese were in possession of the trench just below the summit. They then succeeded in driving the Russians from the summit to a trench just below, on the reverse slope, but were unable to hold the summit themselves. So here they were, the Japanese in a trench just below the summit on the front slope, while the Russians occupied a similar position on the reverse slope. Whenever one side tried to occupy the summit the other attacked it, a fierce hand to hand fight taking place.

This state of affairs obtained until the Japanese continued a sap which they had started over the lower saddle (Fig. 12) of the hill, around the reverse side. As this threatened to cut the Russians off they retired leaving the Japanese in possession of the entire hill.

Naval guns that did much damage to the naval basin and the ships in the harbor were mounted on 203 Metre Hill, just above and to the west of the lower saddle.* Some concrete

* The following has been received from Lieutenant Reilly in answer to an inquiry by the JOURNAL, if this statement were true. "Since writing my report I have read quite a number of articles that say there were no naval guns on 203 Metre Hill. There was an earth emplacement on the saddle of 203 Metre Hill at the spot indicated in Figure 13. The Official Interpreter told me that it was the place where the naval guns were mounted. There seems to be some doubt about the question so I give my authority as only that of the Interpreter mentioned."

platforms for 11-inch mortars were built in the valley just north of 203 Metre Hill, but the surrender took place before the guns were mounted. During the siege the Eleventh Division occupied that part of the line from the Yellow Sea to and including the works in front of the north fort of Tungchikuanshan; the Ninth from there to and including the works in front of the Erhlungshan, and the First the remainder of the line. The Seventh Division was used as a reserve, but had a large share in the operations to the west of the Sungshushan.

EFFECT OF FIRE.

Those forts that had been captured were so much destroyed that it was difficult to see what effect fire had had on them. This was not the case in the surrendered forts, such as the Hsiao and Taantzushan and the Itzushan. In these forts the effect of the individual shells was very plainly seen.

In a number of cases insufficient or no protection against fire from the rear had been provided; as a consequence there was often a good deal of damage done, especially to the rear of traverses. In the battery at Golden Hill a shell had passed clean through the concrete rear wall of a shell room, leaving a hole of about three feet in diameter. The Russians remedied this by building rear traverses. The entrances to magazines were often badly placed and insufficiently protected. This was true also of the entrances to the covered way in the gorge of the Itzushan Fort (See Fig. 10). As they opened directly on the terreplein all shells that grazed the front parapet struck them, consequently they are badly damaged. To prevent injury to the interior, the Russians had blocked these entrances up with stone and sand bags, either entirely or else leaving a passage so small that one could just squeeze through. In the same manner they had had to block up their magazine entrances, as a shell coming either from the right or left front and striking one of them would go directly into the magazine (see Fig 10). In this way one of the magazines in the Itzushan Fort was blown up.

In the rear edge of the parapet of each emplacement of the main battery of the Taantzushan Fort, was a large stone.

One of these had been struck by a shell and carried away, taking with it a large portion of the concrete, and consequently scattering fragments all over the emplacement. The concrete in front of another had been penetrated (see Fig. 22), and the stone, loosened from its position, was about to fall.

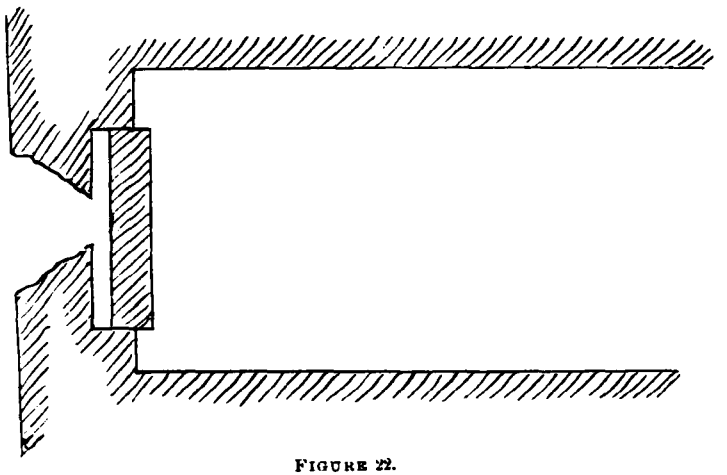


FIGURE 22.

What advantage was expected from this construction could not be seen, for, if the parapet had been solid concrete, only the portion hit would have been carried away, and in addition the fragmentation of concrete is less than that of stone. The concrete used throughout was of poor quality. It was made with large smooth unbroken stones, and cracked and fell to pieces readily. The thickness used was generally insufficient, and there were many examples of walls being completely penetrated.

The glacis and slopes of all positions were covered with shot craters, a great many of which very near the ditch must have appeared from a distance to be hits, while in reality they did no damage. The front slopes of hills, in rear of others, whose crests were occupied by works, were covered with shot craters, giving a vivid impression of the large number of shots fired and how comparatively few the hits must have been.

In the "Old Town" a number of buildings had been destroyed by shell fire, and most buildings had shot holes in them. In the New Town while many of the buildings had holes in them the damage done was not great. While the naval shops and docks were damaged, they were not destroyed, and at the time visited were being used by the Japanese for the repair of the Russian ships.

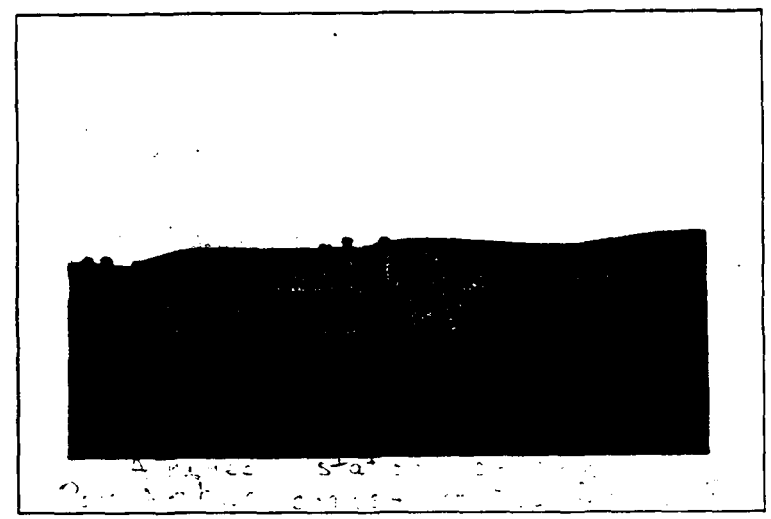
In one of the buildings in the outskirts of the Old Town the Japanese have established a museum. In this building and around it on the outside they have at least one of every kind of weapon used in both the attack and defense; either examples or models of all obstacles, mines, fougasses, trenches, batteries, bomb proofs, forts, before and after capture, articles of clothing, medicines, bandages, tools, electrical apparatus, and in fact everything that is connected in any way with the siege. The Russians apparently had in their possession small arms and guns of all calibers and makes, from the smooth bore muzzle loader up to the present patterns. Among the curiosities was a machine consisting of five magazine rifles fastened in a rack with an arrangement for loading and firing them simultaneously. There were a number of steel shields mounted on small wheels, there being holes in the shields for machine guns. These were used by the Japanese in their attacks.

At the mouth of the harbor eighteen wrecks were counted. None of the ships sunk by the Japanese to block the channel had been sunk exactly between Golden Hill and the Tiger's Tail. They were sunk in a rough semi-circle so to speak, around the entrance of the harbor. A number of them had been run ashore quite a distance from the entrance. In the harbor the Russians, before surrendering, had done a lot of apparent but little real damage. They had sunk a large number of mine planters, dredges, lighthouse tenders and merchant ships, generally by opening their sea valves, and there they are resting on the bottom close in shore, waiting until the Japanese are ready to pump them out. The Russians also sank a large number of steam launches, but the Japanese promptly raised them; and they are now in use. Officers and men on a few days leave are constant visitors, and may be seen at all hours of the day visiting the different positions.

The accounts given of the amount of ammunition and stores surrendered vary greatly. One of the members of the committee which went over the captured stores said there was a large amount of clothing, plenty of flour, salt meat and medicines, no fresh meat, a shortage of bandages, and not very much ammunition.

The Japanese said little about Stoessel, but gave all the credit of the siege to General Kondratchenko, who commanded one division of Siberian rifles and who was killed during the last part of December.

Port Arthur was not a first class fortress. The permanent works were not of the most modern type, and were of poor material. Their heaviest guns being placed for far defense alone, by the absence of their fire on their own glacis, materially reduced the amount of work necessary for building the Japanese approaches. Most guns were mounted in barbette, a very few on disappearing carriages, none in cupola or turret mount.



JAPANESE TROOPS, ETC.

Only those things are mentioned which have not been

seen in other reports or in "Notes of Military Interest." The Japanese having changed the gauge of the railroad from Port Arthur to the north, requisitioned engines, freight cars, third class coaches from the different Japanese railways and placed them on this line. The road is single track and rock ballasted. On the way from Port Arthur to Tashihchiao Marshal Oyama was met on his way down, also a large number of troops, principally field artillery. The Marshal was traveling with an infantry escort of the "Guard" in a special train made up of third class coaches. The trains

OYAMA'S TRAIN AT A CHINESE VILLAGE.

carrying the artillery consisted of from twenty-eight to thirty carriages, including box cars for men and ponies, with occasionally a third class coach for the officers. It was estimated that one such train would carry one battery. The ponies were placed eight in a car, four at each end, facing the center. They were tied by their halter shanks to a rope stretched in front of them. The doors on each side of the

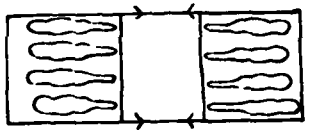
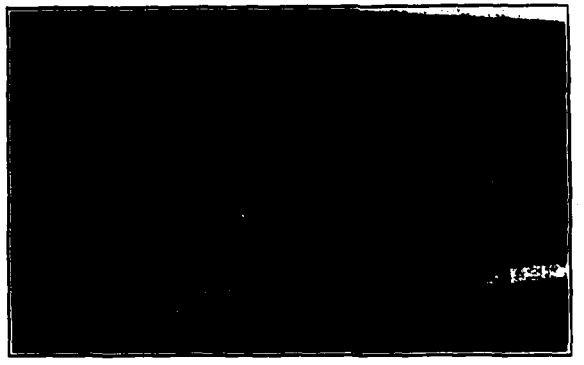


FIGURE 22.

car were left either partially or wholly open and the space between the doors was occupied by three or four men.

The caissons and pieces, unlimbered and covered with tarpaulins, were placed in the gondola cars. The men sat on the floors of the box cars, their equipment being hung from hooks in the roof of the car. They were fed by having



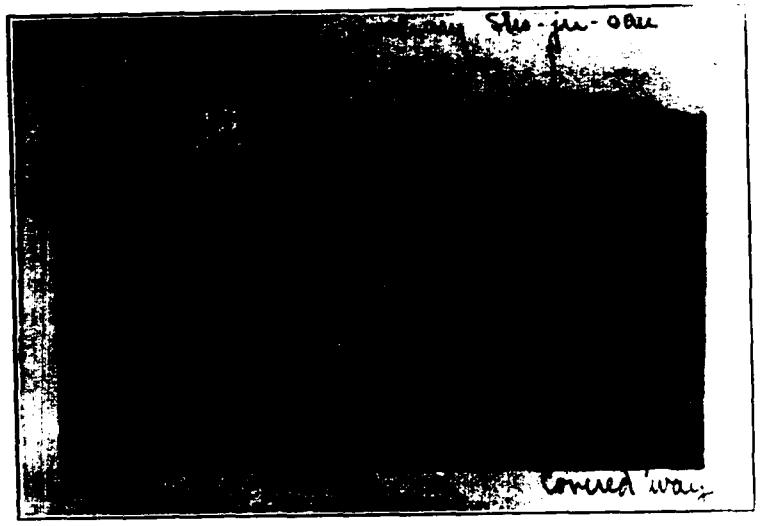
ON THE ROAD.

cooked rations ready for them at certain stations. When the train arrived they quickly filled their mess tins and ate on the train after leaving the station. At most of the stations there are a few quartered troops. At every station is a bulletin board on which is pasted a map of that town and the surrounding country. As many trains as possible were being run, as there was one on every siding, there be-

A DALNY STREET.

ing at least two sidings every hour of the fourteen hours run from Sanshilipu Junction to Tashihchiao.

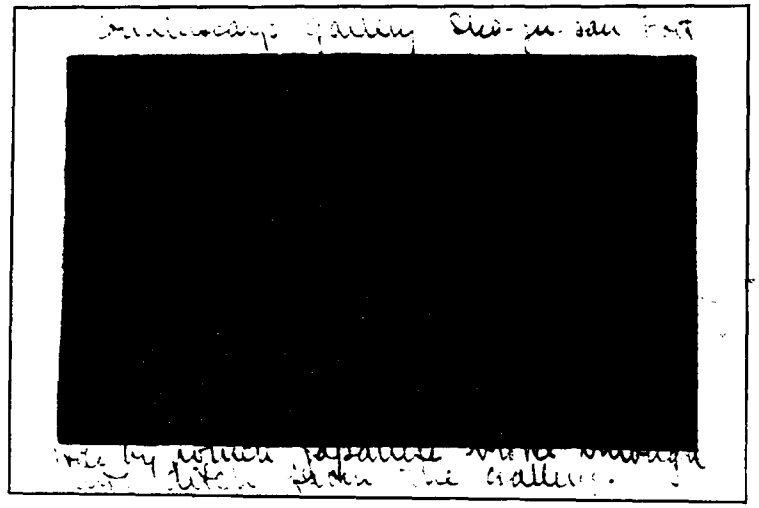
The town of Dalny is divided into two parts, separated from each other by a line of gendarme sentinels. One half contains the town proper, and includes all houses of ill-fame and questionable resorts. The other half nearest the docks contains nothing but store houses, barracks and camps. The troops on arrival are marched to the latter and until they embark for Japan are not allowed in the other part. As the forbidden part contains the Russian official town and various points of interest, the men without arms, in a column of route, are led around from one point to another by officers, generally a company at a time. At the time of my visit there were then forty Japanese transports in the harbor, also a hospital ship.



SUNGSHUSHAN.

The Japanese transport as a rule is not over two or three thousand tons. On the one I traveled on from Chemulpo to Dalny, the Sumiyoshi Maru, the space between decks was about five feet six inches high. Instead of separate bunks they have two platforms, one on the deck, the other above it half way to the next deck. These platforms are as wide as the average Japanese is tall and run fore and aft in the compartments they are in. The men sleep on these side by side.

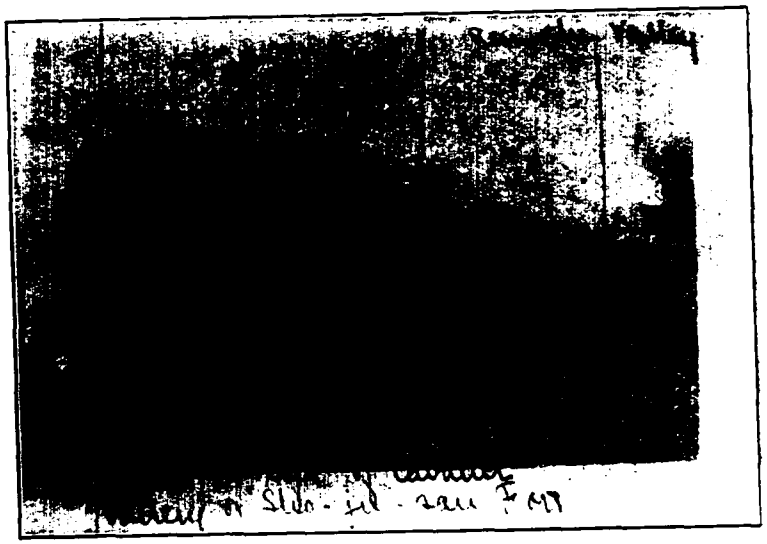
There is no division of the space into separate bunks. Outside of those belonging to the ship's officers there was but one stateroom on the boat. On the deck along the side they had built temporary wooden latrines. These were well scrubbed every morning. The number of men carried by the average transport could not be found out.



COUNTERSCARP GALLERY, SUNGSHUSHAN FORT.

On arrival in Japan all troops, including general officers, go through a quarantine station. One of the three to be used is in the outskirts of Kobe. This one was visited. An infantry colonel was in charge. There was a large number of doctors and men of the sanitary corps of the army. The station is on a beach and has two docks of its own. The men and officers land on one of these docks and go directly to a large room. Here each man is given a net, a chain purse with a lock to it, and a ring for one of his fingers; to the ring is fastened the key of the chain purse and a tag with the number of the purse and the net on it. He places all his valuables in this purse and puts the purse and all leather articles, such as shoes, etc., in the net. The nets are put in hand cars and run to a fumigating room by attendants. The men

then go to another large room where they undress and place all clothing in bags, which have the same number as the nets used by them. They place these bags in cars, which are



REMAINS OF CAVALIER BATTERY IN SUNGSHUSHAN.

run off by attendants and run directly into the disinfecting machine. The baths for the men open off one side of the undressing room. They consist of a number of separate rooms; each one contains a cement tank eight feet by eight feet. Four men bathe in each one of these tanks at a time. After bathing they go out through doors on the other side of the room from that in which they entered. Here is a large waiting room where they find hot tea, cakes and cigarettes in abundance. Adjoining this is a room where the bundles of clothing are brought when disinfected, still in the same cars. The attendants unload them, call off the numbers over a counter in the door between the room and the waiting room, and pass the bundles over to their owners, who dress. When all are dressed they pass into another large room marked with numbers, a couple of feet above the floor all around the room. Each man goes to his number and finds

the net containing his leather articles, etc., and purse. From this room they pass into the open air, turning in their net, purse and ring with the key and tag and number as they go.

HOUSE ON SUNGSHUSHAN.

Here they are joined by their officers. There is a staff officer in waiting who conducts each organization to its camp, which has already been prepared for it. When the men go into the undressing room the officers go into a room reserved for them. Here each officer has a bath to himself, on leaving which he goes into an officers' waiting room, where he is served with tea, cakes and cigarettes. There is a separate bath and waiting room for general officers and their personal staffs. At this station they expected to handle several thousand men a day.

The barracks and stables of the first line cavalry regiment were visited at Osaka. This regiment has a large number of Australian ponies, as many as 200. Most of the officers own them, as well as Chinese ponies. The regiment, except the depot squadron and some convalescent officers, was in Manchuria. There are no regular blacksmiths; all first-class privates must be able to do the work. It takes four

men to shoe one pony, and then it is badly done. They do not have separate shoes for the fore and hind feet. The adjutant of the regiment, who was convalescing from a wound received in Manchuria, said they had found during winter in Manchuria that two calks to a shoe were not sufficient, so used three and found that number satisfactory. On each side of the cantle they carry a pair of extra shoes in a leather pocket. The men are not at home around their mounts; they often seem afraid of them, and do not know how to approach a horse or how to behave when near one. Seventeen million yen is to be spent in the next twenty years on the improvement of stock. It is thought at present that a good many animals will be imported from Hungary.

The Japanese army is at present in a transition stage as regards uniform. The new uniform of olive drab for field service has been prescribed, but at present the majority of the troops have their old uniforms. Many of the officers are wearing the new uniform. The cloth out of which they are made varies greatly in shade. Some officers were seen wearing new uniforms made out of the greyish cloth used by the Russians for overcoats. Though the men are in blue, officers are often seen at different formations clothed either partly or wholly in the new uniform. In Korea and the Liaotung Peninsula, officers are frequently seen wearing at the same time parts of the blue and of the olive drab uniform. They appear at all times in a great variety of foot gear. While the new uniform has quite a little color to it, it is hard to distinguish an enlisted man or noncommissioned officer from an officer, as they all have the same amount of color on the same parts of the uniform. The rank is shown by a shoulder strap worn by all, including third class privates. All troops have an olive drab overcoat, cut very loose, especially in the back. The looseness in the back is gathered up by a strap. When this strap is undone the man can wrap himself in his coat as if it were a blanket. On each side of the coat there is sewed, as in the British service, a brass hook to hold up the belt. On the left side of the blouse all men have a cloth loop fastened by a button, for holding up the belt. In

the infantry this loop passes through the leather holder of the bayonet scabbard (see Fig. 24) and thus holds it in place.

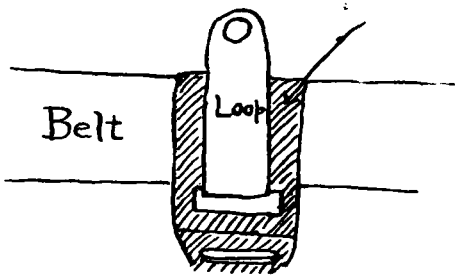


FIGURE 24.

In winter the Japanese troops wear very heavy woolen underclothing made like sweaters. Then comes their blue clothes. On top of their blouse they wear a sleeveless sheepskin jacket, fur inside, and on top of this their overcoat, which in addition to its cloth collar has a large detachable fur one. On their feet they wear first a sort of half slipper made of felt. These cover their toes and part of their instep; on top of them they wear heavy woolen socks, then shoes, and on top of all straw shoes. The officers generally wear a fur boot, fur inside, and leather boots on top. To protect the head they have a sweater hood which covers everything except their eyes, nose and mouth, and reaches down over the shoulders, back and chest. On top of this they place their ordinary cap, then turn up the collar of their overcoat, and on top of all pull up the cloth overcoat hood. The chin strap is worn by all, under the chin, where it does not interfere with the use of the mouth, and effectually holds the cap on in the highest wind.

It was noticed that the infantry never drop their butts on the ground when coming to an order, but always lower them gently.

The Japanese officer is allowed an enlisted man as a personal servant. The servant, or as they prefer to call him, "orderly," accompanies the officer everywhere.

In Korea Japanese troops are seen everywhere. In Seoul there were about 3,000 infantry, a few cavalry, and eighteen

field guns. The new Thirteenth regular division is scattered along the western part of Korea, while the Fifteenth is on the east coast. The new Fourteenth and Sixteenth Divisions are stationed in Manchuria. The garrison at Port Arthur, about a regiment, belongs to the Sixteenth.

THE KOREAN ARMY.

While in Seoul the barracks of a regiment of infantry were inspected and a number of drills witnessed.

The uniform is very similar to that worn by the Japanese. The drill is Japanese, and everywhere it is evident that Japanese ideas are the governing ones. The manual of arms was done with snap and precision. In coming to the order the butts were never dropped, but always lowered gently. The close order drill was very good, there being few mistakes made and those being minor ones by individuals. The firings in close and extended order were well executed. Though they always raised the sight leaf, no attempt was made as far as could be seen to set it at any particular range. The extended order drill and formation for attack was fairly well done, up to and including the rapid fire. When it came to the charge there was a good deal of hesitancy and looking around, a general bunching up followed, then finally a spiritless advance that soon came to a halt.

An officer of the General Staff present said it was no good, but it did not seem to worry him in the least. The company seen had about 180 men present at the drill, and as the barracks to be visited were indicated and as the company was turned out especially for this drill, it probably was the best one in Seoul. In one corner of the drill ground they had a couple of horizontal bars and a raised platform for gymnastics. Three squads of about twelve men each were marched over here. Three men stepped out and went through some stunts, which they did very well, then three more not so good and a third set of three who were fair, nothing more. It was then noticed that the first three who on finishing their stunts had fallen in on the left of their squad had quietly worked up again to the right, and it was therefore apparently their turn again. Though some little time was spent here only three

or four men out of each squad did anything, the rest merely standing there.

The barracks are long, one story brick buildings, built around a yard. Inside they are about nine feet wide, and six feet of this is taken up by a long platform about two feet above the floor. In winter time this floor is heated by a fire underneath in the regular Korean manner. The men sleep on this. Above it are shelves on which they place what little equipment they have. They have the Japanese knapsack and field equipment, but from the dusty condition of those seen and the difficulty experienced in producing some parts, it was evident that marching order is seldom used. The officer said they sometimes, though not often, made practice marches. As the men are recruited from the coolie class they should be good marchers and burden carriers. The kitchens were dirty. The cooking is done in the regular Korean manner, in earthen jars, placed over rude ovens. They seldom get any meat, their principal food being rice and a variety of large turnips. There was no opportunity of witnessing any target practice. They have a range outside of the city, and every week every man shoots five rounds. The maximum range is 300 yards. They are said to be fair shots up to this range. They are armed with the Sanchunensiki rifle, model 1896. They have also a number of obsolete French rifles.

The men are slouchy and dirty, their uniforms fit badly, are always dirty, and often torn. They have all the earmarks of the typical Korean, laziness, dirtiness, and a general lack of spirit and smartness. It is stated by the military authorities that there are about eleven thousand men under arms, and that there is a reserve of double this number. They count all men who have ever been in service as reservists; there is no scheme, however, for mobilizing them.

Their companies consist of 200 men and five officers, four companies to a battalion and three battalions to a regiment.

They have two squadrons (150 men) mounted on Chinese ponies and armed with lances who act as a guard for the Imperial household.

The artillery consists of two field batteries, unhorsed and

having between them about twenty-four field, ten machine and four mountain guns. They are of French and Japanese makes, old models.

They have a Primary and High School for cadets, also a War College for officers. In all three institutions the instructors are graduates of Japanese military schools. Men are enlisted from eighteen to thirty. Enlistment is voluntary. There is no term of enlistment; the men come and go as they choose.

The pay table is as follows:

OFFICERS.	Per Month
General	* Y250
Lt. General	200
Maj. General	150
Colonel	98
Lt. Colonel	73
Major	51
Captain	40
Lieutenant	30
Ensign	25

ENLISTED MEN.	Per Month
Sergt. Major	Y20
First Sergeant	10
Sergeant	8
Corporal	6
Private	4

These are the following Bureaux:

1. Military Bureau
   - (a) Infantry Division.
   - (b) Cavalry Division.
   - (c) Artillery and Engineer Division.
   - (d) Medical Division.
   - (e) Naval Division.
   - (f) Martial Law Division.
2. Strategic Bureau.
3. Bureau of Education.
4. Military Treasury.

The following are the stations of the army; the General Staff refused to give the number stationed at each.

Seoul, Kangkeido (said to be 6,000).
Suwon.
Chungju, Chung Chondo.
Hwangju, Chung Chongdo.
Kwangju, Chullado.
Taiku, Kungsangdo.
Pingyang, Pingando.
Wiju, Pingando.

THE KAI-FU RAILROAD.

The Seoul-Fusan, or as the Japanese call it, the Kai-Fu [the first syllables of Kaijo (Seoul) and Fusan] railroad, is completed from Fusan through Seoul to An-ju. It is the intention now to continue it over the route of the present military railroad used by the Japanese for bringing up supplies for the last war from Wiju to Mukden. There is a number of trains each way every day. About fourteen hours

* Y, Yen = 50 cents gold.

are necessary now to go from Fusan to Seoul. The time is constantly being reduced, while the roadbed is being straightened and many of the grades reduced. It is a rock ballasted, single track road, has the standard American broad gauge, heavy rails and American rolling stock. The engines came from the Baldwin Locomotive Works. The cars are the regular American day coaches with some differences as regards the interior. They have first, second and third class. Generally the first and second class are parts of the same car, while the third is a separate car. The seats in the first class are similar to those used in an ordinary American day coach, the second class have wooden seats, while the third have wooden seats with straight backs. There is a buffet to the first and second class coaches. All cars are generally well filled with passengers.

While the grade in many places is steep and will have to be cut down, the road as a whole is carefully and well built. The sidings are fairly numerous, though not as a rule long. The bridges have stone substructures and steel superstructures. Several were washed away during the last rainy season, but are rapidly being replaced by stronger stone ones. The culverts throughout are of stone. The banks of all streams that run under the road bed and of streams that are parallel to it and might wash out the embankment are revetted with stone to prevent them altering their courses. The embankments generally have layers of sod laid horizontally about every foot (Fig. 25) or else have a series of banquettes as shown in Fig. 26.

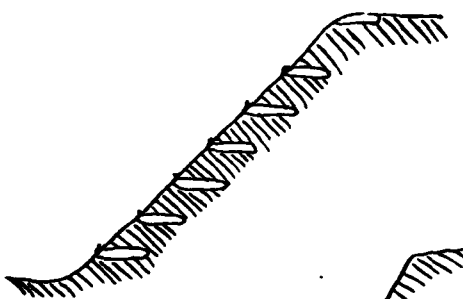


FIGURE 25.

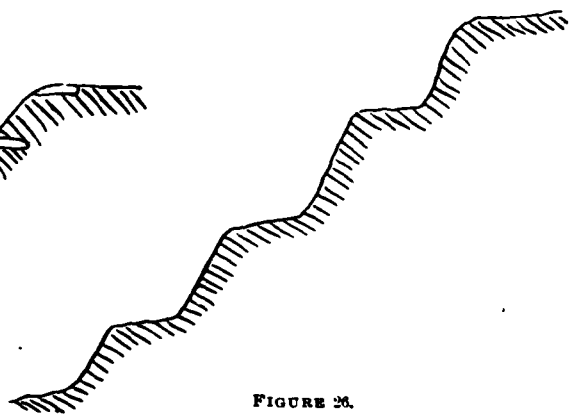


FIGURE 26.

The tunnels, of which there are very few, are built of stone and brick. The stations are connected by telegraph. All along the road there is plenty of stone available for repairing purposes. Outside of the few tunnels and bridges there would be little trouble in double tracking the road.

THE PEKING–HANKOW RAILROAD.

The Peking-Hankow Railroad is completed with the exception of the bridge across the Yellow River. The trains run only during the day. It is necessary to buy a ticket each morning for the day's run. Four days are necessary to go over the road. When the Yellow River bridge is completed they expect to make the run in three days, and later to have express trains, and make it in two. The first night stop is at Shin-te-fou, about twelve hours run from Peking. The next day the Yellow River is reached about 3:00 in the afternoon. This must be crossed in a sampan, picked up along the river bank. On account of the many sand banks which have to be gone around it takes about three hours to cross. There is a train leaving the other side between 6:30 P. M. and 7:00 P. M. This train goes to Tsin Chou, about two hours run. Here it is necessary to remain until 1:00 P. M. the next afternoon, when there is a train for Tchu Ma Tien, which is reached about 7:00 P. M. The next day a run of about twelve hours puts you in Hankow about sunset. There are no arrangements made on the train either for eating or sleeping.

At Shin-te-fou there is no accommodation of any kind for foreigners. The conductor will generally give permission to sleep in the train. At Tsin Chou there is an inn kept by two Greeks, while at Tchu Ma Tien there is a so-called foreign hotel kept by a Chinese.

It is necessary on leaving Peking to take at least two days food. Blankets will be found convenient throughout the trip.

The road is a broad gauge, rock ballasted one. Though rock ballasted, the surrounding country is so dusty that everything in the train is covered with dust. The road has but

one track, but there are long sidings at every station, of which there is an average of two or three to every twenty-five miles. These stations are neatly built of stone and are connected by telegraph. At every station there are from twenty to one hundred Chinese railway guards, armed with various patterns of German rifles, generally made in the seventies.

The bridges are of steel with stone abutments. The Yellow River bridge is a steel truss bridge on steel piles. There are twenty-four spans. Gravel and construction trains are run over it. The engineer in charge expected to have it completed by the first of January, 1906. The bridge is lighted at night by arc lights. By many it is considered not sufficiently strong to withstand the heavy rises of the Yellow River.

The rolling stock is all built by the French firm of Péhan. The engines are the same as those used on the French and Belgian roads, and have the name of the maker on them in both French and Chinese.

There are two kinds of passenger coaches, one divided into first and second class compartments. The other is for third class passengers. The coach for first and second class is similar to those seen on the continent of Europe. There is an aisle down one side from which there opens two first class compartments and three second class, while between the two classes of compartments is a stove and an arrangement for heating the cars which generally is not working.

The third class cars contain seats on each side of the center aisle. The backs are straight. The car will hold ninety-two men. Above the seats on each side are heavy wooden shelves, about three and one-half feet wide and three feet below the roof of the car. These racks are for the many bundles carried by the Chinese passengers.

There are two classes of freight cars, box and gondola. The box cars carry fifteen and twenty tons, the gondola cars carry twenty tons. Some of the gondola cars have a center side door which slides towards one end of the car, while others have three doors to a side, of the type that let down. All cars have two trucks of four wheels each. The wheels

are open wheels with spokes. Most trains are made up both of freight and passenger cars. Freight trains are run also.

The average train is made up of ten or twenty passenger coaches, all third class except one, and four or five freight cars. The third class cars are always crowded, the second comfortably full and the first occasionally full. The engine drivers and firemen are all Chinese, as are all the train crews with the exception of one head conductor on each train, who is generally French or Belgian, sometimes Italian.

The prices are moderate; the second class is two-thirds of the first, and the third one-third of the first or one-half of the second. There is a good deal of traffic in both directions on the road.

From Peking to the Yellow River the country is level. There are large numbers of villages in every direction and occasionally walled towns. South of the Yellow River the country is rolling, and as Hankow is approached becomes hilly. There are no tunnels. The road was easily built and it would require but little labor to double track it. The only problem in any way difficult in its construction was the bridging of the Yellow River.

MACHINE GUNS IN THE RUSSIAN ARMY DURING THE CAMPAIGN IN MANCHURIA, 1904–1905.*

By Lieutenant Colonel MONTGOMERY M. MACOMB, Artillery Corps.

THE Maxim automatic gun firing the standard service ammunition, caliber 0.3, was the machine gun furnished the Russian infantry during the Manchurian campaign, but they could not be supplied fast enough to fill the demand, and the Japanese were always superior in the number of machine guns available. The Russian authorities were so fully impressed with their importance that after the battle of Mukden they determined to attach to the cavalry regiments detachments armed with an automatic weapon of a suitable type.

In March, 1905, there were fifteen of the new mounted machine gun detachments with regiments of the First, Eighth, Ninth, Tenth and Twelfth Cavalry Divisions, all serving in European Russia, while there were ten in Manchurian armies, viz: Four with the Orenberg Cossack Division, four with the Fourth Don Cossack Division and two with the Ural-Trans-Baikal Cossack Division. At the end of August, 1905, some notes were obtained concerning such a detachment which had been organized to accompany the Ural-Trans-Baikal Cossack Division, and which was detrained at Kungchuling previous to joining. The accompanying vehicles bore the inscription "Konnaya Pulemetnaya Commanda —— Polka" (Mounted Machine Gun Detachment, ——Regiment). The personnel was taken from the four Mounted Machine

*This article was prepared by Colonel Macomb for the Military Information Division of the General Staff, with the request that it be published in the Journal of the U. S. Cavalry Association.

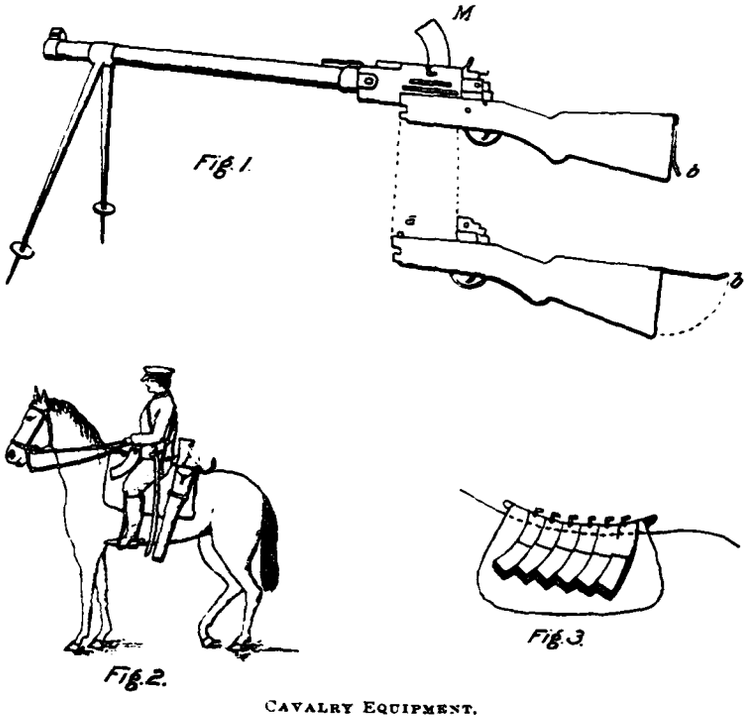
Gun Detachments of Dragoon Regiments Nos. Twenty-two, Twenty-three, Twenty-four of the Eighth, and Twenty-six of the Ninth Cavalry Division, being composed of picked men of above the average intelligence, while the horses were strong, stocky beasts, also brought from Europe from the regimental establishments. Having been in charge of competent men, they had been well cared for and were in excellent condition after their long journey of over 5,000 miles.

The establishment of a machine gun detachment was as follows:

	Officers.	Men.	Horses.	Guns.	Cart.
Fighting Battery.					
Lieutenant in command	1	...	1	...	...
Noncommissioned officers	...	3	3	...	...
Gunners, private	...	6	6	6	...
Ammunition horse drivers, mounted, two per gun	...	12	24	...	...
Armorer	...	1	1	...	...
Train.					
Cart drivers	...	3	...	...	...
Baggage carts, one-horse	...	...	1	...	1
Ammunition carts, two-horse	...	...	4	...	2
Officer's servant	...	1	...	...	...
Total	1	26	40	6	3

The gun is that which is described in "Streffleurs Oesterreichische Militarische Zeitschrift" for July, 1905, as "Rexersche Automatische Gowehr" (the Rexer Automatic Gun), arranged for the Russian infantry cartridge. These guns were made in a hurry, the construction was rough, and the metal of some parts was too highly tempered, making it brittle and causing frequent breakages. The part which is apt to give way is that marked *a*, Fig. 1, upon which the force of recoil is quite heavy. The magazine is of tin, and its general outline is that of a segment of an annular arc of forty-five degrees, and it holds twenty-five cartridges. In loading, it is inserted in the left side of the breech from the top and remains there during the firing (see Fig. 1, *a*). Occasionally the firing was interrupted by premature explosion of cartridges, which seemed to occur when the mechanical action was stopped before the magazine was

emptied, in which case the last cartridge was apt to explode. These accidents were very annoying, and it was found absolutely necessary to have with each detachment a competent armorer with full repair kit and many reserve parts, as well as several extra barrels. Danish officers state that the above defects, complained of by the Russian commanders, do not



CAVALRY EQUIPMENT.

occur with the more carefully made Danish gun. The metal magazines are carried in leather cartridge pouches of the same general shape as the magazine and holding eight of the latter. Two of these pouches are connected by a broad leather strap with an orifice in the center. Such a pair is supposed to be carried by the gunner in front of his saddle-pack (Fig. 2) in order to balance the weight of the gun, which is carried on the left and rear of the saddle, in a leather bucket reaching to the stock, the haversack being

carried on the right side (see Fig. 2 and Fig. 4). It has been found that the ordinary dragoon saddle may be adapted to the purpose in place of the special one at first thought necessary. The ammunition pack-saddle has an iron hook piece to which six lugs are attached, the upper ends of which are hinged. On these lugs are hung the pairs of pouches

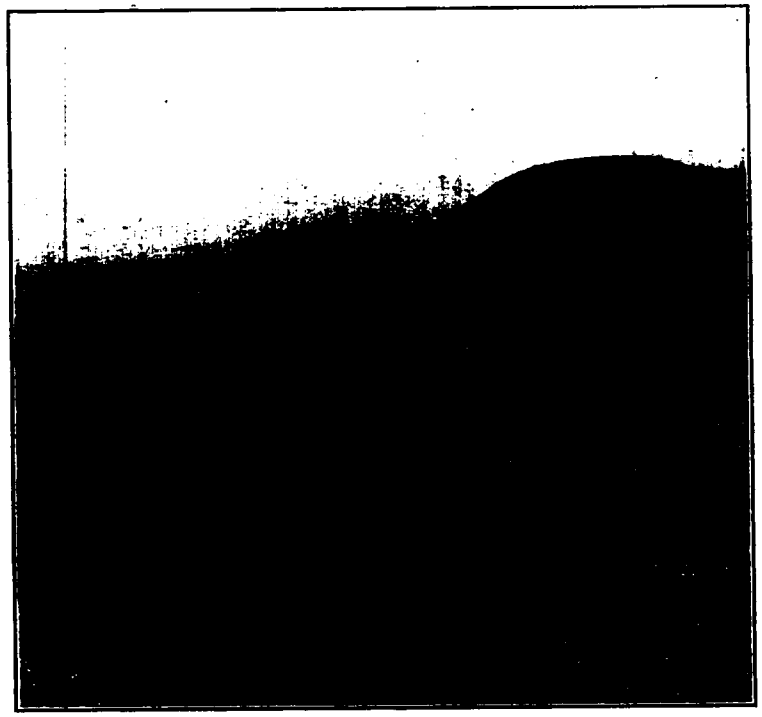


FIGURE 4.

Showing the Gunner, Three Drivers and Three Ammunition Horses, Forming One Element of the Automatic Gun Detachment, Rexer Type, of the Primorsk Dragoon Regiment.

already spoken of, the elements of each pair balancing each other on opposite sides (Fig. 3). The full load designed for a pack horse is six pairs, twelve pouches—12×8=96 magazines=96×25=2,400 cartridges. This method, however, does not admit of any forage being carried by the horse.

In the Primorsk Dragoon Regiment, which had had its detachment organized for some time, the cartridge pouches have been divided among three horses instead of two, thus forming a lighter load of eight pouches containing sixty-four magazines or 1,600 cartridges (see Fig. 4). This requires three mounted drivers. These pack-saddles were originally adapted for five (not six) pairs, and even five pairs were found too heavy. Whether drivers could habitually carry a pair of pockets on their saddles was a question still undecided. In actual practice neither they nor the gunners were doing so, as will be seen in the accompanying photograph showing the gunners, three drivers and three ammunition packs. The men are armed with the dragoon saber, dragoon rifle and bayonet. Their organization took two weeks to complete. No special instruction in firing was considered necessary for those who were already familiar with the rifle. In fact, it was claimed that the use of this gun was found to be easier and less fatiguing than that of the rifle, being fired from a rest in a lying position. The fork or rest is part of the equipment, and the use of the magazine makes loading simpler than from the clip. In firing single shots no recoil is felt, and in rapid or magazine fire the gun merely vibrates, but not to such an extent as to prevent the gunner keeping the sight on the target.

AMMUNITION SUPPLY.

The cartridges in the ammunition carts are not loaded in magazines, but are carried in the ordinary tins of 300 each, making in each cart 14,400 rounds. The supply is thus distributed:

	Per gun.	Per detachment.
On the 6 gun horses (400 each)	400	2,400
On the 2 or 3 ammunition pack horses (2,400 to 1,600 each)	4,800	28,800
In 2 ammunition carts		28,800
Total available		60,000

or 10,000 rounds per gun, of which 5,200 rounds per gun are in the firing line.

COMMENTS ON THE MOUNTED GUN DETACHMENTS EQUIPPED WITH REXER AUTOMATICS.

In spite of the fact that this weapon received no test in the late war, it may appeal to our cavalry as better suited to their wants than the more cumbersome Maxim with its water-jacket and tripod. The organization is also simpler and requires a little over four men per gun instead of about ten. The weapon is less effective than the Maxim, but it is more mobile, less training is required to use it, its methods of transportation are more easily adaptable to the existing cavalry equipment, and the reserve ammunition may all be carried on pack animals and special carts dispensed with. The Russian regimental detachment gives one Rexer gun per squadron of 120 men, while the Maxims are suppled to the infantry divisions at the rate of one gun per 2,000 men. For our service, detachments might be organized so as to give one Rexer gun per troop or four guns per squadron, which would make an excellent command for an energetic subaltern. The action of the Russians in adopting for their cavalry an organization and equipment so different from that of the infantry, which had experienced a war test while the other had not, is probably based on satisfactory proof of the suitability and power of the Rexer gun, and it may be wise for our cavalry to make trial of this weapon for comparison with that recently authorized.

CONCLUSIONS.

As the Rexer equipment received no tests in actual combat we are without data on which to base deductions relating to it; but as our cavalry are to have the same weapon as our infantry, namely, the Maxim, which is very similar to that used by the Russians in the war, we may draw certain conclusions and learn certain lessons which may prove useful.

1. The machine gun played a useful but not a great part in the war.
2. Two thousand yards was the limit of its effective battle range.
3. It could not contend against artillery.
4. Its average power is equivalent to about fifty riflemen

5. It is not a trustworthy weapon when used singly, and as a general rule should never be so employed.
6. Its most valuable quality is that it supplies a means of suddenly and unexpectedly increasing the volume of fire without overcrowding the firing line, thus greatly extending the scope and flexibility of the fire action.
7. Its greatest physical and moral effect is produced when it is employed suddenly against massed troops, such as infantry in close order, artillery limbered, cavalry mounted, or in enfilading lines of any kind. It is, in general, impossible to foresee when and where such opportunities will arise. Hence the best organization is that which distributes the machine guns among the fighting units so as to take instant advantage of an opportunity without making a good target for the enemy, the smallest permissible machine-gun unit being a detachment of two guns.
8. Machine guns should not be kept in the firing line, but held in reserve until the opportune moment arrives. They should on no account be permitted to fritter away their ammunition in doing work belonging to the firing line or which can better be done by specially detailed sharpshooters. The commander of a unit will fight his 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 by a company or more.
9. When the commander of a superior unit foresees that to accomplish certain results it is advisable to mass the gun, the small detachments may be united by his order and under his direction. There should be on the staff of every such chief an officer capable of taking command of the combined detachments. He should be a trained *mitrailleur*.
10. The value of the machine gun in defensive positions, covering defiles and the like, has been generally admitted. In reality it is equally valuable on the offensive or defensive to an active moving force which knows how to use it.

LESSONS FOR OUR SERVICE.

So far as our army is concerned, only negative lessons are to be learned from the Russian organization of machine gun

companies for use with infantry. At the outbreak of the war very little was known about machine guns in the Russian army as a whole, and, with this ignorance, certain erroneous opinions were prevalent, as with us under similar conditions, viz: that no special training was needed to handle these weapons, and that the personnel could be taken directly from the troops to which they were attached. The Russian authorities, however, took a serious and sensible view of the matter, and proceeded on the principle of not allowing machine guns to be handled except under the instruction of officers thoroughly schooled and competent. New companies were organized, with a nucleus of one or two instructed officers and thirty-three per cent. of well-trained men familiar with the weapon, the balance of the personnel being selected from the best men available in the units to which the guns were assigned. There was an armorer with each company who understood all the minor repair work needed.

While the arms and equipment of the personnel were the same as that of the troops with which they served, certain distinctive marks were added to their uniform, which made the men appreciate that their specialty was of some importance and permanence.

POLICY SUGGESTED.

From the above hints the following policy may be outlined governing the introduction of these weapons into our service, for it is believed that their reception will be decidedly lukewarm and their service inefficient for a long time unless every one is made to feel their importance *ab initio*.

1. Assign no officer to the command of a permanent detachment who is not thoroughly instructed and well posted on the handling of the gun, its care, methods of reducing "jams" and quickly remedying the ordinary accidents which are liable to occur; its transportation and the handling of the train and ammunition supply.

2. To make this possible, assemble at some central and convenient post a working board of instruction, composed of

officers from each branch of the line who have had the requisite experience, viz: An infantry officer who understands machine guns; a cavalry officer who has served on previous boards engaged in selecting the type suited to our service and testing methods of transportation; an artillery officer who has had similar duty—preferably from the mountain artillery. Appoint an ordnance officer who has had experience in the previous tests of machine guns, as *consulting member* of the board. Assign a skilled mechanic thoroughly familiar with the gun, one who fully understands its working construction and peculiarities, and also a skilled packer who shall be at the disposition of the board. The board should also have at its disposition a good typewriter as a recording clerk.

3. Select a central post where there is already pack transportation, and send there the enlisted personnel and selected officers from the first regiment to be supplied, and let them be instructed upon a program laid down by the board, which shall at once prepare a provisional system of drill regulations.

4. When the officers are sufficiently instructed, let them repair to their regiments with a copy of the provisional drill regulations and a suitable percentage of instructed men as a nucleus on which to organize the detachment for their regiment from the material which has been issued to it.

5. Let the provisional regulations be thoroughly tried out for a couple of years, inviting meantime reports and comments; let the whole system of tactical instruction be attacked, if desired, and thoroughly thrashed out, and then let the final revisions be made. It is unsafe to assume, as we have done, that boards are sufficiently omniscient to originate drill regulations complete and perfect, as Jove caused Minerva to spring at a touch absolutely flawless from his brain

6. *Uniforms and Arms.*—Uniform, that of the unit to which attached, with distinctive insignia; arms, revolver of .45 caliber and a good stout machete of the best material and of approved design; intrenching tools (carried with ammunition packs), two spades and one pick mattock per gun.

Ammunition supply with the guns not less than 6,000 rounds per gun.

7. Let the board suggest a suitable set of distinctive insignia for the machine gun detachments.

These suggestions are thrown out because it is known to be an expensive and unsatisfactory policy to let inexperienced detachments go into the field. It will save time to give them the best instruction practicable, beginning with those who lead the list for foreign service, where there are no facilities for instruction.

"AN INTERESTING CASE TO HORSEMEN" CONTINUED.

By CHAS. H. JEWELL, Veterinarian, U. S. A.

IN writing a reply to the above named article, I am not sure that I come under the head of a "first class veterinarian," whom Major Ripley desired to make some reply.

I do not wish to place myself on record as being an authority upon the subject of glanders, but since I have had considerable experience with this disease, both in the Philippines and the United States, I feel that I might possibly enlighten him upon some of the points of this disease upon which he seems to differ from our authorities.

During last August I was in attendance, by order of the War Department, at the annual meeting of the American Veterinary Medical Association, and it was my privilege to listen to several very interesting articles and discussions upon the subject of glanders in its various forms by men foremost in the veterinary profession of America, among whom was Prof. James Law, of Cornell University; Dr. J. G. Rutherford, Veterinary Inspector General for the Dominion of Canada; Dr. Geo. H. Berns, of Brooklyn, N Y., and many others who have wide experience in sanitary control work, dealing especially with glanders. Dr. Rutherford mentioned cases of glanders which, when well advanced, would often fail to react to mallein, but which very often would show a decline in temperature. These cases he stated would, as a rule, have a well marked local swelling at the point of ejection. This along with the clinical symptoms, such as farcy buds and ulcers within the nostrils, etc., he considered confirmatory.

In the case given by Major Ripley he makes no mention of the presence or absence of any local swelling, which is considered of considerable importance in the mallein test, and nothing in the report of the test by the veterinarian is said in this regard.

The statement made by the Major is that authorities state that horses suffering from farcy often, when not showing any clinical symptoms, may show post mortem lesions of the internal organs. I can not find any author of repute making such a statement, but would refer the writer to Dr. Law's work on veterinary medicine, Vol. IV. In this book, which we of the profession refer to as authority, he states "that farcy is that form of glanders affecting the skin and subcutaneous lymphatics most prominently," and makes no mention of lesions of the internal organs, and in cases where the disease affects the internal organs and shows no external signs he classes as "latent or occult glanders."

As regards the inoculation of guinea pigs and making cultures from the small nodules. I can see no error in the methods described, yet it is a well known fact, that it is often difficult to obtain the glanders germ in taking pus from the discharge of farcy buds, owing to the great number of pus organisms present, which have greater power of reproduction and evidently destroy or render inert the glanders germ.

The symptoms given in the case strongly suggest farcy, and I am not aware that we have ulcerative or epizoötic lymphangitis in this country, so we can exclude these diseases, which are so closely allied in symptoms to farcy. We occasionally have conditions resulting from infection of the lymphatics of the limbs, which often show considerable similarity to farcy, but one trained in animal diseases would hardly make a mistake of diagnosing such cases glanders; yet I have seen such cases which look enough like farcy to lead veterinarians of experience to resort to the mallein test before passing judgment upon them. I believe one should be guarded in making a positive diagnosis of glanders, until he has employed some of the confirmatory methods, and then, if these sustain his diagnosis, it leaves but little reasonable room for doubt. If in case of such an animal as the Major mentions we are in doubt, and time does not enable us to be positive, I believe it is better to sacrifice one animal than allow such a horse to mingle with healthy ones, and with the possibility of the case later proving to be farcy and becoming the means of infecting many others.

THE GERMAN MANEUVERS.

By GORDON JOHNSTON, First Lieutenant (Cavalry) Signal Corps.

BERLIN, GERMANY, September 14, 1906.

The Chief, Military Information Division, Washington.

SIR:—I have the honor to inform you that I have recently attended the "Kaiser Manöver" which was held in Silesia near Breslau, from September 10th to 13th inclusive.

As I was not there officially, my opportunities for observation were necessarily limited, but such as they were I wish to bring them to your notice, hoping that they may be of some interest to your division.*

As you will doubtless have complete reports covering the general organization of the three army corps engaged, and the conduct of the maneuver, with able criticism of the strategy and tactics displayed, and the conduct, equipment and action of troops, I will confine myself to the minor matters which caught my attention.

Through the courtesy of Captain Biddle, our military attaché, in Berlin, I obtained a card which permitted me to visit all parts of the field of maneuver, so far as military interests admitted.

This was practically the "Press pass," and armed with this and provided with a bicycle, I was on the field by the 8th in order to look the ground over and familiarize myself with the field of operations.

At 2 A. M. on the 10th the two opponents were to commence operations, and as my interests were naturally with the cavalry, I went at once to the point where the hostile patrols would probably meet, and where they actually did.

*It is respectfully requested that this letter, after it has passed your office, be sent to the editor, UNITED STATES CAVALRY JOURNAL, for publication, if he considers it of sufficient interest.

From this time on I followed the cavalry as closely as possible, frequently getting out before daylight, and often losing them on account of night marches. This work was particularly interesting, for, knowing the general objective of the opponents, having a good map, and being able to locate the infantry before dark, it was a good problem to determine the probable whereabouts and actions of the cavalry.

As to their cavalry in general, their mount is excellent, their equipment is good and serviceable, the horses are beautifully trained and the men well disciplined. They travel fast and cover great distances. I followed their cavalry division many miles and never saw a horseshoe cast on the road, nor any part of horse or trooper equipment lost.

I noticed particularly the use of the double rein with which they are equipped, and did not observe any confusion of the reins or that the trooper had any difficulty in handling them under any conditions. As their right hand is always occupied by the lance they never use it on the reins, except in shifting them. In fact, the men carried their hands well down with a good feel of the snaffle and a light one of the curb. To bring a horse suddenly to a halt, they let the snaffle rein slide through the fingers and drew back the hand keeping a tight hold on the curb rein. They were again put in position by drawing the snaffle rein taut with two fingers of the right hand. As held in the hand, the snaffle reins are outside of the curb, all being separated by the fingers, the back of the hand being up, and the thumb pressing on them against the forefinger.

The four leather pouches, two by the cantle and two by the pommel, seemed an excellent arrangement to me. In the first place they permit an even distribution of the weight and carry at least as much as our saddle bags which place so much at the cantle end of our saddle, and under which we find about ninty per cent. of our saddle sores. Their saddle is good, lighter than ours, clears the withers as well, and permits of adjustment. Their saber hangs straight down on the left, and the carbine on the right, both attached to the cantle. This arrangement leaves the trooper's legs clear, which means a clean grasp of the saddle skirts all the way down. Every

one knows how uncomfortable the carbine and saber are under the knee or the lower leg. So far as I could see, the position of saber and carbine did not interfere with the action of the horse at any gait or in jumping fences or ditches. Many of the regiments had saddle-blankets like ours, only thicker.

The leather pouches, tightly secured to the pommel end of the saddle, give additional security to the seat, something like "bucking rolls." The rear pouches have also this effect.

When riding at full speed or across country the whole outfit seemed to ride close and tight, *i. e.*, all but the trooper, who bobbed up and down considerably. Their stirrups seemed too short, and this, with feet not parallel to the horse, turned the knee outward, showing daylight between it and the saddle, and also under the trooper. Their seat is so different from ours that it is hard to form a fair judgment of it. So far as results are concerned, however, they got across country in great shape and took their jumps very smoothly, without jerking the horses' heads off. On the march their walk is not very good, being slow, even then with some jiggering at the tail end. Their trot was steadier, but not covering the ground that our gait would. At the gallop they were splendid, sweeping along with a fine, free stride, up and down hill, across plowed fields or through high grass at a pace that fairly ate up the ground. This was doubtless due to the thoroughbred in their mount.

I cannot express my full admiration for these horses. They filled me with envy, and yet made the pulse of a horse lover beat very high. I have seen about 15,000 of them pass at Breslau and Berlin, and the foremost thing that struck me was the beauty and graceful carriage of their heads. All were rather small, beautifully shaped, with wide, flat foreheads, a straight frontal line in profile, small ears, large, full eyes, and thin, open nostrils. These horses were extremely intelligent, and their expression in the field indicated the keenest interest in the game, and the most willing response to every call on them. Although I saw many charges and counter-charges, mêlées and races in pursuit, I never saw a

single horse bolt or become unmanageable, and there were ninety five squadrons in the field in almost constant use.

The use of fire action was very limited. I saw only one instance in which troopers were dismounted, and heard of no other. They charge constantly with the lance, and may be counted upon to do so often and boldly. One particular instance impressed me very much. The Blue Cavalry Division was advancing along a main road toward Parchwitz which was held by the Red Division. There was only one road into the town, and this crossed a stream by a wooden bridge. It was here that the Reds had dismounted some cuirassiers to defend the bridge and the stream, which could not be crossed easily by the cavalry. The Blues sent several patrols against this line, and finally a squadron came at a full gallop down the road toward the bridge, with lances set, and an officer leading making frantic motions for the obstructions to be removed. This was done, and these passed over, followed shortly by the division. It was a splendid sight, but a sad fate awaited them. In columns of fours they swept through the town and up a steep hill, and just as they cleared the brow of the hill they found the Red Division in line, parallel to the road, and these promptly charged. The Blues were thrown into utter confusion, squadron and regiments all mixed, and troopers galloping in every direction. The rallying and re-forming of the Blue Division was far the prettiest piece of cavalry work seen by me. In an incredibly short time I counted the regiments galloping back through the village in the best order, and did not note a single uniform out of place. The leading units were moving off in this manner within a minute and a half (by the watch) after the charge of the Reds. Their uniforms being different for each regiment made this possible.

This impressed itself so forcibly on my mind that I began to wonder if there were no ways in which our own regiments could have some distinguishing color or mark to shorten such times of inevitable confusion, and to hasten the rally. Perhaps different colored handkerchiefs of the bandana size for the different regiments might help in this direction. These articles are very necessary in the field as well as ornamental in garrison, worn as a neck cloth, and perhaps would be of practical military use. If made of good fast color I believe they would fill an actual want. If invisibility is desired they can be very easily concealed in the shirt bosom or put inside the collar.

To return to the field work. I do not remember seeing ground scouts in front of any of their charging lines. Such scouts would have saved the Blues in the Parchwitz charge, for the Reds had made no preparation for fire actions, and one detachment could have blocked them in pursuit so as to give the Blues a start. They love the lance, and they have faith in the charge, so that if two columns should meet on a narrow road one may be sure of the action of a German squadron. If the columns are very much advanced and the position of the enemy not well known, it would not be advisable for the other to get separated from its horses, or even to dismount. Pistols could hardly be used in such formations, and the lance in such a clash would be a most formidable weapon. It would certainly seem that right here several men at the head of the column, who have horses which stand perfectly quiet under fire, could do some very fine work and then clear the road for a countercharge.

In patrol work they were very thorough but stereotyped, and did not simulate war conditions. For this reason it is difficult to form any opinion of what their screen and contest tactics would be like in actual war.

One thing did strike me very forcibly in the work of the Divisional Cavalry, and that was the certainty with which the presence of the infantry column and their line of march was indicated by the presence of these cavalry patrols on the same or a nearby parallel road, all moving in the same direction and in a more leisurely manner than if cavalry followed. Then with messengers riding back toward the same direction, the matter was assured. On several occasions this was observed at great distances, and a glance at the map would almost fix their destination. The idea of masking as well as protecting the march of infantry did not seem to prevail.

In the matter of equipment I had a good opportunity to notice the use of the officer's cape, which was cut quite wide. Two of the days were very cold, with both wind and rain, hard on men and horses. These capes were water-proof, and when in use covered not only the rider but the loins of the horse, extending over the croup. It must have been most beneficial to the horse, especially when he was alternately hot and cold.

As a whole, one must be impressed at these maneuvers with the perfect discipline and splendid endurance of the German troops. Their patrol work and long cavalry charges in the open, taking no heed of fire effect, and the use of dense masses of infantry in close range during the attack, would doubtless be speedily remedied in war. The other qualities are fundamental and very much to be admired.

It was also most inspiring to see such great bodies of troops. At the Breslau review there were 42,000 troops on the field. They were in two lines, the infantry being in front, with the cavalry and artillery in the rear. The dense column of the former in line of regiments, with a front of about 200 men, extended further than one could distinguish even companies, and melted into a solid mass, with only the little flashes from the bayonets or helmets to show what they were.

When the Kaiser, the great "War Lord," came on the field, they held the "Present" for twenty minutes, almost motionless. Nothing could be more picturesque than the cavalry, who sat their horses under a perfect forest of lances, from each of which a pennant fluttered; cuirassiers, dragoons, uhlans, and hussars, flanked by batteries of field guns, siege guns, field mortars and machine guns.

It was a great splendid machine, and it only impressed one the more to think that this was but a small fraction of the whole.

WANTED—SYSTEM.

By Captain HOWARD R. HICKOK, Fifteenth Cavalry.

COMPETENT authority has ordered that the duties of the general shall be studied, and maneuver camps in which large numbers of troops are gathered together have been formed. That such study is desirable and necessary no one will dispute. There is one fact, however, that is apparent to all those who attended the maneuvers of this past summer and which may be stated this way: Before learning the duties of General A, it is necessary to know those of Lieutenant B and even those of Private C. In other words, before we proceed to the study of the tactical campaign duties of general officers we must first learn those of subordinates. In order to accomplish this duty, a systematic progressive practical scheme of instruction must be followed.

Some study has been given to tactics in our garrison schools, practical exercises have been held on reservations, and practice marches have been made, all tending to give us confidence in our proficiency. As a consequence, our troops went to the various camps with the idea that the exercises to be held there were to be on the order of grand tactics—a fitting culmination for the year's practical work—and this idea is in accord with the general scheme of instruction. The exercises held did, to a certain extent, partake of the nature of a review or critical examination of the previous work at the posts, and revealed wherein such work was defective or fell short of expectations.

In the service there has arisen a feeling against theoretical instruction. This is a natural outcome of a disposition to criticise and find fault, of a repugnance to hard work, of a lack of appreciation of the limitations of theoretical instruction, of the difficulty of applying theoretical principles to practical use, and of the failure to accomplish desired results.

In the various exercises in minor tactics, it was evident that considerable attention had been paid to these duties in the garrison instruction. It was further evident that this instruction had frequently been of a perfunctory nature and that there had not been a uniform intelligent effort to apply principles to the various conditions imposed by the terrain and the supposed enemy.

A considerable ignorance of map reading and of the proper use of maps was observable. Uniform scales and contour intervals were frequently not understood nor their advantages appreciated. A well contoured map showing the military features was often criticised thus: "That map is sacrificed to contours." That an officer in command of troops in the field and supplied with a good map showing all the features should lose his road seems hardly credible. Yet, this was an observed fact. There was also a scarcity of officers and men competent in the rapid methods of sketching.

"Field orders" issued were frequently of such character as to indicate a lack of knowledge of the subject as outlined in Field Service Regulations, pamphlets and circulars that have been issued from time to time.

A great deal was heard about "normal formations," and they were attempted in numerous inapplicable cases. Commanders would form advance guard in accordance with the drill book models when such were clearly unsuited to the occasion. Other commanders would establish on diversified terrain, a "cordon system," or "Cossack post system," of outposts, failing to appreciate their inapplicability to the terrain under consideration, and being unconscious of the erroneous impression created by such exercises. In fact, so persistent was the misuse of "normal formations," as to lead to the conclusion in the minds of many officers, that such formations should be completely stricken from drill and text books, and drill in such formations absolutely prohibited.

The duties of patrolling, reconnoissance and screening were usually unsatisfactorily performed and this came about largely because of the improper conception of the duties of patrols. Reconnoissance is the chief duty of patrols. They should habitually seek safety in concealment or flight, avoiding combat, and fighting only when absolutely necessary in the execution of their orders. Our men, however, instead of carrying out this idea would almost invariably engage in a fight.

Aggressiveness is a matter of temperament and is not a universal characteristic. It is a most valuable quality in a leader. Indecision, indifference and inactivity are, unfortunately, qualities that are more often present and are frequently induced by environment and the systems in which men find themselves placed. The years which officers spend in minor positions, with small opportunity to exercise their discretion, judgment and initiative, dwarf their mental growth and development and also their physical activity. The aggressive man, with even a poor plan which he pursues to a conclusion, will accomplish some results, whereas the undecided, indifferent, or inactive man rarely accomplishes anything at all.

In many of the maneuvers, conditions were frequently brought about where a perception of the situation, followed by an intelligent aggressive action, would have been productive of decisive results. In order that men may exercise and develop these qualities, it is necessary that they have frequent opportunity for such exercise. These opportunities can be created in the majority of military posts.

It is thought that in the garrisons a course of instruction similar in some respects to that pursued with excellent results in the Infantry and Cavalry School, can be used to advantage and as a preparation for the advanced work undertaken at maneuver camps. In this course, at least all captains and lieutenants, without exception, should be required to participate.

In general terms, the course could embrace the following:

1. (*a*) Problems in map reading.
   (*b*) Instruction in the rapid methods of sketching.
2. Instruction in the preparation of field orders.
3. Instruction by the applicative method in tactical subjects, beginning with security and information, as follows:

(*a*) Studies of solved problems or situations, illustrating the principles ordinarily laid down in text books.

(*b*) These studies to be followed by problems on the map. In these problems the student officer will apply the principles studied to new situations.

(*c*) These map problems to be followed by similar problems to be worked out on the ground itself but without using troops. These are called "terrain exercises."

(*d*) The map problems and terrain exercises in each subject to be followed by maneuvers with troops in those subjects.

In the applicative method of instruction, instead of studying and memorizing the bare abstract principles of a subject, as is done in the text book method, examples or solved problems are first examined, maps and diagrams being freely used. The reasons pro and con for all dispositions in each case are given. Nothing is ever heard of a "normal formation," for there is no such thing in this method. Instead, in each case such dispositions are made to meet the conditions imposed by the terrain and the supposed enemy as will best secure the desired results. Text books on theory are retained only for reference.

The advantage of this method is that the mind learns to apply theoretical principles to practical use in a way and with a thoroughness not otherwise obtainable. The mind is trained to think out military situations almost unconsciously to such an extent, that when a problem is actually presented, the solution is made at once without the indecision and inaction that is so often observable.

In order that errors may be known at once and avoided, the corrected papers, with criticisms thereon, in map problems, should be returned to the officer as soon as practicable and before proceeding with the next part of the course. Similarly, in the terrain exercises, the corrected solutions are returned to the officer and the problem is discussed on the ground.

The course in security and information having been completed, more advanced tactics of the student officer's arm of

the service should then be taken up, the tactics of other arms being also studied in this connection.

Each officer should have the opportunity to exercise command in each problem of the course in maneuvers, problems being, if necessary, repeated for this purpose. The opportunity to command should extend at least to include the unit next higher than that appropriate to the officer's grade.

Exercises without hostile combat are matters more of drill than of maneuver, preparing the way for the latter. With the knowledge that an enemy may be encountered, the commander will be more alert and the correctness of his dispositions will be tested.

In maneuvers, the usual rules should apply. The following should be especially considered. The maneuver should be followed by a discussion in which all officers engaging should take part. The commander of each side should be given the opportunity to explain his plan, dispositions and operations, as well as required to indicate any errors that he believes he has committed. The supervising officer should point out any defects of plan or execution, or other errors, and indicate what would have been a better course of action. Opposing commanders will be apt to want a decision that they "won" or that the other side "lost." Such decisions defeat the object of the exercises. It is obvious that if a patrol operates against a regiment, any combat of these two bodies should result in favor of the regiment, and yet the patrol may have been successful in its mission. The decision of the supervisor should be on the question: "Have the conditions for success been fulfilled?"

A variety of maneuvers can be arranged, such as patrol against patrol; advance guard against advance or rear guard; retreat and pursuit; reconnoissance, one organization against one or more; outpost duty with reconnoissance by hostile patrols; attack and defense of outpost, of position, of convoy; problems involving the three arms, and so forth. The exercises would be different for different garrisons, depending upon the number and grade of the participating officers and upon the available troops and terrain.

The system here proposed requires that the enlisted man be thoroughly instructed in drill, fire discipline, and in security and information.

In order to accomplish its enforcement, this system of instruction requires that in each post the instructor or supervisor shall be a competent officer, having knowledge of the system and possessing zeal in the work. It is thought that this condition can be met in at least the larger posts, if not in all.

An objection may be raised that this system will involve much work. The system will require more work of the instructor than in the present method. No work is too hard, if results be commensurate, and if properly applied this system will produce these results. The work will be no harder than that supposed to have been heretofore expended on garrison schools. From its very nature, it is of a more interesting character, and the interest aroused will act as a stimulus to excel.

The solved problems or situations to be studied by student officers, and also those problems to be solved by them, would have to be carefully prepared. Present regulations assign this duty to the War College. Part of this duty would have to be performed in the garrisons by the instructors, or by boards designated for that purpose.

The question may arise, "How will uniformity of instruction be assured throughout the service?" It is possible that some commanding officer may not make a thorough, consistent, conscientious application of the system, and may throw obstructions in its way. A system of inspection under direction of the War College would probably insure a proper enforcement of the system.

THE FORT RILEY CAMP OF INSTRUCTION, 1906.

By First Lieutenant EDWARD DAVIS, Eleventh Cavalry.

DURING the short period that the United States army has enjoyed the advantage of field training on a large scale, many different names have been used to designate the great maneuver camps, but it is doubtful whether any camp ever so completely justified its name in every respect as did the camp maintained this summer at Fort Riley, Kansas, and known simply as a "Camp of Instruction." The foresight displayed in administrative preparation, the scope, logical arrangement and general excellence of the program of instruction, the zeal, energy and intelligent coöperation which characterized the efforts of all—officers and men, line and staff, regulars and organized militia—these were the elements that contributed to make this camp so remarkably successful. In addition to this happy application and coördination of human effort, the camp was characterized by certain material features which served to stamp its memory indelibly upon the minds of those who participated. The terrain was satisfying in its adaptability to the problems attempted, the weather on the whole, was fine, and the sanitary condition that prevailed thruout was a wholesome object lesson and a cause for common congratulation.

In so far as the mind of man operated to bring about these results, we may hark back to the period of preparation preceding this camp and there find some of the causes of success. Early in May the War Department intimated that camps of instruction might be a feature of the summer's training, and in June this possibility became a certainty by the issuance of General Orders No. 110, War Department. This order fixed the dates, sites, commanders and troops for the different camps, and included certain general directions

as to the supervision to be exercised by division and department commanders with reference to the establishment and maintenance of the camps and the concentration and dispersion of the participating forces.

An important feature of this general order was its noticeable omission of any set program of instruction to be followed by all camp commanders alike, and its direction to the effect that "the program of instruction to be pursued and the arrangement of all necessary details, within the limits here prescribed, are left to the respective division, department and camp commanders." By this clause of the order, there was created a competition among the commanders designated, which necessarily must have resulted in a certain measurement of comparative fitness for high command. This clause of the order will result also in giving to the General Staff a variety of programs of instruction—all the result of considerable study, from which to select those elements found most beneficial and practicable, and out of which to construct a general scheme of field training for the entire army and organized militia. A comparative study of the programs followed this summer at the different camps, leads one to the conclusion, that the scheme carried through at Fort Riley must be given very serious consideration as being possibly quite fit for adoption, almost in its entirety, as a model to be followed hereafter in all camps.

Following the publication of General Orders 110, War Department, came quickly, letters of instruction and orders from Division and Department Headquarters, designed to cause the troops at all posts to take on a condition of preparedness in every respect, so that the appointed day might find all perfectly fit and completely equipped for the long march to the site of the camp. To attain this result with the troops of the regular establishment but little effort was necessary, as the practice marches accomplished under General Orders 44, War Department, 1906, had already put the various commands into most acceptable condition. To impress upon the organized militia the need for careful preliminary study and preparation, and to assist them in matters

of arranging transportation and subsistence, constituted another phase of the preparatory period. The selection of staff officers, the concentration of supplies at the camp site, and the preparation of important general orders, relating to administration, instruction, discipline, sanitation, etc., ready for issue on the opening day of the camp, were among the responsibilities of the department and camp commanders during the preparatory period.

Upon the arrival of General Wint and his staff on July 25th, the camp at Fort Riley was regularly established, and the necessary orders were issued for the organization and administration of the troops in the camp as a provisional brigade. The component troops of this brigade, with strength, dates of arrival, etc., are shown in the table below:

REGULARS IN CAMP.

Organizations and Detachments.	Officers.	Enlisted Men.	Guns.	Horses.	Train.	Date of Arrival.
Brigade Headquarters and Staff	30	4	....	.....	....	July 25
Med. Dept. and Hosp. Corps	11	132	....	52	8	July 29
Signal corps, Co. A	1	46	....	23	4	July 23
Engineer Corps, 3d Battalion	9	300	....	91	6	July 23
Second Cavalry, 2d Squadron	9	240	....	281	4	July 15
Ninth Cavalry, F. B., 1st Squadron	15	265	....	308	6	July 29
Ninth Cavalry, 2d Squadron	6	267	....	323	9	July 26
Eleventh Cavalry (entire)	23	621	....	703	30	Aug. 19
Thirteenth Cavalry, F. S. 1st Squad.	8	225	....	281	5	July 29
Prov. Regt. Field Artillery, Field & Staff	6	1	....	7	....	July 28
FOURTH BATTALION.						
2d, 22d, 25th Batteries	8	261	12	339	6	July 28
SEVENTH BATTALION.						
Tenth and Thirtieth Batteries	7	174	8	216	5	July 28
Twenty-ninth Battery	2	90	4	128	2	July 26
FIFTH BATTALION. F. A. (Horse.)						
Seventh and Twentieth Batteries	8	197	8	314	5	July 28
NINTH BATTALION. F. A. (SIEGE.)						
Eleventh Battery	2	115	4	98	....	Aug. 13
Sixteenth Battery	2	113	4	102	....	July 28
Eighteenth Infantry	30	908	....	.....	19	Aug. 1
30th Inf. F. S. B., 1st and 3d Bat.	20	415	....	.....	12	July 30
30th Inf., Second Battalion	9	198	....	.....	5	Aug. 4

In addition to the above noted regular troops, the organized militia of the Middle Western States sent detachments as follows:

Organizations and Detachments.	Officers.	Enlisted Men.	Guns.	Horses.	Date of Arrival.	Date of Departure.
Neb. Nat. Guard, Hdqrs. and S.	6	3	....	10	Aug. 2.	Aug. 12.
Ambulance Co.	3	41	....	3	.....	.....
Signal Co.	3	37	....	3	.....	.....
Cavalry	....	3	....	3	.....	.....
Artillery, Field	3	26	2	25	.....	.....
First Infantry	42	489	....	11	.....	.....
Second Infantry	42	529	....	12	.....	.....
Hastings Rifles	2	28	....	.....	.....	.....
Total strength	101	1156	2	67	.....	.....
Ark. Nat. Guard, Regt. Inf.	55	703	....	.....	Aug. 10.	Aug. 19.
Kan. Nat. Guard Hdqrs. and S.	9	6	....	.....	Aug. 15.	Aug. 27.
Artillery, Field	3	46	....	3	.....	.....
First Infantry	53	547	....	.....	.....	.....
Second Infantry	53	496	....	.....	.....	.....
Total strength	118	1095	...	3	.....	.....
S. Dakota Nat. Guard, H. and S.	1	.....	....	.....	Aug. 16.	Aug. 27.
Fourth Infantry	25	268	....	.....	.....	.....
Total strength	26	268	....	.....	.....	.....
Mo. Nat. Guard, Hdqrs. and S.	7	.....	....	.....	Aug. 26.	Sept. 1.
Artillery Detch.	....	19	....	.....	.....	.....
Second Infantry	48	492	....	.....	.....	.....
Third Infantry	44	435	....	.....	.....	.....
Fourth Infantry	43	369	....	.....	.....	.....
Total strength	142	1315	...	.....	.....	.....
Iowa Nat. Guard, Hdqrs. and S.	17	36	....	.....	Sept. 3.	Sept. 9.
Hospital Corps	....	15	....	.....	.....	.....
Fifty-sixth Iowa	33	520	....	.....	.....	.....
Total strength	50	571	....	.....	.....	.....
Oklahoma Nat. Guard	...	.....	....	.....	Sept. 23.	Sept. 30.
Engineers	1	38	....	.....	.....	.....
Signal Corps	3	29	....	.....	.....	.....
Hospital Corps	3	17	....	.....	.....	.....
First Regiment	45	494	....	.....	.....	.....
Total strength	52	578	....	.....	.....	.....

The maximum strength of the regular troops in the camp was 206 officers and 4,572 enlisted men. The maximum strength of the entire command, including the organized militia, was 405 officers and 6,638 enlisted men, this figure being attained on August 17th, when the organized militia of

the States of Arkansas, Kansas and South Dakota formed a part of the command. In all, from the beginning until the end, including regulars and organized militia, 11,008 officers and men had attended the camp.

With the exception of Company K, Third Battalion of Engineers, the Second Squadron Second Cavalry, the Eleventh Regiment of Cavalry and the Fort Riley Artillery, all of the regular troops marched practically the entire distance from their respective home stations to the camp site—the cavalry and artillery averaging 250 miles, and the infantry averaging about 200 miles. The march of the Second Battalion Thirtieth Infantry from Fort Reno, a distance of 336 miles, deserves special mention.

This preliminary marching period was of the greatest benefit. It tested the quality of every sort of equipment and article of clothing and exposed many defects which, before the days of such marches, would probably have remained undiscovered until aid bare, too late, by the stress of actual war. The marching shoe, the infantry equipment, the cavalry pack, and every sort of light camp equipage was put thru a thoro trying out. Men and horses were tested as to their marching capacity, and rations and forage were made the subjects of experiment, both as to their sufficiency and as to their portability. These marching commands profited also by the hardened condition in which they entered the instruction at the camp. The people of the cities and of the country-side traversed by these marching columns were given the privilege of observing and coming into contact with the Regular—a stranger to most of them. In these marches, as always, the regular troops conducted themselves with a high degree of self-respect, reinforced by splendid discipline and set off by an appearance significant of military fitness.

In preparing the detailed scheme of instruction for this camp it was necessary to base the program upon the requirements of General Orders No. 110, War Department, 1906, which announced:

"It is the purpose of the Department in carrying out the scheme of instruction outlined in this order, to approximate

on the march and in camp, as nearly as may be, the conditions of field service in time of war. The flooring of tents and the like semi-permanent arrangements, are therefore not authorized. And as the object is to harden the troops and perfect their field training, the maximum of drills, exercises and problems looking to that end is enjoined, together with the minimum of formal ceremonies and a total absence of merely spectacular exhibitions."

Being given the idea, "field training under war-time conditions," as a key note, it was necessary to consider the proper division of the two-months program into periods, the nature and sequence of the periods and the size of the elements selected for separate instruction, with a view to making the program progressive and logical. It occurs to one that perhaps our maneuver camps ought to include no instruction by troop or company, or by battalion or squadron, on the ground that these elements find their field and period of instruction on the drill ground at the home station—and that the regimental exercise should be the beginning of the tactical instruction in the great camps. However, according to some authorities, this idea fails in practical application, because of the fact that inspections and observations show that not all companies, troops, battalions and squadrons come to a maneuver camp with a degree of tactical instruction which can be pronounced satisfactory. Hence it is said that these smaller elements ought to be instructed as such in the earlier days of each period, in order that the regimental, brigade and divisional exercises may proceed with a smoothness possible only when the lesser elements are perfectly trained. Doubtless, as we progress with our camps of instruction from year to year, and as our system of garrison training becomes more exacting, poor companies and troops and poor battalions and squadrons will disappear and we shall see no more of the smaller exercises in our great training camps.

The Fort Riley program of instruction for the regular troops was divided into five periods, covering the months of August and September, 1906. The first period included nine working days—August 1st to August 13th—and was

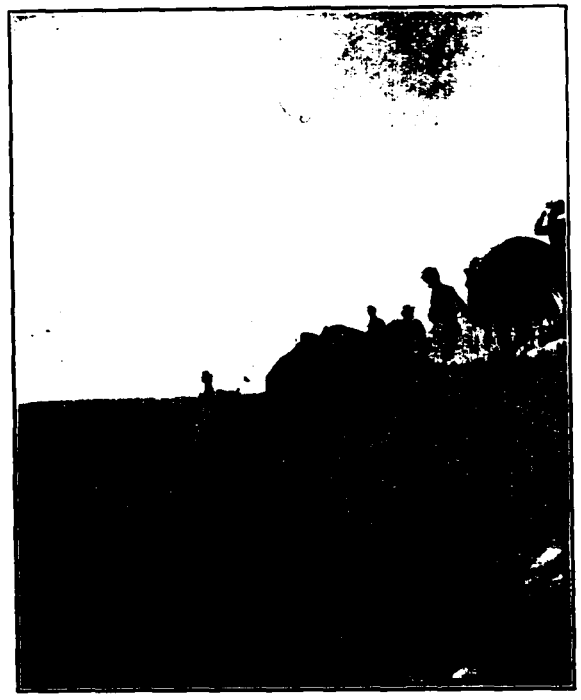
devoted to "Formations for Attack and Defense," progressing from the company to the division. A feature of this period was the exercise of August 13th, when the entire command, constituting a "Brown Army" commanded by Colonel Geo. S. Grimes, Artillery Corps, effected, with creditable smoothness and great rapidity, a disposition to meet the attack of an imaginary "Blue Army," the operation centering in the neighborhood of "Morris Hill."

The second period was devoted to "Dispositions for the Security and Information of Troops on the March," and extended from August 14th to August 24th, including nine working days. This period was marked by earnest work in the rapid formation and effective maintenance of advance, flank and rear guards, these exercises advancing from the company to the division.

The third period was assigned to "Dispositions for the Security and Information of Troops in Camp or Bivouac," and extended from August 27th to September 6th, eight days being available. Outposts of every size and variety were formed under varying circumstances over a terrain affording splendid opportunities for the display of knowledge and skill in this particular branch of military effort. Those who know the highlands of Fort Riley, with their great stretches of rolling country cut by deep cañons and fringed by the flats of the river country with its growth of tangled timber, can appreciate the opportunities here presented for the soldiers' exercise in all the phases of "Security and Information."

The fourth period extended from September 10th to September 30th, and was devoted to "Problems." The program of instruction, as originally announced, set aside the fourth period for "Marches," but owing to the departure of the Eighteenth Infantry and the Second Squadron, Ninth Cavalry for Fort Leavenworth, the marching exercises were omitted and the fourth and fifth periods were consolidated into one "Problem Period." The entire command came to this period with the same expectancy, zeal, dash and mental and physical fitness that characterize the finished college athlete when he toes the scratch for the final dash at the

"inter-collegiate meet." All arms were trained to the minute. Long held in check by the unsatisfying, though essential exercises in non-contact, non-competitive problems, with sense of realism half famished by the restricted diet of blank ammunition, and with the "esprit de corps" whetted in each arm by the clash of comment in the "assembly tent," foot, horse and cannon felt fit to feature this final period by a series of record breaking achievements.



CAVALRY PATROL IN THE HILLS.

The limits of this article will not suffice properly to describe, or even mention, all of the interesting and excellent problems presented by the Brigade Chief of Staff and so satisfactorily solved by the command. Among those of particular interest may be mentioned the problem of September 18th, which provided for the attack and defense of the Union Pacific Railroad Bridge at Fort Riley; this point

upon the line of communication of a "Blue Army," being guarded by Captain Stephen H. Elliott, Eleventh Cavalry, who, with a fellow commander of another force from the same "Blue Army," Major Abercombie, Thirtieth Infantry, was attacked by a "Brown force" commanded by Lieutenant Colonel Parker, Thirteenth Cavalry, who sought to beat both the Blue forces but finally threw the bulk of his strenthg into action against the force near the bridge. The general and special situations, the reports of the commanders and the report of the chief umpire are set forth below:

THE PROBLEM.

HEADQUARTERS PROVISIONAL BRIGADE, CAMP OF INSTRUCTION, FORT RILEY RESERVATION, KANSAS.

September 16, 1906.

MEMORANDUM FOR INSTRUCTION NO. 42.

The following problem is prescribed for Tuesday, September 18, 1906.

General Situation.

A Blue army from Missouri has occupied Kansas and is holding among other points, Manhattan, Union Pacific Railroad bridge at Fort Riley, and Abilene, to guard its line of communication. The country is bitterly hostile and alive with Brown cavalry.

Note: The post and camp of instruction are assumed to be impassable ground, and will not be entered by the troops.

The operations of the problem will be confined to the reservation.

Company A, Signal Corps, will be on duty with the umpires and carry out the instructions of the chief umpire.

Troops not taking part in the problem may remain in camp. Officers not participating may attend as observers.

Commanding officers will prepare an estimate of the situation to be read at the discussion.

Special Situation, Blue.

The Eleventh Cavalry with Twentieth Horse Battery and Detachment Hospital Corps attached, Captain Stephen H. Elliott, Eleventh Cavalry, commanding, camps on the athletic field night of 17–18 September, 1906, relieving the Second Battalion, Thirtieth Infantry, Major Abercrombie, Thirtieth Infantry, commanding, from its guard of the Union Pacific Railroad bridge.

At 8:30 A. M., 18th September, the infantry starts for Manhattan via Ogden.

Note: Captain Elliott will cause his command to be in shelter tent camp on athletic field with outposts established at 9:30 A. M., when the problem will begin.

Major Abercrombie will cause his command to be on Sheridan Bluffs road, with leading element at junction of trail to Morris Hill by 9:30 A. M., when the march toward Ogden will be resumed, and the problem begin.

Special Situation, Brown.

The Provisional Cavalry Regiment, with mounted section Engineers, Seventh Horse Battery and Detachment Hospital Corps attached, Lieutenant

Colonel James Parker, Thirteenth Cavalry, commanding, bivouacs near Packers camp night of 17–18 September, 1906. During the night an inhabitant of Junction City informs the Brown commander that a cavalry regiment and a horse battery have just arrived at Union Pacific Railroad bridge to relieve the three companies of infantry stationed there, who are to march to Manhattan via Ogden to-morrow morning.

At 9:00 A. M. and officer's patrol reports that the infantry companies left the bridge about 8:30 A. M., and are moving northeast along the high ground bordering the left bank of the Kansas River.

Note: Lieutenant Colonel Parker will have his command east of Three Mile Creek by 9:30 A. M., when the problem will begin.

REPORT OF CAPTAIN STEPHEN H. ELLIOTT, ELEVENTH CAVALRY, ON OPERATIONS OF BLUE DETACHMENT.

September 19, 1906.

From the conditions of the problem my understanding of the situation was as follows:

That the first duty of the detachment under my command was to protect the Union Pacific bridge from molestation by the Brown forces.

That, under the conditions of the problem, the two fractions of the Blue force were to act independently, as owing to the distance between them and the intervening obstacles at the time the problem began, neither need expect assistance from the other.

In accordance with the estimate I issued the following order:

HEADQUARTERS ELEVENTH CAVALRY, ATHLETIC FIELD FORT RILEY, KAN.
18 September, 1906, 6:00 P. M.

FIELD ORDERS, No. 1.

TROOPS.

Outposts.

Second Squadron, Eleventh Cavalry.

Main Body.

First Squadron, Eleventh Cavalry, less bridge guard.

Third Squadron, Eleventh Cavalry.

Twentieth Battery, F. A. Horse.

Detachment Hospital Corps.

Bridge Guard.

One officer and ten men, Troop D, Eleventh Cavalry.

1. The whereabouts of the main body of the enemy is unknown, but the country in this vicinity is reported overrun with his cavalry. The hostility of the inhabitants is evident.

The duty laid upon this detachment is to guard the Union Pacific Railroad bridge, relieving the Second Battalion, Thirtieth Infantry. The regiment will, therefore, encamp on the athletic field and establish an outpost line on the heights to the north.

3. (*a*) The Second Squadron Eleventh Cavalry will constitute the outpost. The squadron commander will establish a line of Cossack posts on the commanding points of Reservoir Hill and Sherman Heights closely backed up by supports. The outpost reserve will be stationed at the junction of the trails leading to Reservoir Hill and Sherman Heights and the Milford Road. It will be in constant readiness to move to the assistance of any part of the outpost line. Pump House Cañon with its tributary ravines, One Mile Creek and Governor Harvey Cañon will be constantly reconnoitered by officer's patrols.

(*b*) The main body will remain in camp, but upon the first report of the enemy's approach will break camp and prepare to move with the least practicable delay.

(*c*) A bridge guard to consist of one (1) officer and ten (10) men of Troop D, Eleventh Cavalry, will be in immediate charge of the Union Pacific Railroad bridge, and will prevent its being tampered with by any patrols of the enemy who may use the bed of the river or the timber on either bank as lines of approach.

4. The detachment commander will be with the main body.

By order of Captain ELLIOTT,

E. SWIFT, Jr.,
First Lieut., Squadron Adjutant,
Eleventh Cavalry,
Acting Adjutant.

Copies to Unit Commanders.

At 8:30 A. M., September 19th, the Eleventh Cavalry, with the exception of the Second Squadron, detailed on outpost, was in shelter tent camp on the athletic field. The Twentieth Battery was in camp by 8:50 A. M. The Second Squadron was instructed to complete the posting of the outpost line and have the patrols ready to start by 9:00 A. M. These instructions were carried out.

At 9:55 A. M., the presence of six platoons of Brown cavalry was reported on the Reservoir Hill. The message was oral, brought by an enlisted man and was garbled in transmission. However, without waiting to verify the report, camp was struck, the command left the athletic field at 10:15 A. M., and moved out on the Milford Road, halting a little east of the Pump House.

As the front of my outpost line was broken by Pump House Cañon into two sections, and the lateral communications were none of the best, the trails up Reservoir Hill and Sherman Heights being rough and not suitable for rapid movement, I had previously consulted with the battery officers if there was a position on either Reservoir Hill or Sherman Heights from which the battery could be used efficiently against an advance against either of our flanks, and was informed that Reservoir Hill fulfilled this requirement. I therefore ordered the Twentieth Battery into position on this point without awaiting any further developments.

At 10:45 A. M. information was received that Brown scouts and two platoons of Brown cavalry were moving northwest along Saddle Back.

At about 11:00 A. M. firing was heard at the Union Pacific bridge, and I sent Troop D to reinforce the bridge guard, if assistance was necessary, and to return if it was not. It proved to be the attempt of a Brown patrol to reach the bridge. This was frustrated by Lieutenant Dickman in charge of the bridge guard.

Word having come in from the outpost that the Brown scouts were visible north of Sherman Heights, and seemed to be working in that direction, I directed the outpost reserve to reinforce that flank of the outpost line. This movement was completed by 11:30 A. M.

At 11:17 A. M. information was received that six Brown troops were moving along the western boundary of the reservation, against our left flank. At

11:25 A. M., and before they could be reinforced, the left of the outpost line was driven in by a Brown dismounted attack. The posts and supports fell back upon the reserve, delaying the Brown advance as much as possible by dismounted fire action. Having joined the reserves, the Brown advance was checked by the fire action of the combined force. I immediately ordered the First Squadron to their assistance.

At 11:40 A. M. information was received from the officer's patrol in Governor Harvey Cañon that a strong force of Browns was pushing rapidly down the Cañon. Anticipating a mounted rush for the bridge on the part of

COMMANDING GENERAL AND STAFF OFFICERS VIEWING THE OPERATIONS.

the Browns from this direction, three troops of the Third Squadron were dismounted under cover of the Pump House, and a line posted between the Republican River and the bluffs facing west, abreast of the target range.

I then proceeded to Sherman Heights, arriving about 11:55 A. M., and found five troops in firing line confronting the Browns, and two troops mounted waiting for orders. These latter were sent to the right flank under Captain Leary to gain a position on the Brown left, if possible, to enfilade their line. This movement was not completed before the termination of the

problem. Two guns of the Brown battery were located and subjected to rifle fire.

At about 12:20 P. M. Troop F, Lieutenant Swift commanding, made a dismounted assault against the Brown left, but was ordered back by the umpires.

At 12:30 P. M. the recall was sounded.

During the problem the battery did not come into action. This the battery commander stated was due to lack of objectives.

Respectfully submitted,

S. H. ELLIOTT,
Captain Eleventh Cavalry,
Commanding Blue Detachment.

LIEUTENANT COLONEL PARKER'S REPORT AS COMMANDER OF THE BROWN FORCE.

HEADQUARTERS PROVISIONAL REGIMENT OF CAVALRY, CAMP OF INSTRUCTION, FORT RILEY RESERVATION.

September 19, 1906.

Adjutant General, Provisional Brigade.

SIR:—I have the honor to make the following report of the operation of the Brown force in the maneuver of to-day:

* * * * *

My combined force moved out at 9:30 A. M., moving up Saddle Back Ridge, keeping behind cover. At 9:40 A. M. I received information from an officer's patrol that three companies of infantry (Blue) were on high ground near Sheridan Bluffs.

Major Slocum immediately placed two guns on high ground on Saddle Back Ridge and with his cavalry proceeded up Southwest Cañon, where he was fired upon by the enemy's advance scouts. His troops deployed and took up a defensive position, as shown on map, where they held this force in check, using the artillery to bombard his position. The infantry were held and prevented from going back to reinforce the cavalry until the end of the problem.

Communication was preserved between Major Slocum's command and my own by means of scouts.

In the meantime, the main force of the Brown cavalry, under my command, moved up along Three Mile Creek, passed Saddle Back, thence westward, keeping under cover from Morris Hill at all times; passed Estes Road thence to Harvey Road.

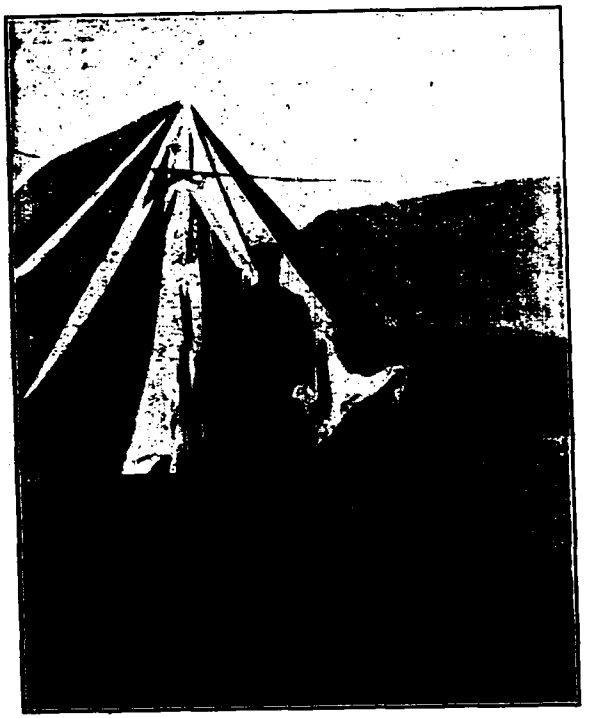
Arriving at a point about one mile from "Hill 1332," a trot was taken and the advance guard moved ahead and occupied this point, on which two guns of the artillery were immediately placed in position, commanding the artillery position at the west end of Sherman Heights.

It was supposed that the combat on the right flank of the enemy would attract his attention in that direction, and this proved to be correct. My cavalry moved ahead and seized the west end of Sherman Heights, driving back a small body of the enemy's infantry to the ridge beyond this position, which was intrenched by part of the engineers and occupied by five troops of cavalry, two troops having been left to insure the safety of the artillery at Hill 1332.

This position being assured, the artillery was brought forward, moving under cover, and all went into battery on a ridge to the right and rear of the cavalry position, where it was screened from the fire of the opposing cavalry, but had a beautiful command of the railroad bridge at a range of 3,000 yards, and also commanded the low ground along the base of Sherman Heights.

The horses of a number of troops of cavalry were on this ground and were fired into with great effect.

The battery also kept up a continuous fire on the Union Pacific Railroad bridge, using for this purpose explosive shell, disabling the bridge for railroad communication.



A FOREIGN ATTACHÉ.
LIEUT-COL. A. DE PEDERNEIRAS, BRAZILIAN ARMY.

In the meantime, the enemy sent numerous troops to reinforce the line in front, also detachments to threaten our line on the left flank; these detachments were opposed by Lieutenant Buchanan's troops, which operated mounted on our left.

Our position was impregnable except by a very large force, and the ruin of the bridge would have been accomplished. This accomplished, it was my intention to move back towards Morris Hill and Sheridan Bluffs and complete the destruction of the infantry force, but recall was sounded at 12:00 M.

The wagon train of the Thirtieth Infantry crossed our line of march during the problem and were mistaken for the enemy.

The patrols of Lieutenant Holderness and Sergeant Fleming penetrated through the lines of the enemy, leaving their horses concealed. They arrived so close to the bridge that bombs could have been thrown by hand. Lieutenant Holderness reports that he was captured ten feet from the bridge; Sergeant Fleming got within twenty-five yards of the bridge, but was not captured before recall.

Very respectfully,

JAMES PARKER,
Lieutenant Colonel, Thirteenth Cavalry,
Commanding Brown Forces.

VERBAL REPORT OF MAJOR WILLIAM R. ABERCROMBIE, THIRTIETH INFANTRY, COMMANDING BLUE BATTALION OF INFANTRY.

(From Stenographer's Notes.)

At 9:30 I was at the junction of these two roads and my battalion consisted of three companies. The object of the problem was not definitely understood at that time. At 9:30 we moved down with Captain Nolan in command of the van guard, Captain Shaw in command of the main body, and Lieutenant Lawton in command of the rear guard. After having moved down this road probably a mile and a half to this point (indicating) we encountered the scouts of the Browns coming over the hill; those we drove back, followed them up to this point here, and down in this ravine (indicating); we discovered, I think, ten troops and two guns. Three of these troops remained and two guns, and the rest of the command moved forward. We delivered a fire on these troops at from 600 to 800 yards, when the battery moved out and took position here right across, about 1,000 yards. Then one troop, G, moved over this crest and came around back of us here, when we detached a part of G Company and drove them off. Captain Shaw went on to this point, here (indicating) and with a portion of his company came down through this gulch and fired on the lead horses, which were ruled out for thirty minutes. On receiving his report that the lead horses had been ruled out, my intention was to cross down here (indicating) and move over by the packers' camp, but on consultation with the officers of the command, we thought it best to remain here and hold these troops out of action, as we then conceived the problem to be a cavalry action of the Browns against the Blues. We judged the forces to be about equal, and by holding these troops in check here we would probably make a lighter action for the Blues over at the bridge.

I got a telephone from the chief umpire, asking me what I intended to do and I wired back that we would wait for the cavalry. This battery here after having been fired on down here from 600 to 800 yards, withdrew to this knoll 1,000 yards from this point (indicating), and was under fire there for seven minutes by E Company of the Thirtieth, which has a record of eighty per cent. of hits in collective fire from 600 to 1,000 yards. We considered these two guns out of action when recall sounded, and could have continued enroute but waited to hear from the cavalry action.

REPORT OF COLONEL E. D. THOMAS, ELEVENTH CAVALRY, AS CHIEF UMPIRE.

HEADQUARTERS PROVISIONAL BRIGADE,
September 19, 1906.

The situation at the commencement of this problem was as follows: A Blue army from Missouri had invaded Kansas and was holding a railroad as its line of communication between several Blue detachments, which had possession of Manhattan, Fort Riley and Abilene. It was important that the railroad and the bridge over the Republican River should be protected and kept intact if possible, and it was the duty of the Blue commander to see to this under all circumstances, and use his force accordingly.

The country was bitterly hostile and overrun with Brown cavalry, strength not known.

The withdrawal of the Blue infantry from the vicinity of the railroad bridge, and the sending of this same body of infantry along the line of the railroad towards Manhattan was in the nature of an expeditionary force, to disperse hostile Brown patrols and Brown detachments, which force, in conjunction with the hostile inhabitants of the country, could, if unmolested by Blue forces, cause considerable damage to the line of supply. It was, therefore, necessary that the infantry column should push through to Manhattan if it were possible to do so. If it were not possible to do this, then gradually to fall back and form under the protection of the bridge guard of cavalry and artillery.

The capture or destruction of the bridge, or driving off of the cavalry guard was unsuccessful. The lead horses of one Blue squadron were very much in evidence on the Republican River bottom, exposed to the fire of Brown cavalry.

As a matter of fact, one squadron of Blue cavalry was on the Republican River bottom dismounted and concealed under the shade of the sheltering sunflowers (so fortunately at hand at critical moments, as heretofore mentioned in some of these exercises) waiting for that mounted action which was undoubtedly in the mind of the Blue commander to be expected but did not materialize. An explanation of this squadron's position is to be found in the conveying of erroneous information to the Blue commander by officers' patrols. It is well to remark here that accurate information by patrols is what a detachment commander is most anxious to obtain at all stages of the problem.

The capture of Hill 1332 by the Brown cavalry was well executed, and the movement towards the commanding point on Sherman Heights was the next stage of the day's program in the mind of the Brown commander. This point was occupied by a troop of Blue cavalry dismounted, which was forced back to the next hill east. Being reinforced by three troops, it was able to hold its ground and could have, with the reinforcements just arriving, driven the Brown force towards Governor Harvey Road and prevented the Brown battery from going into action at a favorable point. The Brown battery (two guns) opened fire one thousand yards from the dismounted opponents, supposedly at the bridge. This battery was under the dismounted fire of five troops of cavalry. It could not have remained long in this position, and it is doubtful if its fire on the bridge would have done any damage.

COMMENT.

The march north and west by the Brown cavalry was expeditiously made and skillfully conducted. The column was kept well concealed nearly the entire march. Once it was in plain view for some little time and would have been subjected to some loss by the fire of the battery with the Blue cavalry. But as this battery did not fire at all it escaped casualties that otherwise would have occurred. * * *

The orders of the squadron commander confronting the infantry battalion that was marching to Manhattan, were to hold this detachment and not let them (after he had developed the position) advance or return to the Blue cavalry command.

The instructions to the Brown squadron commander should have not been so imperative. It is thought that more latitude should have been allowed him, and the most natural thing for him to do (after he ascertained that he could not carry the position held by the infantry, or inflict much damage thereon) was to leave a small force in observation or a containing force, then move with his guns and bulk of his cavalry to the assistance of his hard pressed comrades at Sherman Heights, increasing by this concentration of Brown forces, the chances for the destruction of the bridge and possibly, defeat of the Blue cavalry. The entire command, a mounted one, having a reputation for mobility, could have prevented the infantry command from gaining any considerable distance even if it had had the temerity to brush aside the containing force in its front and to march towards its goal, Manhattan, or retire upon the Blue force at the bridge. A better solution of this troublesome Blue infantry question would have been to put it out of the day's problem by simultaneous attack of the entire Brown force which, though probably slightly disfigured, could have calmly pursued its own way.

The Infantry (Blue) moved out promptly taking advantage of cover and was well handled; their opponents likewise made skillful use of cover except in early stages when the lead horses were unnecessarily exposed.

The solitary combat on Sheridan Bluffs we may designate as a drawn battle.

Passing on to the separate and distinct combat on Sherman Heights which was between opposing forces of dismounted cavalry, we find that the Blue force occupied a very contracted line of resistance too far to the rear, and controlling a very limited area in their immediate front—the west end of Sherman Heights not being occupied—thus permitting that part of the two guns that had survived the gauntlet of fire from the Blue infantry on Sheridan Bluffs, and the long range fire from the dismounted Blue cavalry, to come into a position overlooking the lead horses and the railroad bridge. These two guns of the Brown battery in their movement from position southeast of Hill 1332, by a circuitous route to this final position, had consumed some thirty-six minutes of valuable time. It is understood this loss of time at a critical period of attack was due to a misunderstanding of orders. From this final position it directed a fire, using explosive shells for about five minutes, onto the railroad bridge, distance some 3,000 yards. The bridge, it is believed, suffered small damage thereby.

The Brown cavalry dismounted, extended its line to a position overlooking the Republican flats, and fired at bodies of led-horses at ranges of 600 to 800 yards, and in this position were within 300 yards of the Blue skirmish line.

The Blue had opportunity, about that time, for counter-attack by detaching a dismounted force up ravine to the Brown's left, and double him up, upon his led-horses, brought too close up to the firing line. The position held by the Blue forces, necessitated by conditions of the problem, was cut diagonally by the Pump House Cañon and split up by tributary ravines, separating this line of resistance and rendering intercommunication and rapid reinforcement by shifting troops on the line impracticable.

Brown patrols penetrated the Blue outpost line, one reaching the bridge, which, however, was protected by a strong officer's patrol, and this venture resulted in the capture of one of the Brown patrols and no damage to bridge.

The use of small patrols in open country, out in front of Brown cavalry, instead of a thin cloud of skirmishers, a few yards apart, frittering away energy, was a noticeable improvement on former screening duty.

The most serious defect shown by these movements, seemed to me to be lack of means for rapid transmission of information even in the small concentrated infantry command; the rights of the line knew not the condition existing on their extreme left and the commanding officers of neither Blue nor Brown had any apparent communication or connection with their detached forces, not even information from their immediate fronts sufficient for them to base intelligent action upon.

While cavalry on the move was as a rule well concealed, the grey horses of the Calico Troop of the Browns, were visible at great distance.

The Signal Corps detachment laid a line from brigade headquarters to Morris Hill, and by subsequent orders from there to Major Abercrombie's command on Sheridan Bluffs, and to the position of Captain Elliott on the athletic field. These connections were made in less than twenty minutes after being ordered, and only once interrupted through the efforts of a zealous Brown officer's patrol, taking some yards of wire as a souvenir.

The above described exercise, selected at random, serves to convey an idea of the method used in initiating, conducting and demonstrating these problems. The "situations" were carefully thought out, the detachments apportioned with due regard to the conditions of the problem, and all phases of the resulting contact of the opposing forces were reported upon. Each commander reported his estimate of the situation together with a statement of the operations of his forces. The subordinate umpires attached to elements of a detachment, the senior umpire on each side, and the Chief Umpire for the problem, all submitted reports. At the meeting in the "Assembly Tent," on the evening following the completion of a problem, these reports were read to all the officers of the command, and the problem was then opened for and subjected to general discussion.

Much of the success of the Fort Riley camp was due to the good work done by the heads of the Staff Departments, who

applied themselves loyally and vigorously to their tasks. All problems of inspection, transportation, subsistence, sanitation, payment of troops, engineering, ammunition supply, communication, etc., were solved ably and expeditiously.

The work of the inspector general was characterized by the tirelessness of a steam engine and the discerning power of a microscope. His field of observation and his application of corrective measures covered every detail of camp life. Tentage and other cover was kept to the allowance and in

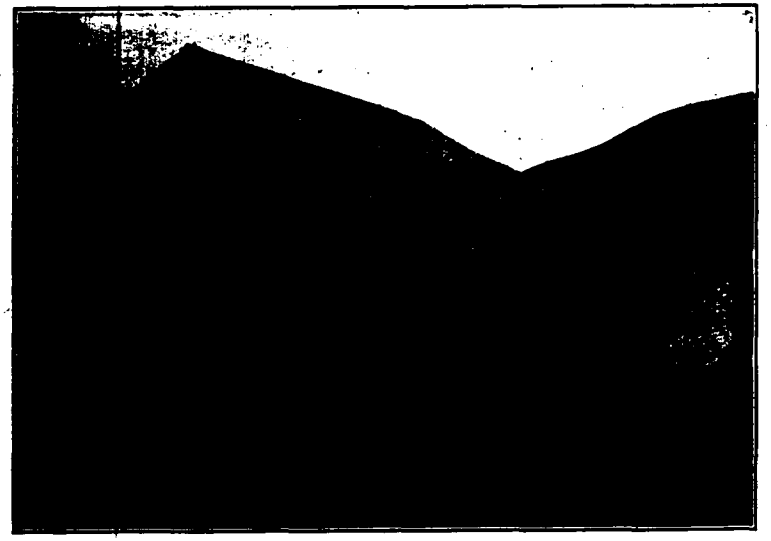
MACHINE GUN PLATOON, 18TH INFANTRY.
LIEUT. J. M. CUMMINS, COMMANDING.

the location contemplated by current regulations; company kitchen, streets, store-tents, cavalry picket lines, latrines; in short every phase of camp activity, and every sort of equipment was kept by him constantly under a scruitny from which there was no escape.

His theory seemed to be to correct inaccuracies, omissions and insufficiencies on the spot, rather than to make these faults the subject of long and vexatious reports and correspondence. The inspector general also inspected each com-

mand upon its arrival in camp and upon its departure therefrom, gathering much valuable information as to the quality of all sorts of equipment and as to the condition of men and horses.

The Quartermaster's Department was conducted, apparently, on the basis of "deeds not words," and the troops were well served with transportation, forage, wood and such other supplies as the chief quartermaster was called upon to furnish. Probably the most vexatious problem that confronted this department was the disposal of wastage. The



A Company Kitchen Screened.

contents of latrines were removed by means of "odorless excavators," and this system proved successful. The railroad trackage facilities near the camp site, greatly reduced and facilitated the work of the Quartermaster's Department in the matter of detraining and entraining troops and receiving supplies.

The Subsistence Department prepared for the incoming troops by accumulating 333,080 rations in the Fort Riley storehouses. Besides these rations, sufficient sales stores were

brought in and the regular supply of fresh beef, vegetables and ice arranged in advance. The chief commissary made a study of every situation and every available facility that would expedite the issue of rations.

The Medical Department kept the sick report at about three per cent., the strength of the whole command averaging about 4,500 officers and enlisted men. The chief surgeon and the medical inspectors carried on their daily inspections of kitchens, waste receptacles, laundries, bath houses, latrines, drains and every auxiliary of camp life, with a devotion and a professional zeal that made them the benefactors of every man in camp. There have been few camps with sanitary standards equal to those maintained here; probably none have been superior. The serious question confronting the Medical Department was the disposal of the contents of latrines, this problem being shared with the Quartermaster's Department. The regular troops understood well enough the necessity for careful latrine police, but this question required eternal vigilance in the camps of the organized militia, for these men were not schooled in the essentials of camp sanitation, and in their minds the stirring of the contents of a latrine "savored little of martial glory," as one of our medical officers remarked. The medical department at the Fort Riley camp, though under-manned, was highly organized. The regimental infirmaries were designed to receive the sick in the first instance; from these receiving stations more serious cases were transferred to the field hospital, and those cases indicating slow recovery here, were transferred to the reserve hospital (the post hospital, Fort Riley), which for purposes of instructions was presumed to be at a distant point on the line of communication of the army. In addition to caring for these actually sick, the Medical Department demonstrated several typical features of the work of the hospital corps in battle. In the problem of September 28th, men previously tagged to indicate hypothetical wounds, fell out during the progress of the "battle" and were gathered up and carried back by litter bearers or in ambulances to the dressing stations erected on the field, thus demonstrating on

a small scale the practicability of "clearing the firing-line of the wounded."

The Pay Department attended to the prompt and regular payment of all the regular troops and those troops of organized militia for whom an allotment had been made. The functions of this department must, of necessity, produce good cheer and popularity, and these results were attained at Fort Riley.

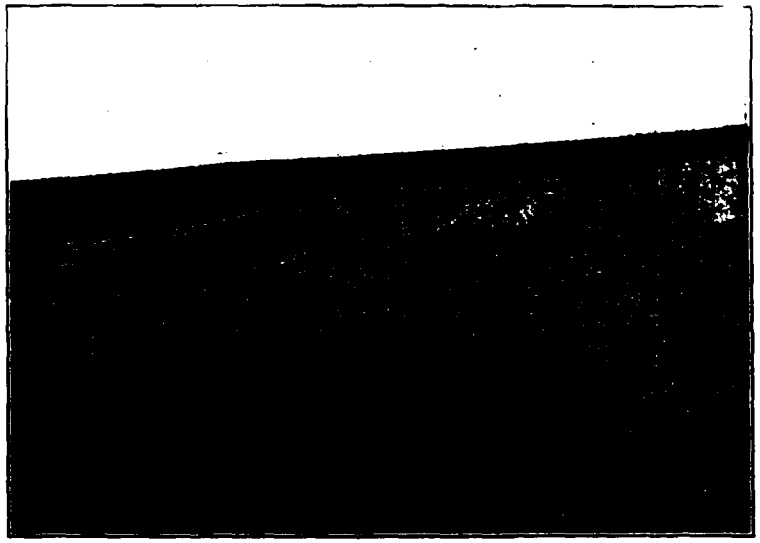
The engineer officer directed the work of the Third Battalion of Engineers in the several exercises in pontoon

WOUNDED AT AN AMBULANCE STATION IN THE FIELD.

bridge building, and in the work of constructing a redoubt for a battalion of infantry. This "bomb-proof" redoubt was a most interesting product of engineers' skill, and the fact that the contemplated test of its efficacy by artillery fire was not executed, the proper ammunition not being available, was a very keen disappointment to all arms and departments of the service there represented. The engineer officers also supervised the construction of a permanent bridge over the Kaw River, on the Fort Riley reservation, the cost of the

bridge being estimated at about $24,750.00. This bridge, when finished, will open up an immense stretch of territory now practically inaccessible.

The Ordnance Department was not concerned to a very great extent in the distribution of stores, its issue being confined practically to a rather limited amount of blank ammunition. It conducted a very important series of inspection and observation of the field artillery material and ammunition,



THE REDOUBT FOR A BATTALION OF INFANTRY, BOMB PROOF.
BUILT BY THIRD BATTALION OF ENGINEERS, MAJOR REES COMMANDING,
ASSISTED BY THE 18TH AND 30TH INFANTRY.

the great activity of the artillery and their extended target practice affording splendid opportunities to the representatives of the Ordnance Department.

The chief signal officer established an inter camp system of telephonic communication, and also connected the camp with the post of Fort Riley, and with the long distance system of the outside world. He provided an extensive system of field communication in all of the more important problems, the buzzer being generally used. The Signal

Corps gained much practice in establishing lines, but it seemed that the object of these lines was not always borne in mind by some of the commanders of the "Blue" and "Brown," who relied more upon the galloping orderly or the dashing staff officer.

The limits of this article will not permit an extended or sufficient review of the work done by the organized militia at this camp. Their instruction was the subject of so much thought, and their accomplishment of the work laid out for

TELEGRAPH STATION OF SIGNAL CORPS IN THE FIELD.
LIEUT. G. E. KUMPE, COMMANDING.

them in a separate program covered so much ground, that an entirely separate article should be written on that subject. The States of Arkansas, South Dakota, Iowa and the Territory of Oklahoma, sent one regiment each, Nebraska and Kansas furnished two regiments each, while Missouri came with a brigade of three regiments. Altogether 6230 officers and enlisted men of the organized militia attended the Fort Riley camp, their attendance covering periods of a week or so each, from the beginning until the end of camp.

The efficiency and zeal of the organized militia was commendable in most cases, Missouri making the best impression with her greater numbers, more experienced officers, and older, better disciplined enlisted men. Nebraska, Kansas, South Dakota, Iowa and Oklahoma can very well feel satisfied with the work done by their representatives at the camp. As for Arkansas, the tactful man would remark, "The less said the better." The composite regiment sent by this State contained a great number of mere boys whose comprehension of a soldier's duties would have seemed grotesque had there not been a serious side to the matter. The writer believes that the money spent in hauling these men all the way from Arkansas could have been more profitably devoted to increasing the facilities for elementary instruction on the State drill ground, under the supervision and observation of a regular officer. Arkansas has some men who are seriously interested in military matters, and these men ought to realize that they have a big job on their hands. They should begin at home and devise some system of rewards that will attract into their organization a higher class of men.

Brigade and regimental commanders of the organized militia were assigned to the command of considerable forces, including all three arms of the regular troops, in certain problems, thus affording them an opportunity to realize some of the difficulties attending high command. The opinion which the organized militia officers held of the work done at Fort Riley may best be expressed by quoting from the remarks of one of their brigade commanders, who said, "We feel that we have learned more during our tour of duty here than we have during our whole connection with the National Guard. Some of us have been in this organization eighteen or twenty years, but we feel that we have profited more during this week than during the whole term of our National Guard experience."

COMMENT.

1. It seemed to the writer that the greatest good derived from the "problems" was the opportunity there presented for field officers and senior captains to exercise a large command of all three arms. It is reasonable to believe that many of the general officers of our next great war will naturally be drawn from these officers who are now in the grades mentioned. Probably some of these officers possess brilliant military genius, by nature, but we all know that "practice makes perfect," and it is only fair to officers in the grades mentioned that they should be given an opportunity to practice larger command. Many field officers expressed themselves most emphatically with regard to this beneficial feature of the Fort Riley scheme of instruction.

2. To many of us this question occurred: "Are we making sufficient use of the present improved means of communication?" The buzzer line and the wig-wag flags certainly are not used sufficiently by many of our commanders, who apparently overlooked the value of those auxiliaries that make for "team work in war." The writer, during the recent maneuvers, saw a mounted officer utilized to carry to a distant battery an important tho simple message, the transmission of which, by the means adopted, consumed three quarters of an hour, to say nothing of the wear and tear on the horse. The battery was plainly visible from the sending point, and the message should have been sent by flag. On another occasion, a mounted messenger was sent at a gallop to carry a message between points separated by two or three miles of rough country. Within fifty feet of the officer who sent the message, a signal corps flag floated over a buzzer station from which a line led directly to the point whither the galloping messenger sped his panting steed. At the very moment the mounted messenger departed, the operator at that end of the line was conversing over the wire with the operator stationed at the point to which the message was sent. On another occasion a commander directed a mounted soldier to "follow the wire" until he found "Mr. —— of the Signal Corps" to whom he was to deliver a verbal message. The messenger "followed

the wire" as far as brigade headquarters, and here not finding "Mr. ——," but discovering another wire, he followed the new wire out into the field, and several hours after he had started he found "Mr. ——." Now just at the point where the soldier was directed to "follow the wire" there was a buzzer station in operation and the operator could have sent a message almost instantly to "Mr. ——," who

A TYPE OF WATERING TROUGH.

was at another buzzer station. The writer has listened to many discussions which centered about the hope that we may be able to devise some means of transmitting information more rapidly. Now is it not a fact that we already have the means, but we simply are neglecting to use them because of the old fixed habit of using mounted messengers?

3. The variety of ideas and methods discovered in the cavalry command impressed one that there is great need of a chief of cavalry to supervise the training and development of this very important and expensive arm. A cavalry officer of experience, himself a most successful troop commander, remarked upon the neglect of the saddle blanket and failure of the troop officers personally to inspect the horses' backs, as among the reasons for the objectionable prevalence of sore backs. A neglected blanket gathers wads of hair, bits of dirt or minute burrs, and these coming into contact with the horse's back make the small breaks or bruises that ripen into troublesome sores. A chief of cavalry could bring about uniform methods as to saddling, bitting, preserving equipment and the care of horses. He would also find a wide field of activity in the tactical instruction of cavalry, which unfortunately lends itself very readily to the application of "wild ideas." No small part of the duty of a chief of cavalry would consist in the suppression of unwarranted methods of instruction and in the coördination of all of the many good ideas and methods.

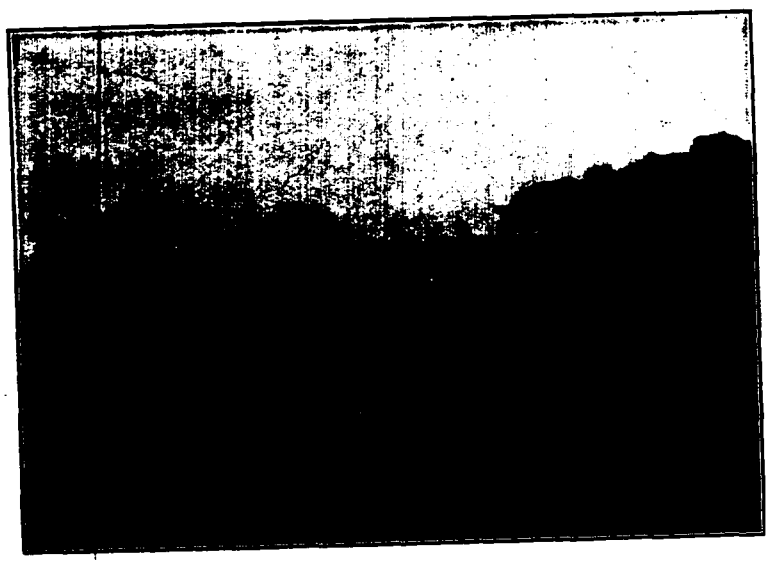
4. Of great interest to cavalrymen was the "Cavalry Screen" exercise of September 5th, said to be the first attempt in this country to carry out such an extended exercise since the Civil War. The screen was designed to cover a front of ten miles, and the following organizations, under the command of Colonel Earl D. Thomas, Eleventh Cavalry, sought to work out this extensive operation: The Eleventh Cavalry; First Squadron, Thirteenth Cavalry; Second Squadron, Second Cavalry; and five troops of the Ninth Cavalry—twenty-five troops in all, with Signal and Hospital Corps detachments. Colonel Thomas designated eight troops as right contact troops, and four troops as left contact troops, holding four troops as a support and eight troops as a reserve. Considering the difficulty met in shape of barbed wire fences and private lands, after the troops left the reservation boundary, this was a fairly successful demonstration of the cavalry screen. Some officers criticised the formation because of the lack of quick communication between elements of the screen, and because the contact troops appeared, to them, unequally distributed over the roads leading to the front. However, the majority of the more experienced cavalry officers seemed to think that, for the first attempt, there was every reason to feel satisfied with this screen, which undoubtedly would have been entirely effective in time of war.

5. Another interesting feature was the work of the horse

COLONEL E. D. THOMAS, 11TH CAVALRY, AND STAFF, DIRECTING THE OPERATIONS OF THE CAVALRY SCREEN.

artillery in conjunction with the cavalry. An accomplished artilleryman, detailed to observe this feature, remarked that most "Blue" and "Brown" commanders neglected to keep in touch with their artillery commanders, leaving them without information as to the commander's general plan of action and unable, therefore, to contribute in full measure to

the success of the operation. He advanced a remedy for this fault, recommending that the senior artillery officer accompany the commander, thus keeping in touch at all times with the reports from the entire field of action, and being able to advise as to the use of the artillery, the actual placing and operation of the guns being left, in the meantime, with his subordinates. He cautioned against the tendency of commanders to divide their artillery, prematurely or without urgent necessity, and disapproved the rushing of artillery into exposed positions early in the action, re-



FIELD BATTERY IN ACTION WITH GUNS CONCEALED BY PILES OF HAY.

marking in this connection, "The proper use of the artillery is as a support for the cavalry and not as a screen for its movements." The mobility of the horse artillery in the maneuvers may best be described by quoting from the remarks of one of the battery commanders, who said in reporting on one of the cavalry actions: "When once the action began events moved at such a rapid rate that it was impossible for me to note the exact time at which the battery engaged the enemy. * * * The guns were placed in

position at a gallop, the horses being exposed not more than forty seconds."

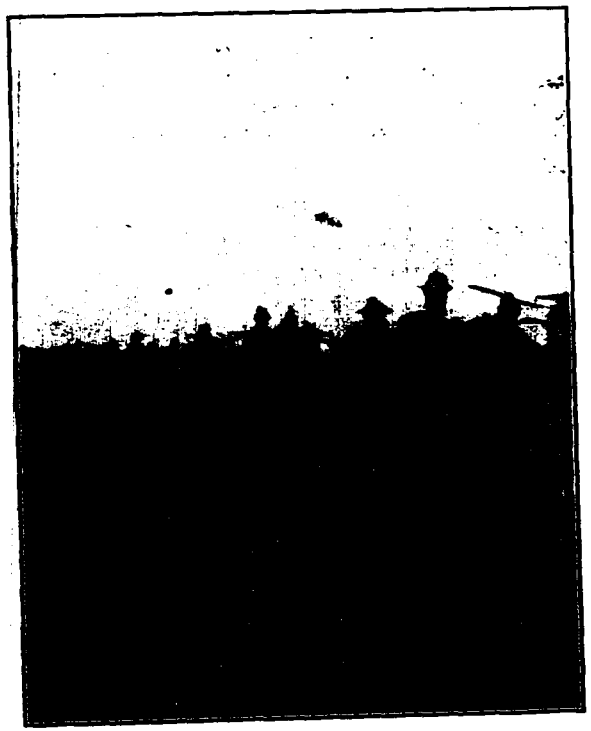
6. The acquisition of the new rifle by the cavalry caused the appearance of a variety of experimental methods of packing the saddle. Most cavalry commanders expressed themselves as not being quite satisfied with any of the new distributions of equipment on the saddle, deeming still further experiment a great necessity. The broken-pack originated by Captain Vidmer, Eleventh Cavalry, and now known as the "Vidmer Pack," seemed to be considered the best arrangement yet devised for the cantle pack.* The man who can devise a method of carrying the new rifle, with comfort and handiness for the soldier and with perfect equalization of weights on the saddle, will prove himself a great benefactor to the cavalry.

7. The corps of umpires and observers at the Fort Riley camp attracted much attention and comment by reason of their earnestness, activity and professional zeal. The criticism was made, very naturally, that they were not sufficiently advanced in years or in rank to be able suitably to perform all of the functions of umpires, in problems where the forces and the larger component elements thereof were commanded generally by officers of much more rank and length of service. This criticism can be answered by calling attention to the fact that the umpire acted entirely as a staff officer representing the chief umpire or the commanding general, and the question of rank was therefore eliminated; his lack of long service was counterbalanced, in most instances, by the fact that he came to camp fresh from a year or two years special study at Fort Leavenworth, in a course calculated to give him a mental equipment particularly suited to this very duty; his youth gave him a degree of activity essential to the hard work and long hours incident to his duty. Moreover, the decisions of the umpire were always subject to review in the discussions. The writer believes that the most acceptable corps of umpires would be one composed of senior captains, especially selected because of particular

* See article on Equipment, under Military Notes, in this issue.

study of the subject of maneuvers, but such men are not available always or generally, in sufficient numbers. We cannot well avoid the conclusion that the work of umpiring can best be done by men who have given particular and successful study to the art of war, even though they may have the taint of youth and low rank.

8. Everyone regretted that the quota of infantry at the Fort Riley camp was so small, this feature causing consider-



EIGHTEENTH INFANTRY STARTING ON THE MARCH TO FORT LEAVENWORTH.

able inconvenience in the preparation and execution of the problems. However, the two regiments present, by their excellent quality made up very materially for their numerical insufficiency. Their camps were models, their marching powers superb, and their administration and organization were characterized by thoroness and great attention to detail.

9. A book of many pages could be written on the features of this camp, which, in this article, can merely be given passing mention. The organization and the strenuous activity of the provisional regiment of field artillery, with its feature of night target firing by search-light illumination, its formation of a typical war strength battalion and its carefully prepared and faithfully executed series of artillery exercises, might well be made the subject of separate treatment. The construction of the permanent bridge and the bomb-proof redoubt by the Third Battalion of Engineers has furnished material for interesting and extended comment. A volume could be written, too, most happily, upon the spirit of good fellowship and the cultivation of pleasant and beneficial acquaintanceships which resulted from the association in this great camp of all arms, corps and departments of the service.

FINGER PRINTS.

By M. W. McCLAUGHRY.

THE recent decision of the United States military and naval authorities, to adopt and use what is known as the "Finger Print System of Identification," in describing the enlisted men of the army and navy, has caused many inquiries as to the origin of the system, the methods used in its operation, and the advantages expected from it. With a view of answering some of them, the following is submitted:

Identification by means of finger prints is not a new science. The Chinese passport for centuries has consisted of a piece of oiled paper, stamped by the authority of the Chinese government, on which the person to whom the passport is issued impresses the tips of his fingers. Long ago it was discovered by the Chinese authorities that this is an effectual means of preventing the transfer of a passport, for the reason that the ridges of the fingers of no two persons are alike. In the year 1823, a German scientist named Purkenje delivered at the University of Breslau a thesis or "commentatio" upon the subject, accompanied with illustrations of finger prints, and an attempt at their classification. This address, which would be considered at this day of great merit, did not attract the attention of the public, but did interest a few persons, who saved it from oblivion, and about forty years ago Sir William Herschel, while representing the British government in Bengal, India, made extensive studies into the nature and value of finger prints as sign manuals, and finally, as he states, introduced them for practical purposes, in several ways in India, with marked benefit. They rendered attempts to repudiate signatures quite hopeless.

Finger prints were taken of pensioners during their life time to prevent their personation by others after their death; they were used in the office of registration of deeds and wills and at a gaol where each prisoner had to certify the record of his imprisonment, after signing his name, by making an inked impression of his right forefinger on the pages of the records. (See "Finger Prints" by Sir Francis Galton, page 38.)

This writer further states that Sir William Herschel "in the year 1877, submitted a semi-official letter to the British General Inspector of Gaols, asking to be allowed to extend the finger print investigations; but no results followed." Probably that officer, like some British inspectors of a later day, could not comprehend a system so simple that it required a little study. Sir Francis Galton further generously says:

"If the use of finger prints ever becomes of general importance, Sir William Herschel must be regarded as the first who devised a feasible method for regular use, and afterward officially adopted it."

Sir Francis Galton, twenty years ago, rendered the world a great service by taking up the studies of his predecessors, and by a series of experiments reducing the subject to a science, and discovering the best method of taking the imprints from the fingers of human beings.

Of him Mr. John Kenneth Ferrier, a representative of the Scotland Yard Bureau of Identification, at the Louisiana Purchase Exposition at St. Louis, Missouri, in the year 1904, says: "He established the fact that the papillary ridges on the finger tips are permanent through life; thus every person carries about with him on his hands ten infallible witnesses to his identity. A child is born with its fingers lined in a certain unique way; the fingers grow in size, but throughout boyhood, manhood and maturity, the patterns remain unchanged. From infancy to senility, and until long after death, the finger prints remain true to their first form. Injuries may partially destroy them, but never entirely, and as the injuries heal the original lines assert themselves exactly as before."

But, although the reliability of finger prints as a means of identification has long been established, this fact yielded no practical results, because, up to a few years ago, no satisfactory method had been discovered of so indexing or classifying them that an identification of a person once made and recorded could be relied upon as identifying the *same person and none other*, when again referred to, no matter under what circumstances.

A few years ago Mr. E. R. Henry, now Chief Commissioner of the Metropolitan Police Department of London, England, with headquarters at Scotland Yard, while serving as Inspector General of Police in India, devised a method of classification, which, after being subjected to the severest tests for several years, has proved absolutely infallible. Mr. Henry's system of identification was adopted in lieu of the Anthropometric System of Identification at Scotland Yard in the year 1901. In that year the number of successful identifications of former criminals, whose finger prints had been taken but not classified, increased from 501 to 1722; and for the years 1902 and 1903, 3642 successful identifications were made. In May, 1904, Mr. John Kenneth Ferrier of the Finger Print Bureau of Identification at Scotland Yard, London, England, was sent to the Louisiana Purchase Exposition at St. Louis, Missouri, to illustrate and explain the workings of the finger print system as used at Scotland Yard to such police and prison officials of the United States and Canada as might visit the Exposition. From the 1st of January, 1904, up to the time he arrived at St. Louis, 2335 identifications had been made at Scotland Yard, London, by the finger print system.

While in the United States, Mr. Ferrier visited Leavenworth, Kansas, and spent several days assisting the Record Clerk of the United States Penitentiary in establishing the finger print system in that institution. The Record Clerk also spent some time at St. Louis attending the school of instruction under the supervision of Mr. Ferrier. After having taken the finger prints of all the prisoners in the United States Penitentiary, and of those prisoners who were subsequently received into the penitentiary, until a collection of about 1800 sets of finger prints were on file, the Record Clerk, by authority of the Department of Justice, went to London, England, in February, 1906, and spent nearly two months in making a further study of the system at the famous Scotland Yard Bureau of Identification, where there are on file, in excellent shape, nearly one hundred thousand sets of finger prints, which present all questions possible under the system. Here he further perfected himself in the knowledge of all its details under the supervision of several experienced and able officials. After his return to the United States in April, 1906, the Record Clerk spent several weeks in revising the classification files at the United States Penitentiary, and succeeded in placing its Finger Print Bureau of Identification on the same efficient basis as the Scotland Yard Bureau.

The use of the following cuts has been kindly permitted by the *Medical Brief Monthly*, a journal edited by J. J. Lawrence, A. M., M. D., at St. Louis, Missouri, which, in the November (1905) issue, published an exhaustive article on "Finger Prints" by Dr. John George Garson, in which these cuts were used. The following descriptions of methods used are largely either quoted or adapted from Dr. Garson's article, and with the cuts, will greatly aid in making clear the system devised by Mr. E. R. Henry, and which, adopted by our military and naval authorities, is destined to be of great practical assistance in debarring the criminal element, whose finger prints may have been taken in this and in foreign countries, from entering the army and navy of the United States.

The apparatus required for taking the finger prints is as follows:

1. A wooden block, cut in the shape of a standard railroad rail, about twelve inches long, four inches wide and three and one-half inches high, with a smooth sheet of tin or copper placed on the top with the edges tacked underneath the rim of the wooden block.

2. A small marble slab about eight inches square and one inch thick.

3. A rubber roller with a handle about one and one-half inches in diameter and four inches wide.

4. Black printer's ink, printer's ink oil (to reduce the ink when it is too thick) a bottle of benzine, some clean muslin cloths and the necessary white paper.

The following is the method of taking impressions of the fingers: Place a small quantity of ink on the marble slab and then roll the rubber roller over it until the roller is thoroughly inked all around; then "distribute" over the top of the tin or copper covered wooden block until the entire surface is evenly coated with ink. The fingers having been previously washed with soap and soft or warm water, and partially dried, the tips are each rolled in turn on the inked block and then on the paper with the least possible pressure. In applying the finger to both the inked block and the paper, care should be taken to roll it from the one side of the nail over the bulb of the finger to the other side of the nail, so that the complete impression of the ridges of the whole of the terminal phalanx, from one side to the other, and from the transverse crease lines of the last joint to almost the end of the digit, may be obtained. No halt must be made during the process of rolling the finger and it must not be permitted to slip, otherwise an imperfect or blurred impression will be the result. If the impression be not satisfactory the whole of the ink should be washed off the finger with a clean cloth saturated with benzine, and the process repeated. A good impression should show the ridges as black lines and the furrows as white spaces between them, clearly and sharply defined. If the lines representing the ridges are faint in color, there has been too little ink on the tin or copper covered block. If, on the other hand, the lines are dark enough but the interspaces are not white and clear of ink, too heavy pressure has been put on the digit while rolling it, or there has been too much ink on the tin or copper covered block. It is essential that the furrows should be free from ink and only the tops of the ridges inked to get clear impressions. Having secured the impressions of the digits of a few persons it will be found on examining them

that the arrangement of the ridges on the different fingers is subject to considerable variation in form and direction.

Purkenje, in 1823, divided the different patterns or formations of the ridges into nine different classes, but certain subsequent scientists have increased the number, while others have reduced them. It is now generally recognized that there exist three main types to which the different arrangements of the ridges met with conform generally, but there are several varieties of each type, and patterns are constituted by a combination of two types, or are of a nondescript form. A fourfold division with certain subdivisions is, therefore, found to afford a sufficient classification for practical purposes. The several dispositions of the ridges are accordingly classified as *arches*, *loops*, *whorls* and *composites*. The arch is the simplest and most primitive arrangement of ridges met with. (See Fig. 1.) There is another kind of arch

FIGURE 1.

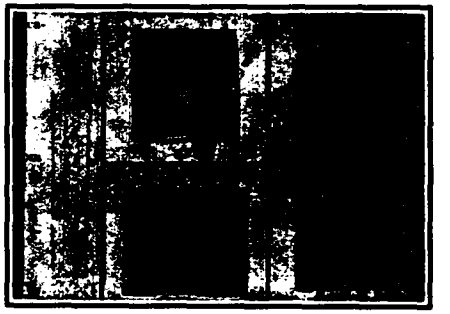


FIGURE 2.

called the tented arch. In it the more or less transverse ridges beyond the crease lines are succeeded by one or more ridges, which suddenly become thrust upwards at an acute angle from the middle of the base of the arch, which causes the ridge immediately beyond to assume a tent-like shape. Fig. 2 is an example of a tented arch.

The loop, which is the most common variety, is of the pitch-fork or hair-pin shape with the lower points slightly curving upward. (See Fig. 3.)

The ridges in a clasped flat hook shape, as illustrated in Fig. 4, causes that pattern to be called a twinned loop. The formation shown in Fig. 5 is called a lateral pocket loop, and in Fig. 6 a central pocket loop. Those shown in Fig. 7 are called accidentals, because their peculiar formations can not be classed under the above stated patterns. The patterns shown in Figs. 8, 9 and 10 are called whorls.

The relative frequency of these various patterns is in round numbers: Arches, five per cent.; loops, sixty per cent.; whorls, accidents and composites, thirty-five per cent. The

FIGURE 3.

greatest variety of patterns is found on the fore-finger and the least variation occurs on the little finger; whorls are most frequently met with on the thumb and ring finger; loops on the little and middle finger; arches on the fore-finger.

The results of careful comparisons made on many thousands of finger prints have shown, up to the present time, no two sets of prints of even a single digit to be identically alike, except they were those of the digit of one and the same individual. It is the case, however, that single digits of different persons have been found to show not only close correspondence in pattern, but also similitude in three or four points of detail in the pattern; the other points have invariably been sufficiently unlike to differentiate their individuality clearly and with certainty. Finger impressions have,

FIGURE 4.

FIGURE 5.

FIGURE 6.

therefore, come to be recognized as a most reliable and easy means of effecting personal identification, and are adopted for this purpose by many prisons and police authorities for the recognition of old offenders, and sometimes for the identification of the perpetrators of crime. Their use might well

be extended for the purpose of preventing pensions being drawn by others than the pensioner himself, and indeed for all purposes of identification. When well taken, prints of the ten digits of the hands are available for comparison with another set of impressions equally clear, and the utmost reli-

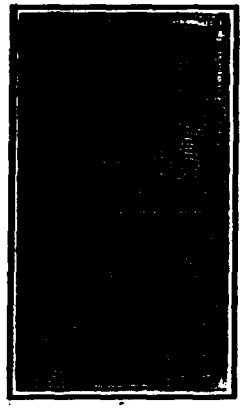


FIGURE 7.

FIGURE 8.

FIGURE 9.

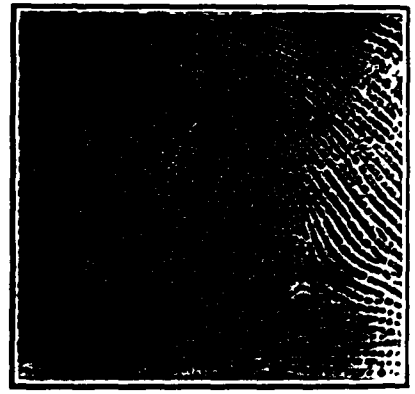


FIGURE 10.

ance may be placed upon the evidence they give of the identity or non-identity of the person or persons from whom they were taken.

The impressions of one or more fingers may be accidentally made on other substances than paper; it may be

on the surface of some object at a place where a crime has been committed, on charge of which some person has been arrested. The question of the identity or non-identity of the print found with the pattern on any of the digits of the prisoner becomes a matter of great importance. The casual print has been made under very different circumstances from those with which it is compared; generally it is the result of a digit somewhat moist with the normal excretions of the skin, plus some dirt superadded, coming in contact with a surface not specially suitable by want of smoothness, or otherwise, to receive the impression, unless the surface happens to be glass, porcelain, or polished metal. The moist condition of the digit may be due to blood upon it, in which case the furrows, as well as the ridges, have probably been covered more or less equally by it. The conditions are, therefore, not, as a rule, favorable to obtaining good impressions, and it may not be possible to improve them to any extent by dusting powder over them or otherwise. In such cases the greatest caution must be exercised in coming to a conclusion as to the identity of the prints. The affirmative should be asserted only after stringent examination has shown many points in the prints compared to be thoroughly in agreement, and likewise the absence of any obvious disagreement between them. The latter condition is as essential as the former, while the presence of any disagreement should be regarded as distinct evidence that the prints were made by different fingers.

A question of some importance is whether any discrepancy will be produced in two prints of the same finger by reason of their being made under different degrees of pressure. Minor variations, such as those which depend on differences in height of the ridges, do occur in the prints as a result of the finger being lightly or heavily pressed in printing; in the latter case a ridge may appear continuous, which in the former case shows interruption in continuity, but irregularity in inking the finger will produce the same effect. Heavy pressure flattens the ridges somewhat, and therefore makes them appear broader in the print, but again this condition is, to some extent at least, inseparable from the man-

ner of inking the fingers; for if only the summits of the ridges have been inked, the lines they show in the impression will be narrower than when the ink has extended further down the sides of the ridges. It is only by taking into consideration the general and special aspects presented by the two prints, and studying them in connection with the structure of the skin that the factors can be determined. The main features of the ridges and furrows are not distorted nor altered in their directions by varying pressure, because, in consequence of the difference in consistency which exists between the surface layers of the skin and the subcutaneous tissues, the pressure is distributed and equalized in all directions. The expert who is called upon to determine the question of identity or non-identity from casual prints has frequently a difficult problem to solve, upon which he must bring to bear his knowledge of the anatomy and physiology of the finger as well as the information derived from his observations of the prints, in order to enable him to arrive at his conclusion. Should he embody photographic enlargements of the impressions in his study he will find it desirable to use positives made on glass in his investigation.

The classification of finger impressions is chiefly of interest to those who have to arrange large collections. It has been elaborated with much care by Mr. Francis Galton and the staff of the Bengal police into a very complete system, of which only the outlines can be given in these pages. For this purpose the arches are classed with the loops and the composites with the whorls, so that only two divisions of patterns have to be dealt with. The different combinations possible of these two classes on each pair of digits, beginning with the right thumb and forefinger, are then taken into consideration. Under this scheme there are four possible combinations on each pair of digits, which may be represented thus,

LL	WL
LW	WW

using the initial L and W for loops and whorls, respectively. The five pairs of digits give, individually, and collectively with one another, 1,024 possible combinations,

which form the primary divisions of the classification. The size of the groups will be most irregular as regards the number of sets of prints in each, but as the various forms bearing the impressions of different persons' fingers are kept in portfolios, a larger or smaller number of groups can be placed together, much after the plan of a dictionary or encyclopedia, covering several volumes, where the size of the volume is the regulating factor. The actual formula of each pair of digits is written in the form of a fraction, of which the upper letter denotes the pattern of the first digit of the pair and the lower letter that of the second digit, thus the right thumb and forefinger bearing respectively a loop and a whorl is indicated as l-w, and a complete formula might be written as follows:

$$\frac{l}{w}\ \frac{l}{l}\ \frac{w}{l}\ \frac{l}{l}\ \frac{w}{w}$$

As the number 1,024 is the square of thirty-two, all the combinations of the upper letters would be represented in a horizontal row of thirty-two small squares, and those of the lower letters in a vertical row of thirty two squares, placed at a right angle to the former row. Constructing a large square with 1,024 compartments of chess board-like appearance from these and other rows, each compartment would be accurately defined by the intersection of any of the horizontal lines with any of the vertical lines, and it is possible to assign to each of the 1,024 combinations represented by the compartments, definite numbers corresponding to their places in the horizontal and vertical rows. This is done by considering the whorl division only, and assigning a serial number to each whorl according to the position it occupies in the finger formula.

When a whorl occurs in the first pair of digits it counts sixteen, in the second pair it counts eight, in the third four, in the fourth two, and in the fifth one; it is already understood that no numerical value is given to an arch or to a loop. The above formula can then be expressed as follows:

$$\frac{0}{16}\ \frac{0}{0}\ \frac{4}{0}\ \frac{0}{0}\ \frac{1}{1}=\frac{5}{17}$$

Numerators are added together, also denominators, and

the totals exhibited as a new fraction, $\frac{6}{17}$. To both numerator and denominator one is added, making $\frac{6}{18}$, and this fraction inverted gives the classification number as $\frac{18}{6}$, which represents that the compartment is on the sixth horizontal row and at the eighteenth section as the definite position, supposing the respective rows were numbered from o to 32.

A finger formula composed entirely of loops would occupy the first place or upper left corner compartment of the chessboard and would be designated o, both horizontally and vertically. By writing out the formula and summing it up for the finger impressions of each person, the exact place he occupies in the primary classification is obtained. Secondary classifications are obtained from the particulars displayed by individual digits, such as the presence of an arch on the fore-finger; the slope of a loop, and the number of the ridges between the outer and inner terminuses; the deposition of the ridges below the deltas in a whorl, the special form of a composite, and the like.

Among the advantages expected from the new system, the following enumerated by Major General Ainsworth, the Military Secretary, in his recent report, are some of the most important. He says:

"The finger prints of an unidentified dead soldier in the field of battle will establish his identity and 'unknown dead' in the field should be a thing of the past. The finger prints of the former soldiers also will serve as an infallible means of identification in the many pension and other cases in which it becomes necessary to establish to the satisfaction of the government the identity of the applicants."

THE SKILLED PACKER.

By Colonel H. L. SCOTT, Superintendent U. S. Military Academy.

West Point, New York, November 26, 1906.

Editor of the Cavalry Journal.

DEAR SIR:—The July number of the Cavalry Journal sent to the Philippines, reached me several days ago, and while reading it the following paragraph drew my attention:

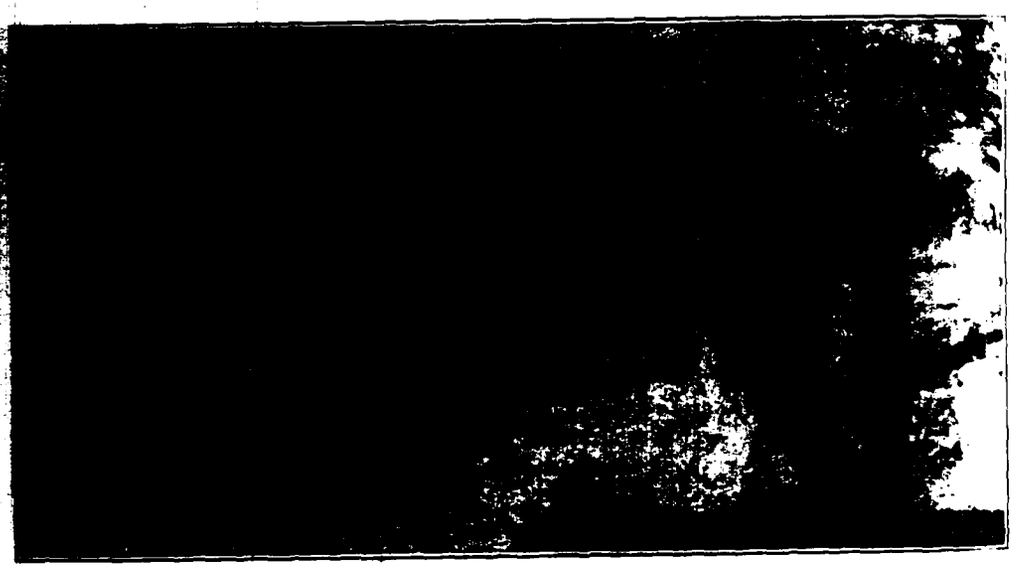
Page 68: "The Pullman pack saddle and panniers, as connected with the aparejo, does away with all ropes, lair, sling, lash and cargo, and the diamond hitch method of fastening the pack to the aparejo; with all canvas * * * and reduces to a minimum, if not entirely, the necessity for employment of the skilled and experienced packer,"

and it occurred to me at once that if this statement should be approved and acted upon by the War Department, a very severe blow would be dealt the efficiency of the mounted service.

The modern pack train, as perfected and operated in our Western campaigns by the Quartermaster's Department, first under the inspiration of General George Crook, by such men as Thomas Moore and Henry Daly, chief packmasters of the Quartermaster's Department, and later by Mora Smith, chief packmaster of the Philippines, Packmasters Mooney, Ford, Baxter, Davis and a host of others, with the men trained under them, is the best rapid transportation to accompany mounted troops in countries like our own the world has ever seen; and the feats it has accomplished under adverse circumstances in Cuba, the Philippines and in our own West, if fully set forth in books, as they should be, to be known of all men, would form annals of which the army and those connected with it would be justly proud. But it has needed the

genius and experience of such men to develop and carry on the system, and these the above paragraph proposes hereafter to do without.

Let us examine this proposition: The object appears to be, in a few words, to do away with the experts about a pack train in the interest of economy, by substituting essentially for the lash and sling ropes, etc., a pair of rawhide panniers which "can be filled by any soldier or laborer." This quotation indicates a belief on the part of some one that the



MEXICAN PROTOTYPE OF THE AMERICAN APAREJO.
(Without sticks inside.)

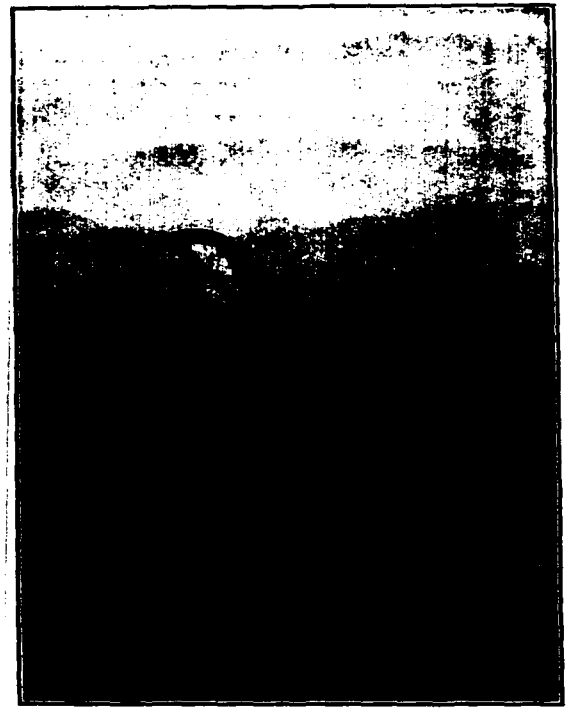
only employment for which the expert is needed about a pack train is the skillful use of those ropes—a fallacy often noticed, than which there can be no greater, for the mastery of the diamond hitch is one of the least difficult parts of the art of packing, as men of average intelligence can be taught to "throw the diamond" easily and skillfully in ten days, whereas it takes much more than a knowledge of the diamond hitch to make a packer. The most important and difficult part of the art lies in the conservation of the animal, for

without the animal all the panniers and lash ropes in the world will not transport your cargoes; he must be kept sound in health, with the "rigging" so adjusted to each individual as to enable him to carry his load under all the varying and adverse circumstances of a rapid campaign with comfort and safety; a feat which but comparatively few men to-day in America or elsewhere are able to accomplish.

In addition to a perfect knowledge of the setting up and "fitting of the rigging," which includes the altering for and reducing bunches which are liable to arise on various parts of the mule's body, the packmaster must have a great executive capacity. He must organize the train so as to manage the proper number of mules to the best advantage with the minimum number of men; the pack animals must be trained so as to be easily caught, and to come quietly to the rigging; the saddle animals to stand alone without tying, and each man must be trained for his own duty, and all to work together promptly to the best advantage or the train will never get out of camp on time. Each animal must be apportioned his proper load so the train will take up all the heterogeneous articles required by a squadron of cavalry to be transported, such as axes, shovels, buckets, food, forage, medical supplies, tentage and ammunition, and no animal must be overloaded while others are too lightly loaded. The animals must be kept in training so their backs are tough, their bodies lean and muscular, their internal organs free from fat—ready, in fact, for a rapid march. These are some of the many duties of a packmaster, which require for their skillful performance a man of great experience, executive capacity, natural aptitude and good judgment; and the attempt to do away with this expert and replace him by a "pannier filler" would be just as rational as to attempt to do away with an expert in the management of a steamboat, a watch factory or an ice machine. Furthermore, the detailing of soldiers away from their organizations, as suggested above, to fill panniers, or for any other purpose which will keep them from the firing line, is deprecated by all commanders of troops and by all writers on the art of war.

Considering the panniers themselves, although I have

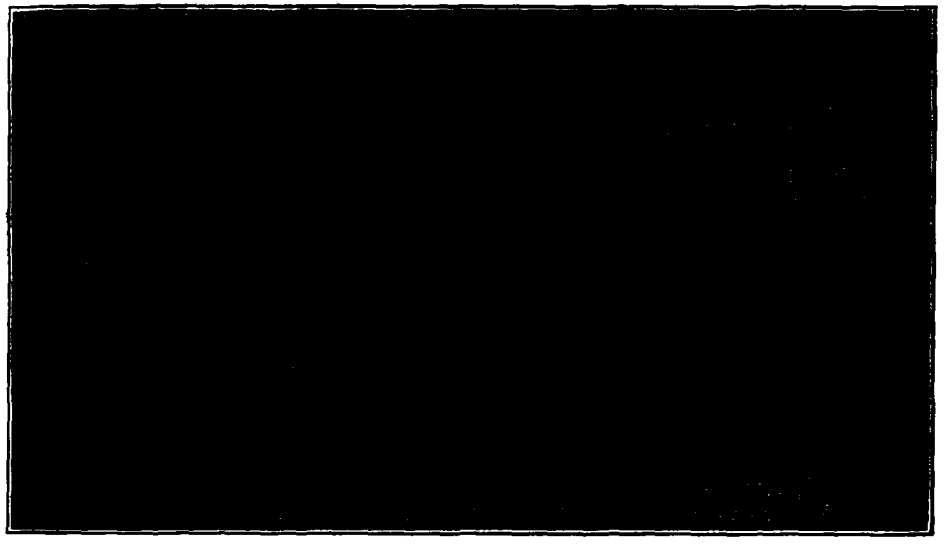
not seen them myself, I have been told by those who have, and are fully able to judge, that they add about sixty pounds to the load the mule must carry, over the diamond hitch method; that they sway so as to cause the animal discomfort and annoyance while traveling; that when an animal gets down in a swamp they fill with water and must be cut off to



CAGE OF NAVAL RAPID FIRE GUN, 540 POUNDS. U. S. NAVAL GUNBOAT QUIROS. LIEUTENANT WALKER, U. S. N.

enable the animal to rise, thus spoiling the panniers, whereas a lash rope can be cut and only a few feet of rope spoiled; that they are a patented article; that they are not adapted for the emergencies which are always liable to happen in every campaign, such as did happen in the Sulu Islands when a large command had to be supplied by a small and incomplete pack train, and when the Jolo train under Mora

Smith and Davis carried about 400 pounds to the animal without injury, or when the same train took up the base or cage of a naval rapid fire gun placed on the beach by Lieutenant Walker, commanding United States Gunboat *Quiros*, transported it to the interior to the firing line, where it did great damage to the Moro fort, and after the fort was taken the same mule carried back the cage to the beach. This cage, which was of a very unwieldy shape and



PLATFORM FOR PACKING HOSPITAL LITTER IN JOLO TRAIN.

Platform can be improvised of bamboo, tent poles, or any other straight poles. Litters should be jointed in middle and folded when not in use.

weighed about 540 pounds, was carried on an ordinary aparejo to which it was made fast by a lash rope.

Had there been no real packers along, the command would have had to do without the services of this gun; and the wounded would not have been carried down to the sea as easily and speedily as they have many times been carried by this train.

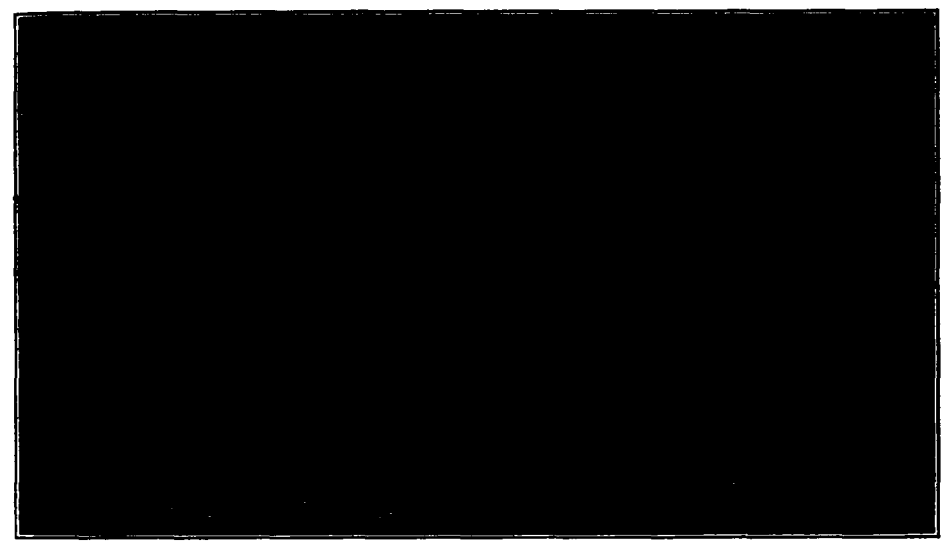
The more thoughtful and experienced officers have long perceived that the sources from which the earlier packmas-

ters and skilled packers were drawn, viz: the civilian trains which carried supplies to the mines in the Rocky Mountains, have dried up; that if this art, so essential to the mounted service, is to be kept alive, steps must be taken to preserve it by the Quartermaster's Department maintaining a school for packers, and keeping enough in constant employment to furnish sufficient packmasters to organize, equip and discipline all the pack trains that will be needed in time of war.

METHOD OF PACKING HOSPITAL LITTER IN JOLO TRAIN.
PACKMASTER DAVIS AT THE HEAD.

But it is contended that this is expensive. So are arms and cannon expensive, food and ammunition—all wars and preparations for war are very expensive, and these pack trains, thoroughly organized, equipped and exercised, are no less necessary for mounted organizations, to permit them to get in touch with the enemy with food and ammunition sufficient to enable them to hold on and not let go to fall back to their base for want of supplies. It is considered to be a very solemn duty of the Quartermaster's Department to

maintain this service in the highest state of efficiency; to this end it should cause every pack train in the service to be inspected by its Chief Packmaster several times a year, with power to recommend to the Quartermaster General discharges of packmasters and packers for inefficiency, and the transfer of skilled men from trains in other departments to



JOLO TRAIN CARRYING WOUNDED TO THE SEA.

Care must always be taken to choose mules which travel with the "pack gait," and each mule must be led by a man to prevent him from running under branches and injuring the wounded. Note the bamboo platform.

fill vacancies when they occur, instead of permitting these vacancies to be filled frequently by deserving wagon masters, etc., to get them a higher rate of pay, while they are packmasters on paper only; and lastly, it would benefit the mounted service if the War Department should put in force for the whole mounted service the order you published on this subject in the July number from the Division of the Philippines, which worked excellent results in the Department of Mindanao and in Cuba, as it is most essential that every commander of mounted troops should know the details

of this art, and not permit his reputation and chances of success to be in the hands of some paper packmaster whom he does not know enough to educate and control. He need never be uneasy about the real packmasters, however, for a more loyal, untiring and devoted set of men in the field I have never served with.

And now it is for the "Old Guard," who have so often listened in the past to the tinkle of the bell, to stand together like a rock to preserve the aparejo and the diamond hitch from innovations which weaken their efficiency; to foster the care of the real packer, and the system that has served them so well in the past, which, if properly fostered and opportunity arrives, will so serve them again.

PRIZE PROBLEM NO. 1, SOLUTION.

U. S. STAFF COLLEGE,
FORT LEAVENWORTH, KANSAS,
November 23, 1906.

Editor Cavalry Journal:

SIR:—We have the honor to inform you that of the solutions of Prize Problem No. 1, submitted for our examination, the one signed "Happy Jack" is, on the whole, the best, and is worthy of the prize offered. While we find features to criticise in this solution (as would doubtless be true of almost any tactical problem), we also find that other solutions possess merit, and that the following are worthy of mention: The one signed "Texas" and the one signed "PQR XYZ."

We congratulate the JOURNAL on the success of its first venture in its latest educational enterprise and bespeak for it a continued career of usefulness. The solutions submitted are, in the main, too long for publication, and we therefore recommend that future solutions of these "small" problems be limited to 2000 words.

Very respectfully,

D. H. BOUGHTON,
Major Eleventh Cavalry.
M. F. STEELE,
Captain Sixth Cavalry.

* * * *

Prize solution awarded in accordance with the above recommendations to First Lieutenant Andrew J. Dougherty, Twenty-eighth Infantry.

Special mention:

Captain Wyatt O. Selkirk, Texas National Guard.
Captain Howard R. Hickok, Fifteenth Cavalry.

In future competitors will submit their solutions so they can be printed in JOURNAL without the expense of making new plates for the maps. There are no objections to submitting solutions with the map attached, but the positions of forces should be so described as to be intelligible to one using the original map only.

PRIZE PROBLEM NO. 4.*

Situation:

On October 1, 1906, a battalion of Eastern (Red) infantry is ordered to seize and hold Fay's Bridge; its commander (Major A) is informed that an important Western (Blue) convoy is expected to begin crossing the bridge at 1:30 P. M., and that the bridge must be seized before that time and prepared for demolition.

Upon approaching Charlotte (from the east) shortly after noon, patrols of Blue cavalry are seen in the vicinity of that town by the Red advance guard, which consists of one company.

At 12:30 P. M. when the support of the Red advance guard reaches Section House No. 2 (northwest of Charlotte) it comes under rifle fire from Prospect Hill and takes cover at the Section House. Major A is with the reserve (one platoon) of the advance guard at the junction of the Charlotte-Youngstown and the Charlotte-Booth's Mill roads.

Required:

1. Major A's estimate of the situation, including a statement of the plan by which he proposes to execute his mission.

2. His orders.

*See map in October, 1906, issue of the JOURNAL, opposite page 334. For condition of solution see April, 1906, issue of the JOURNAL, page 702, and the recommendations and remarks given on pages 521 and 522 this issue.

INFANTRY AND CAVALRY SCHOOL PROBLEM IN OCTOBER (1906) JOURNAL.

DEPARTMENT OF MILITARY ART, U. S. INFANTRY AND CAVALRY SCHOOL.

Course in Organization, 1906–07.

PROBLEM 2. AN APPROVED SOLUTION.

First Requirement.

Number of cavalry regiments — 15.

Number of infantrymen — $15 \times 1{,}236 \times 6 = 111{,}240 = 70$ regiments (one regiment 200 short) $= 23$ brigades $+ 1$ regiment $= 8$ divisions (the 8th containing 2 brigades and 1 regiment) $= 4$ corps, necessitating 8 provisional regiments of field artillery, 8 battalions of engineers, and 8 companies of the signal corps. Four field hospitals are required for each division, also one regiment of cavalry. This leaves seven regiments of cavalry to be organized into a cavalry division as shown below.

U. S. ARMY.

Corps.	Divisions.	Brigades.	Regiments.	Art., Cav. and Spec. Troops.
1st	1st	1st	1st	
			2d	1st Reg. F. A. 8th Reg. Cav.
			3d	
		2d	4th	1st Bn. Eng. Co. A, Sig. Corps.
			5th	
			6th	1st, 2d, 3d and 4th F. Hosp.
		3d	7th	
			8th	
			9th	
	2d	1st	10th	
			11th	2d Reg. F. A. 9th Reg. Cav.
			12th	
		2d	13th	2d Bn. Eng. Co. B, Sig. Corps.
			14th	
			15th	5th, 6th, 7th and 8th F. Hosp.
		3d	16th	
			17th	
			18th	

The three remaining corps will be organized as above, divisions, brigades, etc., being properly numbered. The last division will consist of two brigades and one regiment.

The Cavalry Division.	1st Brigade.	1st Regiment	
		2d Regiment	
		3d Regiment	6 Batteries Horse Art.
	2d Brigade.	4th Regiment	
		5th Regiment	1 Co. Eng. (Mounted)
	3d Brigade.	6th Regiment	1 Co. Sig. Corps (Mtd.)
		7th Regiment	9th and 10th F. Hosp.

Second Requirement.

Infantry	111,240
Cavalry	18,540
Artillery	12,530*
Engineers	5,428
Signal Corps	1,350
	149,088

*Computed on the basis that a provisional regiment has three times the enlisted strength of a battalion + 3, the sergeant major, quartermaster and commissary sergeants.

FIELD WIRELESS OPERATIONS IN CUBA.

By First Lieutenant GEORGE A. WIECZOREK, Seventeenth Infantry.

ALL movements of a military force teach us something. This article tells of something that we needed and that has been produced by the Signal Corps with the army of Cuban Pacification.

Our army has never had a field wireless organization trained as a unit, and it so happened that this movement produced it under the direction of the Chief Signal Officer, Captain William Mitchell, Signal Corps. The following few lines roughly describe the organization now operating with the army of Cuban Pacification.

Organization.

The field wireless platoon is commanded by an officer and consists of two sections. Each section is composed of three noncommissioned officers and six men. A noncommissioned officer and four men of each section are mounted. Each section is accompanied by an instrument wagon, which carries the equipment, instruments and rations. The men who are not mounted ride on the wagon.

Equipment.

The men are equipped as cavalry, except that a machete is carried in place of the saber.

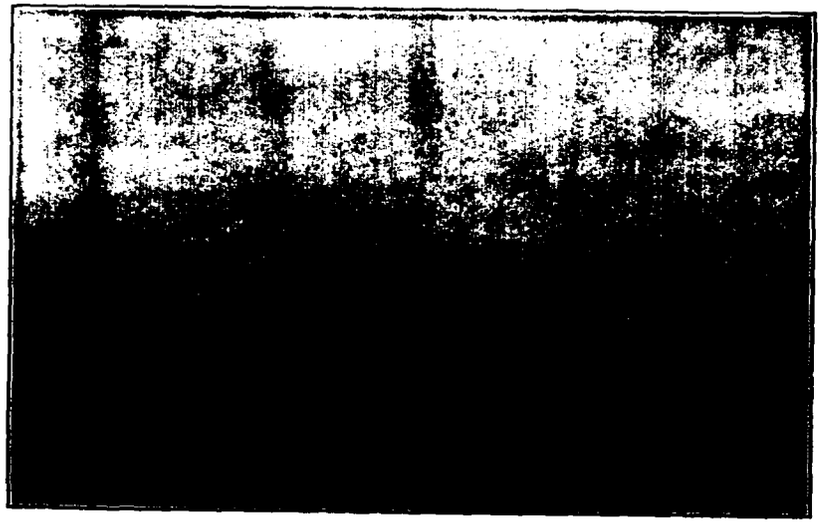
Drill.

The organization is drilled like a platoon of cavalry, using the cavalry drill regulations. The instrument wagons are each considered as a squad.

Instruments.

The instrumental equipment consists of two complete "Telefunken" field wireless telegraph sets. Each set, complete in itself to open a station, consists of the following pieces:

a. Jointed antenna, with wires and guys.
b. Transmitter, with condenser.
c. Receiver.
d. Leather bag containing tools and extra parts.
e. Generator (small dynamo driven by a bicycle).



Field Wireless Platoon at Drill.

The total weight of the apparatus is 430 pounds, and it could easily be carried by two mules when wagon transportation is not practicable.

Results.

During some recent trials this organization has gone out into the field and set up the stations. Messages have been received and answered at a distance between twenty and

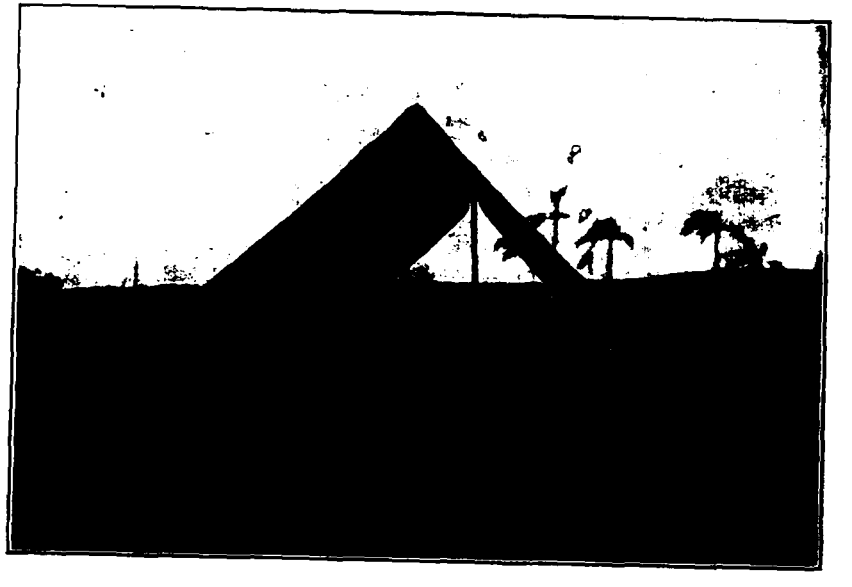
twenty-five miles (in an air line). The stations can easily be set up by untrained men in less than an hour. It is expected that further training will reduce this time at least one-half.

The results so far obtained have proved that a general commanding an army in the field can now keep in touch with his cavalry screen without going to the trouble of building flying field telegraph or buzzer lines. This will save an enormous amount of work and will also lessen the transportation for the Signal Corps, as less material for construction need be carried.

WIRELESS STATION AT WORK IN THE FIELD.

The Signal Corps also operates a wireless station at Camp Columbia, a photograph of which is here given. This station keeps in communication with the navy and any other boats equipped with stations that may come within its range. The station is not powerful, but does very good work. It is hoped that we will soon have a more powerful station at this place, for we can then communicate with Key West, Florida.

The problem of wireless lines of information in the field now merits our close attention, for the science has to-day passed the experimental stage. It would be well if we could have our Signal Corps permanently organized into companies, each containing one platoon for wireless work.



WIRELESS STATION AT CAMP COLUMBIA.

MILITARY GUN SIGHTS.

By First Lieutenant G. C. LEWIS, Eighteenth Infantry.

THE improvements in the efficiency of small arms in the last quarter century have made such sweeping changes in infantry fire effect as to revolutionize battle tactics. These improvements have been exclusively in the increase of rapidity of fire, greater range, and flatness of trajectory, but a natural barrier to further advances in those directions appears to have been set by the difficulty of supplying enormous quantities of ammunition to the advanced firing line, the limits of human vision in detecting neutral-colored uniforms, and the ultimate physical qualities of gun barrel material. A fighting man's efficiency is directly proportional to the number of hits he can make on a given target of equal area of exposure as his enemy, at a given range, and not to the number of projectiles he can discharge at that target in a given time. Clearly, unless we are to settle down to a long period of uniformity in tactics and equipment, an age of the magazine small-bore to take its place in military history with the age of chivalry or the muzzle-loader period, we must have an improvement in equipment, and that improvement can best be sought in the increased accuracy of small-arms fire.

As the New Springfield bullet has a radius of mean absolute deviation of fifteen inches at 1,000 yards, or about the width of a man at nearly the limit of clear human vision of the unit battle target, not much advance can be expected from increased accuracy of bore or ammunition. But in the means of accurately directing the bullet at the target, we find that we are still using upon the magazine small-bore

rifle the same methods and almost the identical blade and notch sights, except for elevating devices, that were used by our ancestors upon their excellent flint-locks. The ancient is not necessarily antiquated, but we are justified in investigating further the efficiency of our sights to discover if there is opportunity for their improvement by the application of the scientific principles developed in the centuries which have elapsed since their original design.

The U. S. Small Arms Firing Regulations, 1906, under the subject of "Sighting Drills," paragraph 18, says: "If any one of the sides of the triangle is longer than one inch, the instructor directs the operation to be repeated." The range for this exercise is twenty feet, and the foregoing paragraph in effect means that if a man firing in perfect weather, with perfect ammunition, with a rifle in a vise, made an error of less than fifteen inches to the hundred yards, or twelve feet eight inches at one thousand yards, due exclusively to his improper alignment of sights, it is satisfactory; but if he exceeds that limit he should be given some more instruction. When it is considered that the error of alignment with the rifle in the hand is much greater than when in a vise, and that while the incorrect sight alignment is not the greatest source of deviation, yet it enters into and complicates the correction of the greater personal and external atmospheric errors so that its minimization is a necessary preliminary to the correction of these greater errors, it is evident that accurate sighting is the very root of our desired improvement in accuracy.

The operation of sighting a gun consists in (1) the selection of a line of aim on the gun terminated by a point on each the front and rear sights; (2) the adjustment of that line of aim with regard to the axis of the bore to correspond with the predicted trajectory of the bullet by means of lateral and vertical movements of the sights; and (3) the holding of the ends of the line of aim in the line of sight between the eye and the target at the moment of discharge.

The principles involved are of three general classes: (1) optical, (2) geometrical, and (3) mechanical, and will be considered separately.

The Optical Principles.

It is necessary for uniformity in lateral and vertical corrections that the same line of aim be adjusted relative to the bore, and be placed in the line of sight in all sighting operations. Since the line of aim has no existence except as marked by its ends on the respective sights, it is desirable that those termini be identical in position and as nearly mathematical points as the vision will permit. Only one straight line can be drawn between two mathematical points, but an infinite number of lines of aim could be taken between the tip of the front sight and different parts of the rear notch or peep aperture with a corresponding infinitude of variations of large value at the target.

The governing factor of the size and character of the terminal points of the line of aim is the capacity of the vision. An understanding of the elements of optics is therefore necessary for the selection of the best sights, though the structure of the eye appears to have been strangely ignored in the selection of the existing sight designs.

Consider the image formed by a simple lens, L, Diagram 1. Under the law of lenses,

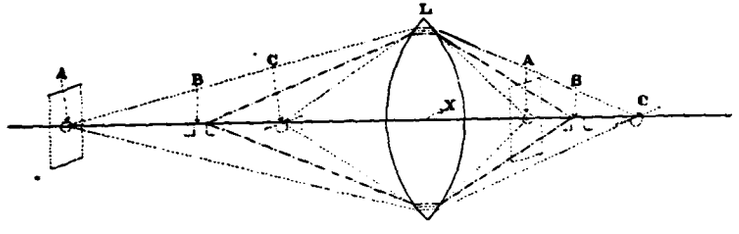


DIAGRAM 1.

$$\frac{1}{f} = \frac{1}{f_1} + \frac{1}{f_2}$$

in which f is the distance from the optical center, X, to the principal focus (focus of parallel rays); f_1 is the distance from X to any object, A, B or C; f_2 is the distance from X to the images of the respective foci, A′, B′, C′. The images of the objects A, B and C, Diagram 1, at different distances from the lens, L, will then be formed respectively at A′, B and C′; but images of objects at different distances from the lens can not be formed at the same spot by the same lens.

The eye is provided with a light-focusing device called the crystal-line lens, LL, Diagram 2. The difficulty of seeing objects at different distances is overcome by a muscular alteration of the curvature of the lens, so that the focus of the rays from the object falls on the sensitive retina. But definite positions, F, E and D, of the lens are necessary for each distinct distance of objects A, B and C; therefore it is impossible to see three points in the same straight line from the eye at the same time. This may be forcibly illustrated by

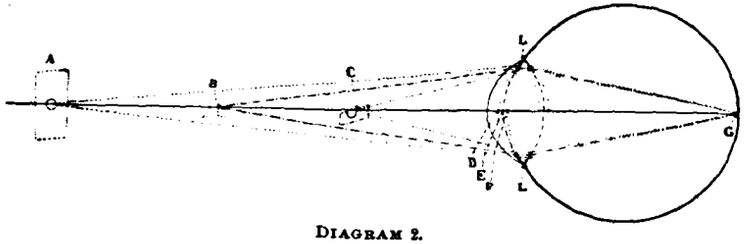


DIAGRAM 2.

the simple experiment of looking with one eye only at a man about 100 yards distance and bringing a pencil point before the eye about three or four inches from it, taking care to still see the man clearly. The pencil point will appear foggy and transparent though more solid at the center, and the width of this blurred border is almost equal to the apparent height of the distinctly visible man. The effort to see clearly the target, front sight, and rear sight simultaneously is an attempt at the impossible; two of the three objects must appear blurred in outline. The contrasts of color around the target are usually less marked, it is more subject to adverse atmospheric light effects, and further, the difference in optical accommodation between the front sight and target is less than between the two sights, so that the eye should be focused upon the target. It follows that the greatest blurring will be at the rear sight.

Let us examine the effects of this blurring upon the uniformity of position of the ends of the line of aim.

In Diagram 3, A is the front sight, B the target, and C the rear sight. Figs. 1 and 5 represent the ideal appearance

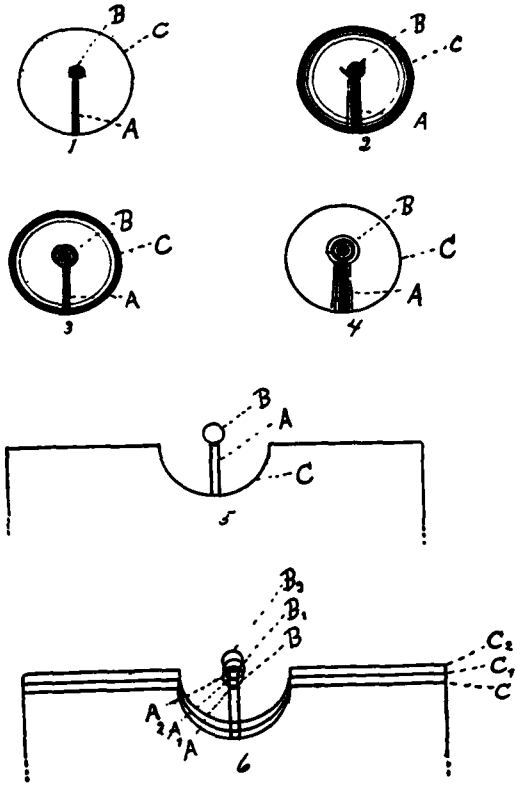


DIAGRAM 3.

for the peep and notch rear sights, all three points being clearly defined. This is an impossible condition, and the sights actually represent to the eye the appearance of Fig. 2, 3 or 4, accordingly as the eye is focused on the target, front sight or rear sight. Comparing the Figs. 1, 2 and 3 it is seen that the tip of the front sight has not been displaced

by the blurring of the rear sight, but is still in the center of the peep since the circles of blurring are concentric and the distortion is compensated at the ends of any diameter. This is true only when the tip of the front sight is *centered* in the rear peep. In the case of the notch sight, Fig. 6, Diagram 3, it is seen that the effect of the blurring of the rear sight is to elevate its apparent position to C_1 or C_2, and a corresponding increase of amount of front sight, B_1 or B_2 is necessary to give the same impression to the eye. The peep sight, therefore, establishes a uniform definite line of aim, while the notch sight gives a variable rear terminus. This is true whether a half, full or fine sight is used, since the amount of front sight must be referred to a blurred band of haze instead of a line. If the amount of blurring of the rear notch, C_2 C, Fig. 6, would remain constant a man might remember and allow for its effect after a great deal of experience, as is in fact done in a measure in practice; but if the blurring is variable in degree and beyond the shooter's control the effect would be the same as aiming with a rear notch slide which crept or slid up or down the leaf a 100 yards or so without warning.

It is easy enough to calculate the amount of this blurring and determine whether it is a constant or variable. Diagram 4 illustrates this.

If the eye is focused for the plane T T_1 T_2, only points in that plane will appear as sharply defined points to the eye. A point at F will not be seen in the "extra focal" plane F F_1 F_2, but will appear projected into the "focal" plane T T_1 T_2 in the form of a "dispersion circle," a sort of hazy disk. The center of this disk is at the intersection of the focal plane with the prolongation of line through the center of the pupil, P, and the point F and its diameter is the geometrical projection of the diameter of the pupil, P_1 P_2, onto the focal plane, the point F as center of projection. T_2 T_1 is then the diameter of the circle of dispersion when the focal plane is beyond the object and R_1 R_2 is its diameter when the focal plane lies between the eye and the object, the law being the same in both cases.

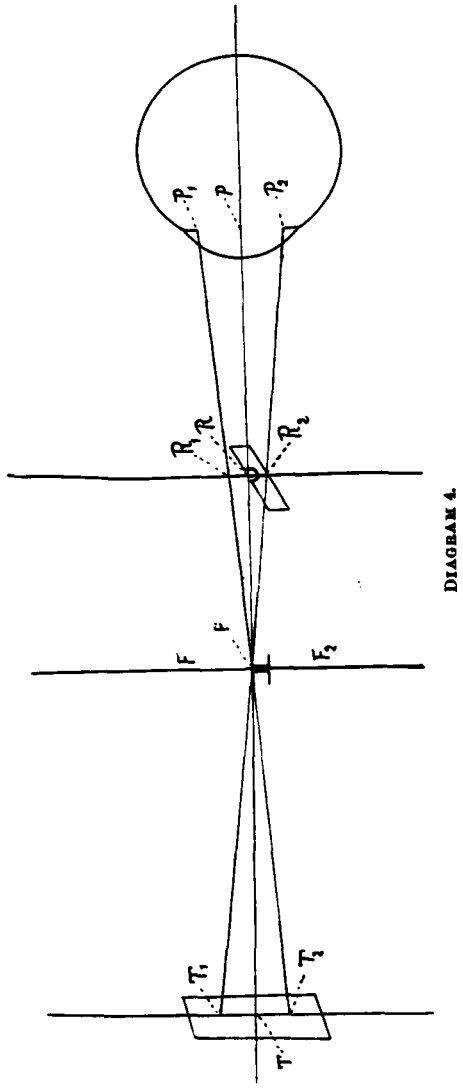


DIAGRAM 4.

In the similar triangle, $T_1 T_2 F$ and $P_1 P_2 F$,

$$T_1 T_2 : P_1 P_2 :: T F : F P \quad (1)$$

$$T_1 T_2 = P_1 P_2 \frac{TF}{PF} \quad (2)$$

When the focal plane is beyond the dim object this may be written—

$$D = p \frac{b - a}{a} \quad (3)$$

or when the focal plane is between the dim object and the eye,

$$D = p \frac{a - b}{a} \quad (4)$$

in which

D—diameter of circle of dispersion.
p—diameter of pupil.
a—distance of eye to blurred object.
b—distance from eye to distinct object.

These equations simply mean that the apparent blurring of the rear sight in the plane of the target when the latter is distinct, grows in direct proportion to the diameter of the shooter's pupil and the range, and inversely with the distance from the rear sight to the eye. Any condition, then, which will alter the diameter of the pupil of the eye, such as fatigue or change of light, will alter the amount of blurring in direct proportion, and as the variations in pupil diameter are over 300 per cent. from noonlight to dusk, such effect must be considerable in the case of the notch sight, but of no effect in the peep sight.

These errors of elevation from blurring were found experimentally to amount to as much as twelve inches per 100 yards of range for the notch sight under extremes of light conditions. The entire exemption of the peep from such uncontrollable errors is sufficient warrant for the dropping of the notch sight from the rifle.

To show experimentally the effect of these theoretical deductions the following experiments were made with twenty different types of rifles and sights, both sporting and military, including extremes of well marked types: The guns were placed on vises, on sighting standards heavily braced, and so arranged that the eye and shoulder were in the correct shooting position, and not at a variable distance and im-

proper focus as in the ordinary sandbag tripod. Triangles were then made in accordance with usual sighting drill methods, but at ranges of from fifty yards to three hundred yards, using disks graduated to give the same intercept as the A target bull's-eye at two hundred yards. Separate detachments of recruits and of sharpshooters from companies B, C, I, G, L and M, Eighteenth Infantry, were kindly furnished me by the respective company commanders, and the experiments extended over about four months, and were conducted under varied conditions of weather, wind, and time of day. The majority of the men were not informed as to the object of the tests. The averages of many hundred experiments are given in the following table, but it must be pointed out that individuals frequently had results at great variance with those tabulated. Even large detachments showed discrepancies as to the numerical factors of deviation, but no detachment gave results at variance with the general trend in comparison of two well marked types of sights. The tabulated results may be relied on for comparative tests of any two sights, but not as to the quantitative factor.

Gun.	Kind of Sight.	Distance in inches from eye to sight.		Distance between sights in inches.	Recruits.		Sharpshooters.		Failing Light.	
		Front.	Rear.		Mean breadth of triangle per 100 yds.	Mean height of triangle per 100 yds.	Mean breadth of triangle per 100 yards.	Mean height of triangle per 100 yards.	Vertical displacement of triangle centers.	Increase of triangle area.
Springfield	1903, .06 peep	35.83	13.5	22.33	1.15	1.33	1.03	.88	none	About 50%
Springfield	1903, notch	35.83	13.5	22.33	2.44	1.88	1.28	1.56	7.0	About 150%
Springfield	1903, .04 peep	35.83	13.5	22.33	1.22	1.38	.81	1.04	0.5	About 100%
Springfield	1903, .05 peep	35.8	13.4	22.4	1.19	1.32	.99	.94	none	About 50%
Springfield	1903, notch	35.8	13.4	22.4	2.81	2.28	1.23	1.60	8.0	About 150%
Krag Rifle.	1901, notch	41.5	17.0	24.5	1.76	2.19	1.21	1.48	6.0	About 150%
Krag Rifle.	1901, .04 peep	41.5	17.0	24.5	1.16	1.18	.81	.48	none	About 150%
Krag Rifle.	1901, .06 peep	41.5	17.0	24.5	1.06	1.15	.84	1.06	.....	About 100%
Krag Carbine	1896, notch leaf down	33.0	18.8	14.2	2.69	1.93	2.16	2.69	12.4	About 200%
Krag Carbine	1896, notch leaf up	33.0	16.4	16.6	2.04	2.88	1.28	1.56	10.0	About 200%
Winchester	.07 peep	35.5	4.5	31.0	1.00	.93	.64	.76	none	About 50%
Stevens	.04 globe rear .07 aperture front	33.5 to 27.5	2.0 to 3.0	24.5	.93	.88	.48	.56	15.0	About 50%
Winchester	12 peep	35.5	4.5	31.0	1.24	1.31	1.00	1.21	1.1	About 50%
Springfield	Telescope Prismatic	.....	2.0	.....	.42	.45	.26	.31	none	none
Lebel		39.7	16.5	13.2	....	....	1.94	2.71	13.0	About 200%

The following observations were made in regard to the effects of failing and changing light:

1. The .04 aperture at sixteen inches from the eye quickly becomes useless in failing light, and cannot be used to advantage when the sun is near the horizon or for indoor work.

2. The .06 aperture at sixteen inches from the eye could not be used in poor light which was still strong enough to show the target clearly when not sighting.

3. The .07 and .12 peeps at three to five inches from the eye could be used in very dim light, such that the target could only be dimly seen when not looking through the sights. The larger aperture was distinctly clearer than the notch.

4. The notch sight was subject to great displacement vertically of the triangle centers from failing light and to most irregular lateral displacement from glint of strong light on the shoulders of rear notch. Men who were expert with the notch could make small triangles, but did not seem to be exempt from these sudden irregular displacements in the midst of a series of closely grouped sightings.

5. The peep sight gave practically no vertical displacement of triangle centers until the light became so weak that it could not be used. It was almost entirely free from the irregular lateral displacements.

6. The telescopic sight gave no lateral or vertical displacement of triangle centers.

7. The peep on the front sight can only be used in very strong light and with a clear target.

8. The bead tip to front sight is a distinct aid in centering the front sight in the rear peep, but is of no value when the notch sight is used.

The net result was strongly in favor of the peep sight, but indicated a serious defect in the size and position of the peep as issued. Many men who could not use the small .04 inch peep at thirteen to sixteen inches from the eye obtained much better results with the large Lyman peep at five to six inches from the eye. No man was found who did not get better results with the .06 to .10 peep at five to eight inches from the eye than with the notch, though

some few old soldiers did better with the notch than small peep, owing to long training. The recruits with no target range practice showed much better results with the peep than with the notch. With uniform light the average lateral error for the notch sight was but little more than that of the peep, but the vertical error averaged much greater. Tests for variable light effects were made with scudding clouds and from before sunset to dark at five-minute intervals. The guns were not moved between the marking of successive triangles in this test and the centers of these triangles should, therefore, approximately coincide as long as the sights continued to establish definite uniform termini to the line of aim. With the peep sight the triangles grew slightly larger as the light failed, due to indistinctness of the target, but the centers of the successive triangles were stationary. With the notch sight the triangles became larger and the centers crept gradually down the target, showing in many cases a vertical drop of over twelve inches to the 100 yards. The .04 and .06 apertures at thirteen and sixteen inches from the eye admitted so little light that they were useless in weak light, but the .04, .06 and .1 apertures at three to five inches from the eye can be used in weaker light and to better advantage than the notch.

The peep on front sight was quite useless in even strong shadows or when the sun was near the horizon, appearing as a greyish bead front sight tip.

Another advantage of placing the peep closer to the eye is the increased field of view. By bringing the .06 aperture from seventeen to three inches of the pupil, the field of view is increased nearly six fold and the illumination of the target is much increased. The average eye cannot focus at a point closer than eight inches, and placing the peep within that radius of the eye, relieves the eye of the strain of unconscious effort to see the rear sight clearly. With the rear sight as close to the eye as possible, the sights are more quickly aligned in snap shooting. No one who has not tried quick aiming with a peep at three inches from the eye can appreciate the value of this feature. Since the peep sight is independent of the blur, these advantages are easily gained

for it, but are directly opposed by the requirement of the notch sight which should be as far from the eye as possible, as its edge must be as little blurred as possible.

A large peep is required for snap shooting and for work in the twilight, and a somewhat smaller aperture can be used advantageously for deliberate firing, though the deviation with the large peep at three to five inches from the eye is very small, as the center is clearly defined. There is also a certain amount of individual variation in eye focusing so that an adjustable aperture is desired. A .1 inch peep with a simple device consisting of a ring of .05 inner diameter, hinged so that it can be turned up into the aperture to reduce it, appears to meet the requirement of the largest number of men. The device is not liable to injury, and if broken still leaves the .1 aperture available, which is the best size for general work. A bead front sight is shown to be a distinct aid to most men in centering the peep, though not of value with the notch sight. It is particularly useful in weak light. The peep front sight is of value in a very strong light and for deliberate fire, for reasons previously given.

The idea current in the army for many years, that the peep sight is a useless refinement, which might be used by experts for target work, but which could not be taught to hasty levies nor used in battle, is a gross error, which found some grounds in the small size and great distance from the eye of the issue peep. Quite the contrary is the case. The notch sight requires many times more instruction for its use than does the .06 aperture of the 1901 and .05 aperture of the 1905 sights, while with a peep at five inches from the eye, as a Lyman, aim can be taken more quickly for rapid fire and skirmish work by a recruit with but little instruction than by the most expert shot with a notch sight. The peep sight has been used by only about one-half of the competitors in the division competitions of 1904 and 1905, but only a small fraction of notch sight users obtained places on the teams, many teams not having a single member who used the notch at any class of his fire. This may be merely a coincidence, but, if so, it included the Sea Girt matches in its sweep, for an overwhelming majority of the national match

winners used the peep. This is in spite of the defects of size and position of the issue peep. The 1903 Springfield .04 peep is so very defective in construction that many advocates of the peep were forced to use the notch for skirmish work at the 1906 competitions. The abolition of the notch and adoption of the bead front sight and a peep of .06 to .1 inch aperture at five inches from the eye would seem to be the first step in an effort to increase the accuracy of infantry fire. The superiority of the proper peep over the notch can no longer be dismissed as a whim, opinion, or chance result of prejudice and practice, for it is a mathematical fact based upon the actual physiological structure of the eye, an unalterable condition of established magnitude which cannot be ignored.

The Geometrical Principles.

The bullet after leaving the gun is acted upon by a number of different forces, gravity, wind, gyroscopic action, etc., which tend to alter its path according to certain definite curves. Since a position for the rear sight exists which will correct any given variation at the target, it is evident that a curve can also be found for the rear sight which will correct the deviation on the target resulting from the action of any particular force. The scale of elevations on the rear standards, in this case a straight line, which offsets the action of gravity, is the simplest of these correction curves. The drift curve on the standards of the 1901 and 1905 model sights, which corrects for the deviation due to the flip of the barrel and the rotary action of the bullet, is another example. The ideal sight from a geometrical standpoint would be one which had a separate adjustment curve for each of the dozen or so forces which affect the bullet, but the mechanical requirements of simplicity and strength, as well as the excitement of battle prohibit its construction.

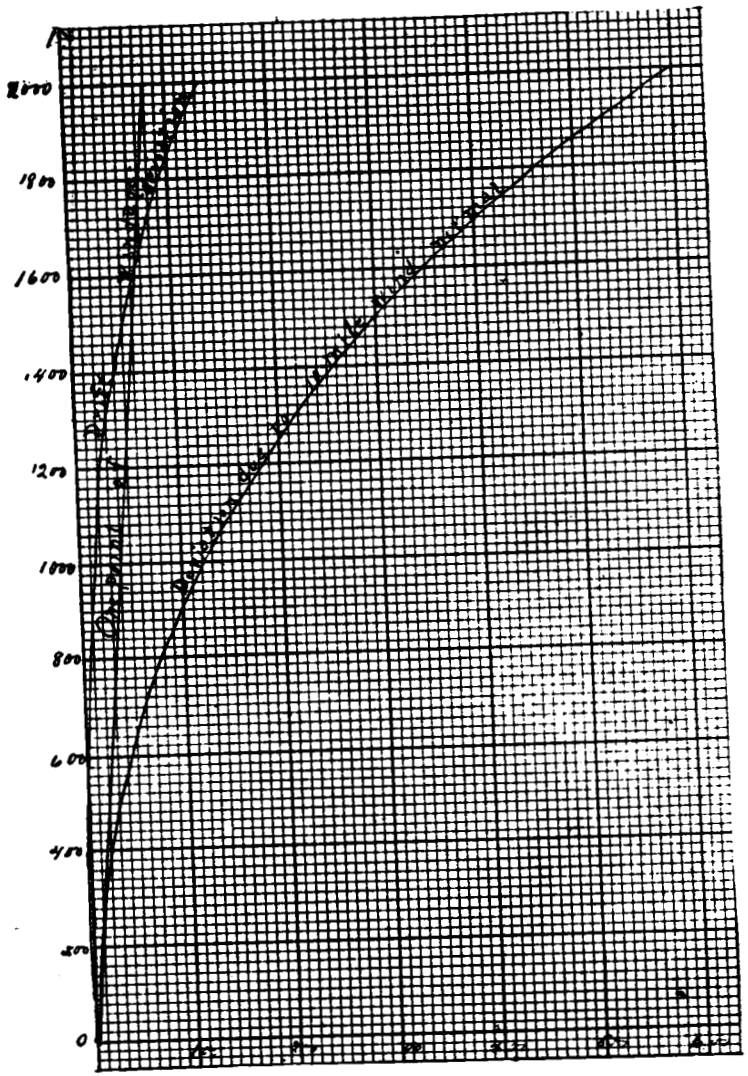
To a curve such as the drift curve, which requires no additional parts, and which is adjusted automatically in changing elevation, no possible objection can exist, and its omission is a wanton sacrifice of the best powers of the rifle.

Diagram 5 shows the relative value of the drift, which is corrected automatically, and of the deviating component of a ten-mile wind, which must be corrected by the separate operation of turning the wind gauge to the number of points indicated by dividing the deviating component for the range and the velocity of wind by the value of a point of windage at that range. Since the value of a point of windage is equal to the range in hundred of yards multiplied by a constant, four inches for the Springfield, while owing to the loss of velocity of the bullet, the deviating component is a variable which increases much more rapidly than this, it follows that a different adjustment for the wind gauge must be made every time the range is altered, even in constant weather conditions. The amount of this alteration can be seen from the following table for a thirty-mile wind normal to the plane of fire of the thirty caliber Springfield.

TABLE OF WINDAGE CORRECTIONS.

Range.	Value of One Point in Inches.	Deviation of 30-mile Wind in Inches.	Number of points Required for Correction.
200	8	18	2 1/4
400	16	60	3 3/4
600	24	129	5 3/8
800	32	234	7 5/16
1000	40	375	9 3/8
1200	48	555	11 9/16
1400	56	783	14
1600	64	1059	16 1/2
1800	72	1392	19 3/8
2000	80	1785	22 5/16
2200	88	2247	25 9/16
2400	96	2844	29 5/8
2500	100	3144	31 7/16

The alteration of windage with change of range is thus seen to be very high, and to follow an irregular curve which it would be most difficult to carry in the memory, as it would vary with each wind velocity, even if there were time in battle to make the separate adjustment. The chances of getting windage corrections made at each change of elevation, in repulsing a charge or in an assault with rapidly changing ranges, are slender.



Abscissæ, 1 inch=100 inches deviation on Target.
Ordinates, 1 inch=200 yards range.
(Cut reduced one-half from original drawing.)

DIAGRAM 5.

The following described device, on which a caveat has been taken, has been devised by the writer with the object of having the windage correction made automatically with each change of elevation, for any given constant condition of wind. In Diagram 6, P J W D is the horizontal projection and P E E_1 D is the vertical projection. P is the pivot point of a wind gauge base and F is the front sight. The elevations for the proper ranges are laid off on P E and the graduation points connected with F as a vanishing point. A sight at any point, E_1, on the line EF will then have the elevation of 2,500 yards corresponding to that of E. Similarly, points of windage are laid off on P J and connected to

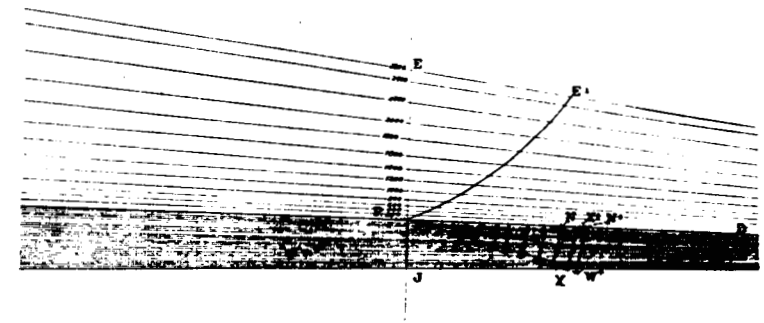


DIAGRAM 6.

the vanishing point F. The point, W, is then plotted, having $31\frac{3}{8}$ points of windage at a distance from the pivot, P, corresponding to the 1905 sight base length, and points laid off on the line, P W, corresponding to windage points in the foregoing table. Vertical lines from these windage values to the corresponding range vanishing lines are the ordinates for a curve for an inclined sight standard. If the base bar is moved up or down the elevation scale, E_1 P, the windage is automatically increased or decreased to correspond to the range, since the standard, E P, lies in the vertical plane over

P W, and therefore one adjustment is needed. If the standard is turned into the vertical plane of P W_1, then:

$$N\ W : X\ N_1 :: N\ P : N_1\ P$$
$$N\ W_1 : X_1\ N_1 :: N\ P : N_1\ P$$
$$\text{therefore, } N\ W_1 : X_1\ N_1 :: N\ W : X\ N_1$$

All ranges will then have the corresponding windage corrections of their respective projections in the horizontal plane, which have all been reduced in the ratio $\frac{N\ W_1}{N\ W}$. This is in fact a system of polar coördinates instead of a corrective curve in a single plane.

By graduating N W to read velocities instead of points, corrections for windage in connection with change of range can be obtained with only a slight bending of the standards and the alteration of the position of the sight base pivot and without the addition of a single part. By having four successive concentric scales, one behind the other at N W, with graduations reduced to correspond to diminished effect of wind not normal to the plane of fire, and with the clock hours opposite each proper scale, all the complicated mental effort for correction due to the change of direction of the wind can be eliminated by simply setting the index to the proper scale. This does not require any extra pieces to be added. The gauge would then be set at the proper velocity and direction of wind and would not have to be touched as long as the weather conditions were constant, no matter how the range varied. An expert rifleman of two years' qualification recently made two successive skirmish runs of ninety-five and twenty-five, the latter being due to failure to allow for a change from a 9 o'clock to a 7 o'clock wind. Correction on the sight scales for changes of direction of wind would appear to be the only way of getting the subject handled by the average enlisted man even in time of no great excitement.

Corrections for barometer, thermometer and hygrometer are so delicate that they would not be made during battle. These corrections are for conditions extending over several hours, and are very nearly proportional to the range. It would therefore appear feasible to have a slow motion which would raise or lower the peep in the bar itself to correct for changes in altitude, temperature, etc. These corrections could be made before going into battle under supervision of an officer, so that the rifle would then use the elevations as graduated, and not a hundred or two yards, more or less, as at present, at most of our inland posts. The value of this adjustment in connection with a good range finder is not to be disputed, and is simply a question as to its mechanical feasibility.

Another geometrical consideration is the distance between sights. The average human eye can see an object clearly which subtends an arc of about 40″, that being the lower limit of visual definition. But in the case of the front sight, which is not in proper focus, the limit is probably two or three times as large. Assuming that .02 of an inch is the smallest defined point that can be seen at the front sight when looking at the target, it is evident that an error of less than that amount would escape detection. If .02 of an inch deviation takes place in a space of one foot between the sights, it would have three times the effect on the target as if the same error had occurred three feet apart. Great distance between sights is therefore to be sought, and, as the front sight is fixed, this distance can only be increased by moving the rear sight further back. This advantage can be obtained without detriment in the peep sight, but in the notch sight the optical and the geometrical principles are in direct conflict.

Mechanical Principles.

A military sight must, in the natural order of campaign conditions, be exposed to severe strains and shocks, and it must be built with that end in view. It is not practicable to expect men who are scarcely able to march to keep their weapons as well protected as under garrison conditions, and all adjustments should be such as to function without clogging when exposed to dust and sand. These conditions prohibit the use of small or delicate parts, but do not prevent the making of fine adjustments if sufficiently

massive parts are used in the slow motion mechanism. The importance of simplicity in our earlier sights, notably the target 1896 model, seems to have been greatly exaggerated. It would be most interesting to compute the number of rifles put out of action in actual service, for the 1901 sight, as compared with the number of rifles which were fired uselessly, with trajectories from thirty to forty feet from the line of sight, with the 1896 sight. Such a comparison could scarcely fail to be overwhelmingly in favor of the more accurate sight.

Weight is of great importance in a hand firearm, but a few ounces on the sight which will effect the saving of pounds of ammunition is a sound economy. All rear sights should be provided with a slow motion mechanism, preferably arranged to shift the peep in the sight bar itself. The elevation standards are particularly exposed to shock, and should be built strong, with a spring device which permits them to yield easily to the front or rear and escape injury. The 1903 sight can not yield in this manner, and its elevation standard is particularly subject to damage, where the 1901 and 1905 models escape without injury. Adjustments should be so arranged as not to work loose nor slip during fire. The sight bar of the "simple" 1896 sight was particularly prone to fall during firing, a fault which could have been easily corrected by roughening the edge of the standard. The heavy notches of the 1903 standard, which only permit adjustment at twenty-five yard intervals, are a step in the opposite extreme, and are only less objectionable than a smooth standard.

Qualities of an Ideal Sight.

From the foregoing discussion of the principles involved it would appear that the following are the qualities which the ideal sight should possess:

1. Optical:
   - (*a*) Mark ends of line of aim accurately when the eye is focused on the target.
   - (*b*) Uniform appearance to the eye under variation of intensity or direction of light or when the eye is fatigued.
   - (*c*) Wide field of view around the target.
   - (*d*) Be located easily by the eye for snap shooting.
2. Geometrical:
   - (*a*) As long a distance between sights as possible.
   - (*b*) Adjustment so as to correct for all deviations of bullet caused by regularly acting forces.
3. Mechanical:
   - (*a*) Strength and durability of mechanism.
   - (*b*) Speed in making large adjustments.
   - (*c*) Vertical and lateral slow motion mechanism for short distances.
   - (*d*) Adjustment screws or clamps large and easily grasped in excitement.
   - (*e*) Adjustments secure against slipping from shock of discharge.
   - (*f*) Adjustments so co-related that one movement may correct for several related errors, that is, a change in elevation which will also correct for drift and windage, for example.
   - (*g*) Simplicity.
   - (*h*) Graduations easily read.

It is easily seen that some of these requirements are contradictory, and that we can only hope to approximate this ideal closely by judicious compromise. Let us examine the issue sights since the adoption of the thirty-calibre rifle with a view to seeing how they compare with the foregoing standards.

Analysis of Rifle Sights.

The earliest model of the thirty-calibre sight was that for the Krag, model 1896. It is not usual to see so many defects assembled in a single piece of mechanism, and it is difficult to understand what purpose its construction could serve except as a demonstration of the possibility of a defective sight neutralizing the effect of a good rifle. Under

usual weather conditions, the better a man could aim the less chance he had of hitting the target, for the point aimed at was the one point which the bullet could not strike. Excellent target practice has been had with this sight by the device of placing an oil can at the proper place on the target butt, from three to twenty feet distant from the bull's-eye, and aiming at the can, the position of the latter being shifted according to signals. A carping critic, however, objected that target practice was a preparation for the work of hitting insurrectos, and these latter had first to be caught before the tin can could be properly placed, and after they were caught there was no use in attaching the can, whereupon the post commanding officer suspended the use of the oil can wind gauge. The enumeration of the defects of this sight is somewhat extensive. Its elevations were not correct within one hundred yards at the majority of posts. The standard was smooth so that the sight bar frequently fell in firing. There was a difference of about eight per cent. in the distances of the rear sight from the eye in the raised and lowered positions, giving changes in focus and blur. The distance between sights was entirely too small. There was no peep, no wind gauge, and no drift gauge. Simplicity was put forward as the strong feature of this sight, but it is hard to understand how a slight bend in standards to correct for drift and a few ridges to prevent slipping would have complicated its action.

The model 1901 sight is a long step in advance. It was provided with a peep which was at first .04 of an inch in diameter and entirely too small. This was raised later to .06 inch, which gave much better results, though still too far from the eye, and having too short a distance between sights for the best work. The wind gauge is serviceable, but has no slow motion. In using the notch sight at ranges under five hundred yards the standards are down and the notch is at a variable distance from the wind gauge pivot, as the ranges are changed. The amount of deflection of the notch from the axis of the bore for one graduation on the windage scale is directly proportional to the horizontal distance of the notch from the wind gauge pivot. The sight bar at the four

hundred yards elevation is quite close to the pivot, so that the value of a point of windage at that range, with the standards down, is less than one-third of the value of what the same graduation should be, did it follow the rule of varying directly with the range as when the standards are up. This does not occur with the peep, as the standards must be raised in order to use it, and it greatly complicates the windage correction for those ranges at which the notch sight is flat. With the standard up, a point is equal to 5.88 inches multiplied by the range in hundreds of yards, so that the wind gauge must be altered anyway at each change of range, as previously explained in the discussion of geometrical principles.

The model 1903 Springfield sight is set closer to the eye than the Krag sight, and is to be credited with that improvement, though still too distant for the best results. The peep is .04 of an inch in diameter, and has not enough metal above it to show clearly any solid rim when blurred and out of focus. The wind gauge has a slow motion. There is no drift gauge, but the notch is set .021 inch to one side of the axis of the bore as a compromise, which neutralizes the drift up to about one thousand yards. The sight is structurally weak, as the sight bar forms a solid fulcrum against the elevation curve of the base, over which the standard must bend or break under shock.

The 1905 model of Springfield sight is the best sight ever placed on a military arm in the United States. It has a peep of .05 inch diameter with white metal rays pointing to the aperture to aid in catching the peep with the eye. The sight is in the wrong position—too far from the eye for the best results. The standards yield either to the front or rear under shock, and so are not liable to damage. There is an excellent slow motion wind gauge, but the windage must be altered with every change of range. The standards have a roughened surface to prevent slipping of the sight-bar, and are also curved for a drift gauge. There is no slow vertical motion. The front sight base is roughened to prevent the reflection of light.

An examination of some of the best sporting and foreign military sights may be of interest in comparison with our issue sight.

The Lyman receiver peep sight for the Winchester 30–40 with bead front sight, was the best simple sighting device tested, from an optical standpoint. It had a distance of thirty-one inches between sights and a peep which could be varied in size by a bushing. The rear sight was from three to five inches from the eye. It could be centered very quickly in snap shooting, gave no strain on the eye and could be used in poor light. Its adjustments were defective, as there was no wind gauge.

The Warner and Swasey prismatic telescopic sight gave smaller triangles and less deviation in failing light than any other sight tested, and from an optical standpoint is many times better than the best sight not provided with lenses. It is a collimating telescope on the same principle as a transit. Its magnifying power is 5.6 illumination greater than the naked eye, and maximum field thirty-six degrees. It is particularly valuable for rapid fire and snap shooting at mid and long ranges, as there is only the one point, the intersection of the cross hairs, to be placed on the target, and the error of alignment of two sights is eliminated. This sight gives markedly better results than do either the notch or peep sight in firing at either a target or a bright reflector illuminated by a powerful search-light.

It is the collimating feature of the telescopic sight rather then the mere magnifying of the target which forms its chief merit. Sir Walter Grubb has developed a collimating sight, designed to overcome the lack of permanence of adjustment of cross hairs by the use of a set of prisms, one of them being partly silvered and having a cross scratched upon it which appears to the observer to be projected into the plane of the target. This sight is not necessarily magnifying.

The King Optical Company has produced a set of lenses which are attached directly above present military sights so that the target is seen as a magnified image setting upon the normal unmagnified front sight, thus giving magnification

of the target without collimation. Aim is taken with the ordinary sights at this magnified image. As only the published accounts and diagrams are available concerning these two sights, and no tests were made with them, no further details are considered necessary in this paper, though it is believed they would repay experiment.

It appears that there was one defect which was omitted in the construction of the 1896 Krag sight, and which is very well illustrated in the sight of the French carbine of 1891. This sight is only graduated for every two hundred meters, and the intermediate adjustments can not be made. Otherwise it has all the defects of the 1896 sight, including a twelve inch space between sights.

The Mauser and Mannlicher sights all showed some of the defects of the 1896 sight. None of them was provided with a peep sight or wind gauge and the notch was very coarse. An inspection of these sights makes plain the force of the arguments foreign strategists are constantly advancing in regard to "beaten zones," "sheets of lead," and "hail of bullets." Only by such means could such arms be effective.

It is believed that the requirements of the ideal sight as previously set forth, can best be approximated by compliance with the following specifications:

1. The sight to be located on the receiver or small of the stock.

2. The standards to be curved for drift and wind corrections, as previously explained.

3. A slow motion elevation mechanism to be provided for moving peep in the bar itself over an arc of about 20′.

4. The exclusive use of the peep sight to be required. This peep to be provided with a bushing for changing the diameter from .06 to .12 of an inch.

5. A slow motion horizontal mechanism for the wind velocity scale to be provided.

6. Four concentric scales for the wind gauge with graduations diminished proportionally to the deviating components of 3:00 o'clock, 2:00 o'clock, 1:00 o'clock and 12:30 o'clock winds, with the movable index covering all four.

The ends of each scale to be stamped with the proper hours for all quadrants.

Such a sight would decrease the labor of preliminary instruction twenty-five per cent., and would greatly enhance the efficiency of green troops. Any man who can tell the time of day and can read could set such a sight for a ten-mile 1 o'clock wind, but it takes a great deal of instruction to convert deviating components according to the cosine of the angle of deflection, multiply the range by the constant of one point and divide the deviation thereby, or just guess at it, as is at present necessary. The mere putting of the clock face figures on the present wind gauge would save much error, as many men have difficulty in telling which direction to move the gauge for even a right or a left wind. Those men can all read.

SIGHTING TRIANGLES AT 100 YARDS.

Scale=1/5

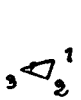
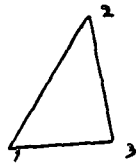
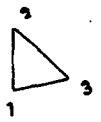
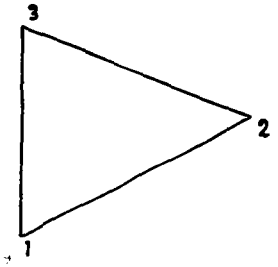
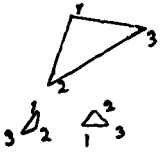
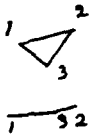
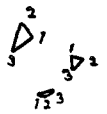
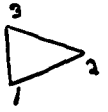
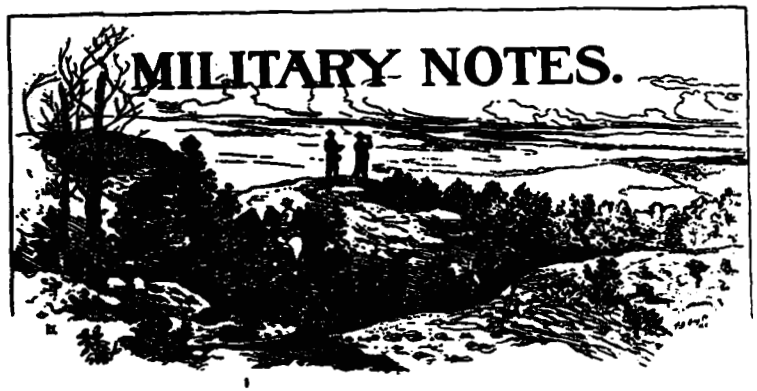
Name	.06 peep	Notch	Telescope
Recruit BRADFORD			
Recruit BAKER			
First Sergeant SPICER, Expert Rifleman			
Private HILL, Sharpshooter			

DIAGRAM 7.



CHIEF OF CAVALRY.

Shall We Have a Chief of Cavalry?

IS there a need in our service for a chief of cavalry? If so, how shall we proceed to have the office created and filled?

We have here two questions of vast importance to the cavalry. Who is to answer them with authority? Certainly not the infantry nor artillery. They are questions that essentially concern cavalrymen, and to cavalrymen we naturally look for the answers. If the artillery, when confronted with similar questions a few years ago, had not itself answered them, it would not have a chief to-day. It satisfied the War Department of the necessity for a chief of artillery, and forthwith the office was established. The experiment, if the application of so fundamental a principle in organization may be called an experiment, has given such rapid, splendid and abundant results that it becomes a valuable precedent to assist the cavalry in a similar enterprise. The

artillery broke the ice; it convinced a doubting Congress of the reasonableness of its proposition. The ford is still open, and there is nothing to prevent the cavalry from crossing except its own indifference and its willingness to camp on the wrong side of the stream. Let it once convince the proper authority, be it Congress or the President, that the efficiency of the mounted service demands that its energies be coördinated by a chief, and the necessary legislation or authorization will be immediately secured.

Army legislation and regulations, as a general rule, are intended to promote the best interests of the service and of the nation. If they sometimes fail in their purpose, is the army entirely free from blame? Congress and the President are necessarily guided, in matters affecting the army, largely by the recommendations of the War Department. If such recommendations are not made and persisted in with convincing repetition, the blame for unwise or insufficient legislation rests on the army. If the cavalry fails to present reasons why it should have a chief, but continues in its present apathetic attitude to this important matter and refuses to discuss it, it can not shift the responsibility for resultant inefficiency. Decidedly, it is up to the cavalry.

To the first of the questions proposed, the cavalry has but one answer. The cavalry needs a chief as surely as a troop needs a captain, a squadron a major, or a regiment a colonel. The answer to the second is as simple, and has been suggested in what precedes. It is, "Convince Congress." Indeed it may be necessary to convince the President only, for it has been pointed out by General Carter that the President has authority, without additional legislation, to create the position.

But how is Congress to be convinced? By the seven hundred and fifty officers in the cavalry, to say nothing of the large number of retired officers who have not lost interest in the service. Nothing could be simpler. A little thought and energy on the part of these officers, and a willingness to give the service the benefit of their views, are all that is necessary. The JOURNAL has offered its pages for such an exchange of ideas, and a few excellent articles have already

appeared. But the ideas of a few, no matter how excellent, are not sufficient. The views, pro and con (if there are any cons) of all or a majority of the cavalry officers are needed. Be certain that you help to form this majority. Such a series of contributions, expressing the deliberate opinion of the cavalry service, free from that element of personal interest which so often vitiates recommendations for army legislation, and inspired only by an honest desire to promote the efficiency of the service, could not fail to be convincing.

The later disposition of them can be safely left to the Executive Council of the Cavalry Association.

Shall we have a chief of cavalry? Let the cavalry decide.

X.

"A LESSON IN PICTURE," CONTINUED.

By Captain MATTHEW E. HANNA, Third Cavalry.

I WISH to suggest a slight modification of the hand tentatively adopted by the War Department in General Order 146. The order prescribes that the bights of both reins shall fall to the right of the horse's neck, *i. e.*, to the right of the right reins. With both bights falling together it is difficult to sort out a particular set of reins, and the result is confusion and uncertainty in emergencies demanding an instantaneous tightening of the curb reins. By allowing the bight of the bridoon reins to fall to the right of the horse's neck and the bight of the curb reins to the left of his neck, the two sets of reins are kept separate and distinct at all times, and the trooper knows just where to reach to find either pair. The reins fall naturally in this position if the bridoon reins only are held *under* the thumb, the bight of the curb reins passing out of the hand *between* the thumb and first finger. The hold on the reins is thereby made more secure and the hand does not feel so full of reins. The change may seem trifling, but my own experience of several years with bit and bridoon has convinced me of its great value.

The occasions when increased pull on the reins is necessary to insure the proper control of the horse often come without warning, and at such times the action of the rider must be swift and certain. Moreover, the trooper's right hand will not always be free to assist the left, and the teeth may have to be used instead. In addition, with the two sets of reins separated, and each in a particular place, the trooper may adjust the reins by "touch" alone, and the eyes need not be taken off the objective.

I believe the advantages of this change will appeal to any horseman at one trial, and I have not been able to discover any disadvantages.

THE McCLELLAN SADDLE.

Fort Keogh, Montana, November 16, 1906.

The Military Secretary, Department of Dakota, St. Paul, Minn.

SIR:—In reply to letter from your office dated October 31, 1906, relative to the present cavalry saddle, I have the honor to report as follows: This saddle as used by Troop L, Sixth Cavalry, has been subjected to the following severe and unusual tests since July 15th, last. First, ridden by fifty men on a continuous march from Crawford, Nebraska, to Maneuver Camp, near D. A. Russell, Wyoming, and return; total distance covered, 452 miles, half the trip, hot and dry and very dusty; returning, cold, snowy and wet. Gaits, walk and trot; saddles lay in shelter tents or on the ground when not in use.

Second, ridden by troop; average number present at daily maneuvers or drills mounted, forty-two men; average time used seven hours—all three gaits used; total distance covered, about 400 miles; country very rough and broken; weather varied.

Third, in campaign against Ute Indians, seventeen days; saddle ridden by forty-three men, daily use about ten hours, weather dry and cold; country broken, and on days when roads were not followed due to scouting, very rough; distance traveled, 374 miles; gaits, walk and trot.

The following facts are given in connection with this severe service the present saddle has been put to this year:

The saddle in no case rode forward on the withers in any manner to cause injury to a single horse or annoyance to his rider.

But one horse had a sore back, and that caused by the rider's pack being poorly adjusted. Not a single saddle was rendered unserviceable to a degree requiring the action of an inspector, and but a few minor breaks of different fastenings were noticed or reported by the riders. As the troop started in the mornings, the men were cautioned not to cinch too tightly at the outset, but examine saddle, blanket and cinch at first halt and adjust them to the horse.

The age and conformation of the troop horses differed to a degree giving a perfectly honest test, and the conclusion which I believe may be honestly drawn from the above facts is, that the present saddle is the only one that could have sustained the usage shown with such results, and that I do not believe if any saddle in Troop L had ridden forward and thrown the rider out of place, that the record of no sore withers could have been cited.

Very respectfully,

GEO. P. WHITE,

Captain Sixth Cavalry, Commanding Troop L.

CAVALRY EQUIPMENT.

(The following short articles on this subject are taken from letters addressed to Captain Charles D. Rhodes, Sixth Cavalry, who wrote an article entitled "Cavalry Equipment," which appeared in the April, 1906, JOURNAL.)

FORT DES MOINES, IA., April 18, 1906.

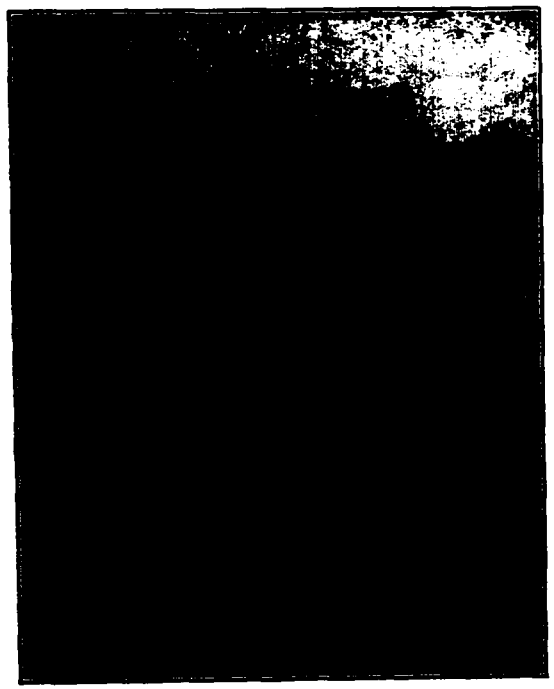
My Dear Captain Rhodes:

REFERRING to your article on "Cavalry Equipment" in the CAVALRY JOURNAL for April, I find in a footnote you misrepresent me, and I desire to set you right. If you will notice again my article in the JOURNAL for January, 1904, you will find that I do advocate the broken pack, so much so that after discovering the method described, I sent a description of the same to the Secretary of War, and it was by him referred to the cavalry board at Fort Riley some time in the fall of 1904. All troops which have tried it have never gone back to the method prescribed in Cavalry Drill Regulations. All of the Eleventh Cavalry, some of the Third, and Tenth and Ninth are using it, and I understand others have taken it up. All reports are unanimously in favor of its official adoption.

The absolute division of the pack into two equal weighted ends by the middle cantle coat strap, the lowering of the load, and the binding of the articles attached to the cantle rings; the reducing of the height to which the rider must raise his legs to clear pack (diameter at middle coat strap is two and one half to three inches); all of these make it so far ahead of the old pack that no one has thought of going back, having once tried my method. The nose-bag strap has to be lengthened about six inches, and then the strap binds the pack the same as in the old way. I had this done by my troop saddler in a day. This method is quicker than the old way, and the edges of the blanket do not get muddy, dirty or dusty when one is folding it.

My troop at a trot does not give the slightest motion to either lariat or canteen or tin cup. You cannot hear the

noise made by the equipment fifty feet away from the troop passing at a trot. I enclose a kodak, which will give you some idea of how it looks. Notice the pack on the horse, and how I carried the old style shelter tent poles. Notice the free open space under the cantle arch; also that the



THE VIDMER PACK.

height of pack is just as high as the cantle, and no higher. You will remember that the new style poles are hinged in the middle. I have none of these poles and so cannot give you a kodak of this pack with them, but you readily see, with the hinged pole, the solution of carrying is easy.

We believe that Captain Vidmer is entitled to the credit for the low pack. See JOURNAL, January, 1904. He did not name the above photo; and the label, The Vidmer Pack, is of our own volition and corresponds with the idea of the writer on the Fort Riley Maneuvers. See page 497, this issue.—[The JOURNAL.]

I have used this pack at all gaits, on long marches, and I speak from experience when I say that it is all right, and that the only disadvantage I have noticed about the complete cantle pack is the gleam of the tin cup. I am now working on this, and will be very glad to let you hear from me later on this subject.

We are all hoping that something like the Patterson carrier will be adopted, and that soon. The new rifle with its log-like scabbard absolutely prohibits the use of the left leg, and while I have been on no long marches as yet, I can not see how sore backs are to be prevented from its use, as now hung to the saddle. Another fact, the advance carbine or rifle is a relic of barbarism which ought to be done away with in short order. The pistol can shoot further and more accurately mounted, and the poor devil of a trooper on the skirmish line at a trot, with this new rifle, is a sight to melt the stoniest heart in the General Staff.

GEORGE VIDMER,
Captain Eleventh Cavalry.

* * *

My Dear Captain Rhodes:

Since reading your article in the CAVALRY JOURNAL about two months ago, I have been using the pack you suggest, and as all formations are with packed saddles, I have given it a pretty thorough test. Its advantages are as stated: The center of gravity is lowered, the weight is more evenly distributed, it is easier to mount, and it looks better. The principal, and, in fact, about the only disadvantage I find is that in close order the ends of the packs sometimes catch if there is any crowding in ranks. This, however, is a minor fault. I hope that it will be officially adopted.

I think that the worst fault in our equipment is the way in which the carbine is carried, and it will be worse when we get the new rifle. The method was of course originated by the cowboy, who carried the comparatively flat Winchester in that manner without trouble. With the carbine, and especially with the new rifle, carried in that manner, it is

almost, if not quite, impossible to make use of the leg as an aid. Besides, the weight comes on the pommel, which is bad. I believe that the English method is better than ours.

EDWIN B. WINANS,
Captain Fourth Cavalry.

* * *

FORT WALLA WALLA, WASH., April 23, 1906.

Captain Charles D. Rhodes, Sixth U. S. Cavalry, General Staff, Washington, D. C.:

DEAR CAPTAIN RHODES:—I have read with much interest your article in the CAVALRY JOURNAL on "Cavalry Equipment." As you are on the General Staff, you are no doubt in a position to improve matters in the contemplated revision of the Cavalry Drill Regulations. I therefore make a few remarks for consideration.

Should the bolt knob be carried next the horse or away from it? My squadron has for two years carried the bolt outward, and to me it is very satisfactory. If so contemplated, the boot as now made must be used bottom up. In other words, a different pattern should be made if the bolt is outward.

Regarding the carrying of the rifle bolt to or away from the horse, the first position seems to enable the trooper to draw the rifle from the scabbard quicker while on the horse, while the second enables him to draw it quicker while on the ground. As the latter is the position from which it is drawn for action nine times out of ten, it should, in my opinion, be sufficient reason for carrying the bolt away from the horse. The use of the rifle mounted is of doubtful value. Quicker and better results would probably be obtained by use of the revolver. Assuming that the saddle-tree is rigid, which it is so far as the load is concerned, the counterpoise of the weight of the rifle, which comes mostly on the near pommel, is on the off cantle, which is really where the load you propose is attached.

We most always carry the surcingle around the horse, and it would not figure in distribution of weight.

In making up load you should add eighty cartridges for rifle and twenty-four cartridges for revolver, also canteen should be filled. (G. O. No. 23 and No. 44, W. D. 1906.)

I have tried a good many ways to harmonize the orders with the equipments, but cannot. The nearest I can come is to fill the first pouch on right side of rifle belt with loose pistol cartridges, slip the pistol holster over the pouch and hook the suspender outside of it.

The long rear pack which you advocate I have been experimenting with on actual service conditions, and it meets with general satisfaction. I am told the Eighth Cavalry used it for a long time. Your arrangement of the lariat would not permit of its use on the firing line by holding the horse on a half lariat. However, I should regard such use as very exceptional, while the distribution is a matter that effects the efficiency of a command every day and every minute of the day while on the march. This distribution would seem to me to be as follows:

NEAR SIDE WEIGHT.		OFF SIDE WEIGHT.	
Rifle	9.09	Lariat and pin	3.03
Scabbard	2.81	Canteen and strap	1.00
Meat can	.95	Tin cup	.56
K., F. & S.	.38	Currycomb	.65
		Brush	.63
		Saber and scabbard	3 75
		Saber knot	.20
		Two (2) horseshoes	1.50
		Nails	.25
		Shelter tent pole	1.00
Total	13.23	Total	12.57

This does not consider the canteen filled, which would sometimes throw the preponderance of weight to the off, and other times to the near side, depending upon the amount of water in the canteen. This also assumes that the watering bridle is not used, contemplating the adoption of the bridoon bit recommended by the cavalry board, which abolishes the watering bridle; neither does this arrangement consider the question of rations, two (2) field and one (1) emergency, required by General Orders No. 23. The adoption of the long pack necessitates the issue of all tent poles in three joints.

It is noted that General Orders No. 23 prescribes wire cutters for infantry, but not for cavalry. The reason is not plain.

To permit the use of the lanyard, which is very important, troops should be supplied with revolvers with swivels in the butt. Those on hand without swivels replaced by those with swivels.

I note the bars of the English saddle project at least two inches farther to the rear than ours. This is a very valuable and important point which our people have failed to recognize. I hope something may come of this important subject. It surely will if it is hammered long enough and hard enough. Sincerely yours,

ALONZO GRAY,
Captain Fourteenth Cavalry.

* * *

My Dear Captain Rhodes:

I am just finishing your article on the "Cavalry Pack" in the CAVALRY JOURNAL, and want to tell you that I for one agree with you. The low pack is certainly preferable, and besides the reasons you mention, I think the fact of its being more nearly a part of the saddle when packed this way is no small consideration. Your mentioning the difficulty of packing the shelter tent pole this way made me think of a letter that I addressed to the Military Secretary some time since which might interest you, in which I recommend that we do away with the tent pole altogether and use the rifle for a tent pole and a cartridge as a peg. One of the reasons I gave was the difficulty of making a well riding pack with the tent pole in the pack.

EDW. L. KING,
Captain Second Cavalry.

COMMENT ON MAJOR GALBRAITH'S COMMENT.

The Editor, Journal of the United States Cavalry Association, Fort Leavenworth, Kansas:

It is observed on page 362 CAVALRY JOURNAL October, 1906, that it is recommended that the canteen be "fastened to the off pommel ring."

I wonder if the Major, author of the recommendation, has ever ridden at a trot or gallop with a canteen so attached? You will recollect that we had a short experience with that adjustment in the cavalry not very long ago, and of all fiendish punishments that, for a cavalryman, is the most cleverly devised. The constant beating of the canteen against the kneepan of the rider while at the faster gaits is certainly exquisitely cruel.

It is likewise suggested that the lariat be attached to the near pommel ring. How about the picket pin? I presume that that is to "bust" the left knee.

WILLIAM T. LITTEBRANT,
Captain Twelfth Cavalry.

THE VALUE OF PRELIMINARY DRILLS PRIOR TO TARGET PRACTICE.

BY FIRST LIEUTENANT E. H. RUBOTTOM, NINTH CAVALRY.

TO those who have handled firearms since early childhood, and who can scarcely remember their first experiences in hunting, it seems incredible that any man can arrive at maturity without ever having fired a gun. Nevertheless such cases among recruits are not at all uncommon.

The average man that has been accustomed to using firearms finds that the aiming and sighting his piece becomes a second nature, and he probably never reasons why he uses a certain kind of sight. He knows that he hits the mark, if by practice he has become sufficiently expert.

However, in the instruction of men, very few of whom know anything about firearms, it is necessary to begin with first principles. The drill laid down by regulations are absolutely necessary to obtain any results with untrained men; and men who are well trained in the use of firearms find the prescribed exercises very useful in that they afford the eye, the arm and the trigger finger that practice and exercise which are necessary to make and maintain skilled marksmen.

The preliminary drills do two things: First, they teach the soldier how to aim his piece; second, they develop the muscles used in aiming and firing and in taking the different positions.

Gallery practice is also important, as it helps to keep the soldier's interest and affords an opportunity to apply the principles taught in the preliminary drills.

To illustrate the value of the preliminary drills, I will cite the case of Troop I, Ninth Cavalry, during two successive target seasons.

In 1904 the troop had no opportunity for preliminary drills, having been ordered to take the field before these could be held. Immediately upon its return to the garrison target practice was held, which, for lack of time, had to be completed as soon as possible. There was only time enough for the prescribed range work. The result was that only one of the best shots qualified as marksman, three of the old soldiers were first classmen, there were twelve second classmen, and the remainder were third classmen.

In 1905, after having spent considerable time in preliminary drills and gallery practice, the target work by practically the same men as in 1904 resulted in obtaining one expert rifleman, ten sharpshooters, nine marksmen, fifteen first classmen, fifteen second classmen, and thirteen third classmen. The third classmen were mainly recruits who had joined too late for the regular preliminary drills, and a few hopeless cases, such as are found in every troop.

This difference may have been due to a difference in the target ranges and conditions of weather; but inasmuch as the range used in 1904 is one on which division competitions are annually held, and is considered an excellent range, I believe the poor showing made that year was due almost entirely to lack of instruction and practice in the preliminary drills.

We have about come to the conclusion that any troop or company commander that waits for the main part of the firing instruction to be given after the troop or company has marched onto the range, should be tried by a general court under the 15th Article of War. It is now generally conceded that men can be taught to be good shots without having fired a service charge. The main work of range practice is to overcome flinching.—[THE JOURNAL.]

FROM THE NATIONAL GUARD.

* * * * *

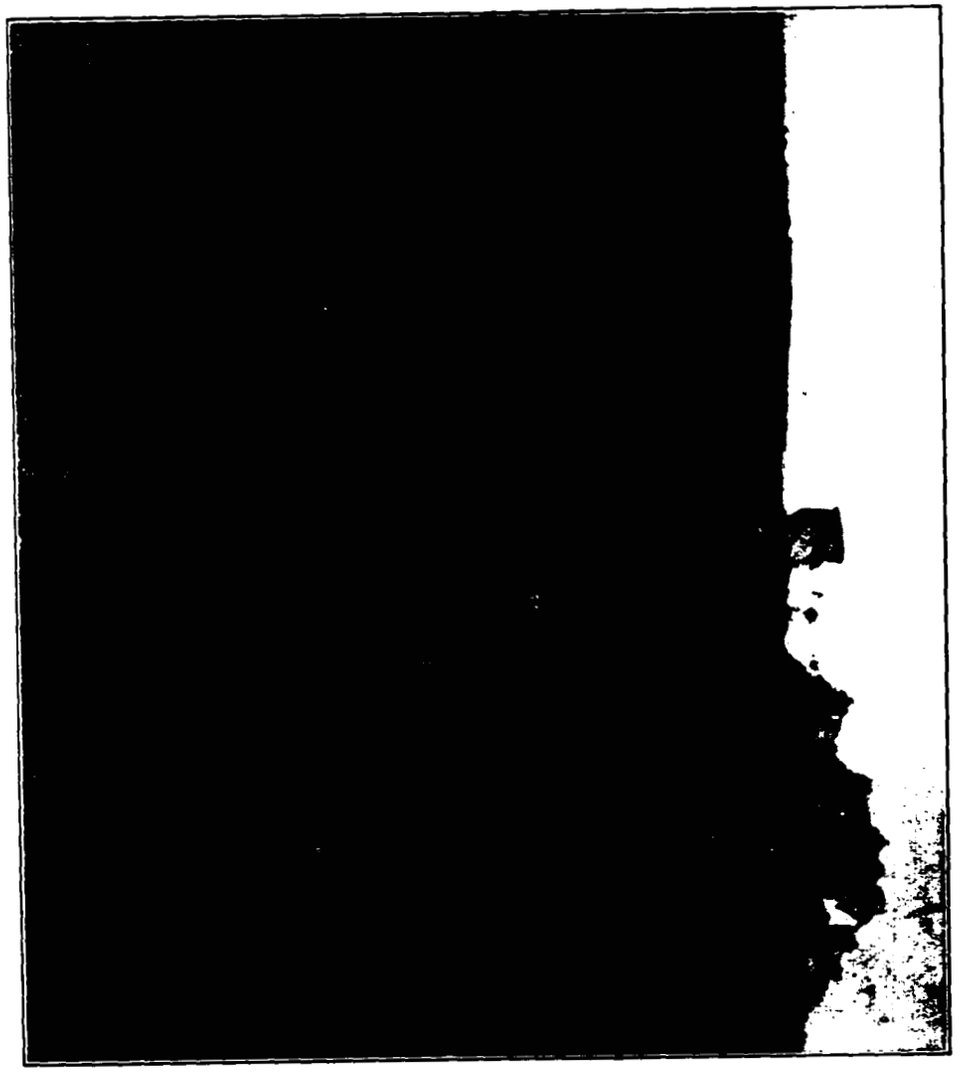
I WENT on a Southern trip with the First Infantry. You may have read that they participated in the dedication of the memorial to the memory of the Illinois soldiers who took part in the siege of Vicksburg. The first stop was at Jackson, then two days at Vicksburg, a short stay at Baton Rouge, a day or two in New Orleans, and finally at Memphis.

The notable thing which I learned on the trip was a practical method of feeding soldiers en route. Two sixty-foot baggage cars were employed, the forward one being divided into a commissary store house, carving and serving room and kitchen; the rear one being used as a mess car, and had a capacity for seating seventy-three men. The feeding of the entire command was accomplished in three shifts, and required about one and one-half hours. Naturally, the variety of food was limited, but it was all wholesome and well prepared. The price charged by the contractors was twenty-five cents a head.

It worked out very well, and, in my opinion, is the practical solution of the feeding of troops while en route. All the disagreeable features of feeding in cars are eliminated, and the men have the great advantage of having at least two hot meals a day.

I believe that in the case of the movement of large bodies of troops, the cost could be cut down considerably. For 700 men, where the equipment had to be especially installed, the price of twenty-five cents per man, in view of the food served, did not seem exorbitant.

WILLIAM J. FOREMAN,
Colonel First Illinois Cavalry.



GOLDENROD.

Age.—Four Years.

Color.—Golden sorrel (no white).

Grandsire.—Vanderbilt, a well known West Coast horse.

Dam.—By Vibart, Wallow Valley, Oregon.

Owner.—Veterinarian JOHN TEMPANY, Ninth Cavalry.

Rider.—Captain W. C. SHORT, Thirteenth Cavalry.
Master of Equitation, Fort Riley, Kansas.

Editor's Table.

HOW LONG, OH LORD, HOW LONG?

Our newspapers are becoming variously affected by the recent wage-increasing movement. The statement of the Chicago *Journal* that "the people are prosperous beyond anything in history" is quite acceptable, as it is true. One of the happy results of this prosperity is that millions more are to go in wages. It is believed that a contagion is to follow the action of the Pennsylvania Railroad, which has advanced the wages of its 165,000 employees to such an extent that about $12,000,000 annually are to be added to the operating expenses of the road. We find in our dailies of almost every issue lately notices that other railroads are advancing wages at varying scales, usually a ten per cent. advance for the under $200 per month employees, and a somewhat less per cent. advance for those above that figure.

It is also said, wonderful to relate, that the Standard Oil Company has decided to raise the wages of its 60,000 United States employees, and rumor credits the Amalgamated Copper Company and the United States Steel Corporation with similar intentions.

Surely this advance in wages falls like the dew of Hermon upon the wage earners, who must have viewed with utmost alarm the continually increasing cost of living. We need no dotted charts or tabulated statements of our periodicals to convince us of the growing cost of the necessities of life. As officers of our nation's army we are not so familiar with the changes of price in the luxuries of life, but we certainly are conversant with all matters pertaining to the necessities thereof.

And we find this increased cost of living striking us at a time when we are put to much greater expense than ever in the past by forced changes of station, that move us, on an average of twice in every six years, half way round the globe. And even the expense of transporting our families is here greatly increased by the bill which Congress wisely framed to suppress discrimination in rates. To this comes the added expense of running two establishments, one for ourselves in the Philippine Islands and the other for the wife and mother who remains in this country to properly educate the children. This latter is a necessity, for the educational facilities afforded the children of American parents in the Islands is best represented by the absolute zero of the chemist.

To go more deeply into the matter, the old type of the frontier post, with its small running expenses, has, with other types of our frontier life, disappeared into history of the past. The brigade or regimental post has replaced the old and brought with it its larger quarters and all attendant costs. It is expected of our profession that gentlemanly and genteel appearances shall always be presented by our officers. And our nation, would it pause to think, would not care to have the past record of its army and navy officials changed in this regard.

But to think that under present conditions army officers can hope to maintain the appearances, such as comparatively they could a few years ago, is beyond all reason. While our salaries remain the same, our expenses have increased at a rate that probably the most conservative would place at forty per cent., while it is not unfrequently heard from officers that it costs them now twice as much to live as it did fifteen or twenty years ago. As stated above, some of this is due to the conditions that are forced upon us by the new development as a world power, while the rest is what has been found by all salaried employees, increased price of living necessities. It is plain that unless these prices change, or the other corollary, an increase of salary, be adopted, the army officer is shortly to be placed where, in fact, many of them now are, in that most miserable, most soul-racking and happiness-destroying position of genteel poverty.

We find to-day many officers who are loath to accept stations in our large cities, and we have heard of capable officers declining positions on the General Staff because they feared the cost of living in our national capital, remembering the small amount of their monthly stipend.

The condition is serious and, as the action of the business world indicates a belief in the continuance of the national prosperity, there remains but one solution to the difficulty, namely, an increase in salary.

As to the enlisted man and his pay, the remarks of General Funston are axiomatic. One needs to ask but the same question as he does. "Where are our enlisted men to come from when the advantages of civil life are so disproportionately greater."

It is evident to the thinking man that the present trend of national events is in a direction that calls for an efficient army more than at any time in our history. But it is futile to suppose that the army can in the future secure the same class of men it has in the past under the changed conditions of increasing salaries and greater opportunities of civil life.

TIME REQUIRED TO MAKE A SOLDIER.

Colonel Pollock, of the British army, and his *Spectator Company* appear to have created a great deal of comment in the English press. As near as we can arrive at the Colonel's scheme, it was an attempt to prove, by working one hundred raw men, that soldiers can be made in much shorter time than is required in the regular establishment for that purpose. These hundred men, "keen as mustard," were given ten hours a day as their normal period of work. They commenced training on the same day, possessing the same amount of military knowledge, or as the *Broad Arrow* states, the same amount of lack of military knowledge, had no garrison duties to perform, and only a minimum of fatigue. Colonel Pollock thinks he has demonstrated by this means that the training of the soldier in drill and shooting requires

only months, where under the regular army way the same requires years. He thinks he has completed the training of a company in six months so that it will compare favorably with any regular company selected at random from the army.

Suppose he has. He has simply demonstrated something which every soldier admits to be possible, given a certain set of conditions to start with. But the conditions were not, and never can be, service conditions. The experiment was not only useless, it bordered on folly, for with conditions that can never be approximated in service it gave results that are entirely misleading to civilians. The average civilian knows little of the daily work of the army, and when he comes to learn something of the mass of routine he is very much surprised. With his lack of knowledge he looks at Colonel Pollock's experiment and sees no reason why the same cannot be done in the regular establishment. It places our profession in a false light, and makes the citizens of a country believe that soldiers can be manufactured in a few weeks amply able and competent to defend the homes or carry out any policy adopted by the government.

We know how our organization commanders and also how our post commanders strive to place the maximum number of men upon the drill lists for daily instruction, but we also know how this maximum amounts to but little more than fifty per cent. of the organizations even under specially fortunate conditions. Whatever may be desired in the way of having soldiers who shall have nothing to do but fight, we know they must work and take care of themselves. Army service corps are desirable, most assuredly, but to believe that they ever will be forthcoming for all the work of the army is to approach millenium conditions long before the financial resources of any nation will permit it.

Moreover, in the Colonel's experiment the trial was watched by the public with special interest. And men who are in a special trial will evince far more energy and zeal than those whose duty is a part of their usual daily routine.

It is true that at the outbreak of a war we shall receive recruits much more enthusiastic and full of zeal than are our

ordinary peace time recruits. During the Santiago campaign it was our misfortune to constitute a part of that force upon whom the general at the front must place the utmost faith and reliance. We refer to the force that remains at home, and is supposed to furnish the fighting line with competent men to replace casualties. Keen as was our disappointment, we set to work with zeal, hoping, as some officers of much higher rank did at the same time, that we would be in at the death at the siege of Havana.

We must say that the first few weeks of training was marvelous, and the progress of the new men, put into skeleton troops and into the reserves of the organizations in Cuba, was beyond our wildest hopes. It seemed that in three weeks the Tampa Horse Holders had a force that could compare favorably with the parts of the regiments that had gone on before.

But it shortly became evident that the war with Spain was over. There would be no siege of Havana nor any other work for the recruits at home. The only thing for these disgusted men to do was to sit down and wait for General Orders No. 40. Enthusiasm died away, the plague of flies brought on typhoid, and life at Tampa during the months of July and August was the most veritable hell that the American army has had since the terrible days of the Civil War.

Then our eyes became opened to what was seemingly a competent force, and how little comparison there was between it and the seasoned regulars that formed Shafter's army. It is simply a question of experience and discipline. And though Colonel Pollock's *Spectator Company* drill ever so well, their work in active campaigning will be of small percentage when compared with the men inured to discipline and pregnant with the traditions of military life.

All of which goes to show the absolute truth of the every contention of our esteemed contemporary and club companion, the *Infantry Journal*, that "it takes a very high degree of training on the part of officers to handle infantry in battle, and a very high degree of peace training to bring the foot soldier to such a standard of *esprit* and discipline as

will enable him to cross a fire-swept zone and win the battle under modern conditions, and that this training and discipline can be obtained only by long, systematic and earnest work on the part of officers and men."

No one can be more firmly convinced of the need of time to complete a perfect soldier than is the CAVALRY JOURNAL. And we were fully cognizant of the ideas in the mind of the *Infantry Journal*, in its contention as to the "popular fallacy that it took longer to make a cavalry soldier than an infantryman." We know that our esteemed contemporary had in mind all the details of the subject, and was considering the months that can and must be spent to develop the marching ability of the soldier, the training of muscles to such perfection that long marches of twenty and twenty five miles per day would become but an easy daily task, to be repeated from day to day as long as the stern necessities of active operations require. So we were not confusing "infantry of proper training and discipline with infantry that is so untrained and undisciplined as to permit to cavalry opportunity other than that found in scouting and *quasi* infantry duty." We had all those things in mind when we made our remarks about faulty eyesight that led to the conclusion that it takes no longer to make a soldier and mount him than it does to make a soldier and not mount him.

We are willing to accept the remarks of our contemporary, however, that we were mistaken in putting only one weapon on the infantry side of the line, and that the bayonet and intrenching tool should be placed there. This matter we must say we overlooked. While we have served at posts with infantry we must have been most unobserving in not noticing the hours spent in bayonet practice and ditch digging. And so we are glad to make this correction in our tabulated list, offsetting the bayonet against the saber (though it is said that the cavalry may be armed with the bayonet, whose value, however, is a theoretical matter of speculation). This still leaves the cavalry with the pistol and horse as against the intrenching tool. Now it may take a man as long to learn how to dig a hole in the ground as it does to shoot a pistol and ride a horse, but we must say

there will have to be an awful correction in glasses to make us see it that way.

Certainly in matters of discipline and men training there is no requirement in the infantry that is not duplicated in the cavalry, unless we grant the idea that the infantryman must be trained to make his long marches. But that this should offset the greater amount of labor involved in the mounted service as compared with the dismounted we are not ready to believe.

As for our contemporary's remarks about the cavalry in the Russo-Japanese War, we had been under the impression that that war conveyed little information about cavalry except how not to use it, and to more properly understand the absolute need of efficient cavalry. In our own Civil War we learn little about the proper use of cavalry until near the close, when its proper use began to be understood. And we dare say any war will always show a greater relative danger to the infantryman than to the cavalryman, though we doubt that in any future war, where cavalry is properly handled, we shall hear the old Rebellion slur, "Who ever saw a dead cavalryman?" But this does not mean that the same amount of courage, and discipline to maintain this courage, is not required of the cavalryman as of the infantryman, even though the latter must cross fire-swept zones that look annihilating. For scouting in small parties to the front requires a degree of courage even in excess of that where masses are being mowed down. As Macauley says, the physical courage to face danger is possessed by most men, and he means men acting in concert. But the patrolman, alone and in advance of his post or picket, has not the encouragement of comrades at his elbow, but must take his chances alone for his life, which is as dear to him as are the lives of his brothers in the other arms to them.

However, all this matter is beside the point. What we all desire is an efficient army. Heaven forbid that any remarks of the CAVALRY JOURNAL should be understood as tending to lower the standard by which infantry or any other branch should be measured. Only by hearty good will and coöperation can any measure of success be attained in

any army. No one is more ready than the CAVALRY JOURNAL to give the infantry its due, as the major and most important part of any army. It is the trunk to which all the other branches are but the limbs. And the harmonious action of a body in all its members is the only means by which success can be secured. We, for one, are most sorry to see even changes in our drill regulations that lead the separate branches of the service farther away from each other. We had hoped that one of the results of our General Staff would be an assimilation of duties and commands in infantry, cavalry and artillery, and we trust that this matter will soon receive the attention it deserves. It seems that the Signal Corps is becoming a really efficient system of nerves, both afferent and efferent, and "team work in war" can be secured with so much more ease when assimilated commands and orders are the ones to be understood and obeyed.

RESPECT FOR THE UNIFORM.

COMPANY K, EIGHTEENTH INFANTRY,
FORT LEAVENWORTH, KAN., October 27, 1906.

The Military Secretary, United States Army, Washington, D. C.
(Through Military Channels.)

SIR:—I have the honor to inform you for such action, if any, that the War Department may deem necessary, that on the 15th day of October, 1906, Sergeant Joseph A. Selby, and on the 16th of October, 1906, Sergeant Thomas A. Johnson and Corporal Lewis M. Willis, noncommissioned officers of my company, were refused admittance on account of their uniform to a skating rink, a public place of amusement, kept by E. C. Eads, at 423 Delaware Street, Leavenworth, Kansas.

These men were neatly dressed and sober. When they presented themselves at the ticket office and offered to buy tickets they were told that they would not be admitted in uniform, but would be admitted if they put on their civilian clothes.

In a talk with Mr. Eads after the occurrence he admitted to me the facts in the case, and gave as his reasons that the people of Leavenworth would not patronize his place if soldiers were admitted.

I would suggest that this letter be published in the Leavenworth papers.

Very respectfully,
M. MCFARLAND,
Captain, Eighteenth Infantry,
Commanding Company K.

* * *

[FIRST INDORSEMENT.]

FORT LEAVENWORTH, KAN., October 29, 1906.

Respectfully forwarded to the commandant of the service schools, requesting an expression of his views. It is very unfortunate and to be deplored that the uniform of the nation's army should be held in such lack of esteem by individuals in this community, and it is to be hoped that some means be found in correction.

WM. PAULDING,
Lieutenant-Colonel, Eighteenth Infantry,
Commanding.

* * *

[SECOND INDORSEMENT.]

U. S. INFANTRY AND CAVALRY SCHOOL, SIGNAL SCHOOL, AND ARMY STAFF COLLEGE.

FORT LEAVENWORTH, KAN., Oct. 30, 1906.

Respectfully returned to the commanding officer, Fort Leavenworth, Kansas.

I do not know of any law that can compel the keeper of a theater, saloon, dance hall, or skating rink, to admit, against his wishes, any person, soldier or civilian, well behaved, who seeks admission, even if the place is public and the cost of entrance is tendered. The legal status of such places is different from that of a hotel, where entertainment

cannot be refused unless for lack of accommodation. The fact that soldiers, sober, well behaved, and properly dressed in uniform, have been refused entrance to a public place in the city of Leavenworth on the ground that if allowed to enter "the people would not patronize the place," should be brought to the public notice of these people, so they may be given an opportunity to refute such an assertion if it is not true. If it be true, then steps should be taken to divert the patronage of the post to other channels than those of this city, and application made to the War Department that no more troops be sent here. It is not believed that the people of Leavenworth will countenance the action of this Mr. Eads, for it is a fact beyond dispute that a very large part of the working people here, as well as many merchants, are dependent upon the patronage of the post for a living. A well behaved, sober, and properly dressed soldier, wearing his uniform, should be freely admitted to any public place, and welcomed as our citizens. My experience is that, as a rule, such soldiers are better behaved and more self-respecting than the same number of civilians from the corresponding class in life. I suggest that a copy of this paper in full be sent to the editor of the Leavenworth *Times*, with the request that he publish the same, and then, if the people of Leavenworth sustain the action of Mr. Eads, the original be forwarded to the War Department for proper action.

CHAS. B. HALL,
Colonel, Eighteenth Infantry,
Commandant.

The publication of Colonel Hall's views and his evident intention to take spirited action if the people of Leavenworth should countenance Mr. Eads' action, resulted in bringing before the Colonel a delegation of twelve prominent citizens of the City of Leavenworth, among whom were the mayor, the city attorney and the editor of the Leavenworth Daily *Times*.

The result of this visit can be gathered from the following:

LEAVENWORTH, KAN., November 9, 1906.

Colonel Chas. B. Hall, Eighteenth U. S. Infantry, Commandant of United States Infantry and Cavalry School, Ft. Leavenworth, Kansas.

DEAR SIR:—The committee of merchants of Leavenworth City, including the mayor and myself, that called on you on last Tuesday to talk over the matter of one Mr. Eads, who is the proprietor of a skating rink in Leavenworth City, in relation to his objecting to a soldier coming to his place of amusement in his regular U. S. A. uniform, met at my office on last Wednesday and requested me to write you in regard to some later incidents to this matter, that have been reported to them as having taken place. They have been informed that Mr. Eads in person has seen you or has communicated with you by letter, making an apology satisfactory to you in regard to him prohibiting soldiers in the U. S. A. uniform entering his place of amusement.

This committee desires to hear from you directly as to whether Mr. Eads has seen you or written you and made any apology in regard to this matter satisfactory to you or not. The committee are not satisfied in hearing this matter from Mr. Eads, or some of his friends, but desire to have you inform them if the matter is settled satisfactorily to you. Even if the matter has been satisfactorily adjusted with you the city authorities intend to and have started the preliminary proceedings to have Mr. Eads' place of business examined as to its safety, in case of fire, or to have people congregate in the place, or whether the building is safe for the purpose of a skating rink. This matter will be carried out in detail as to whether the matter has been satisfactorily adjusted with you or not. But if the same has not been satisfactorily adjusted the city will proceed immediately to have the license ordinance amended so that the license for running a skating rink in the city will be greatly increased. At your convenience you can write me as to whether this matter has been satisfactorily arranged with you by Mr. Eads or not.

Yours respectfully,
F. P. FITZWILLIAM.
City Attorney.

U. S. INFANTRY AND CAVALRY SCHOOL, SIGNAL SCHOOL, AND ARMY STAFF COLLEGE.

FORT LEAVENWORTH, KAN., November 13, 1906.

Mr. F. P. Fitzwilliam, Attorney and Counselor at Law, Leavenworth, Kansas.

MY DEAR SIR:—In answer to your letter of the 9th inst., I take pleasure in informing you that Mr. Eads did call upon the commanding officer of the post of Fort Leavenworth and myself in the matter of his having refused admission to certain soldiers to his skating rink in the city of Leavenworth, and informed us that he had been laboring under a false impression, that he had been poorly advised, and admitted that he had made a serious mistake in the matter. He stated in our presence that he would withdraw any restrictions that had been made, and wrote us a letter, a copy of which is enclosed herewith, and which you can keep for file in your office.

We consider the incident closed, and will continue closed until new developments may arise.

Thanking you and the committee for your attention to this matter, which has resulted so satisfactorily to all of us, I remain, Very sincerely yours,

CHAS. B. HALL,
Colonel, Eighteenth Infantry,
Commandant.

GLOBE BOWLING AND BILLIARD PARLOR,
423 DELAWARE STREET,
LEAVENWORTH, KAN., November 7, 1906.

The Commanding Officer, Fort Leavenworth, Kansas.

SIR:—I have the honor of extending my courtesy to the officers and enlisted men of your command, and would say that with due respect to all, that at any time my skating rink is open to the public, that the uniform of the United States army will be admitted at the same price as any one else

Respectfully yours,

(Signed) E. C. EADS,
Proprietor.

A true copy:
W. H. GORDON,
Capt. and Adjt., 18th Infantry.

BOOKS ON THE RUSSO-JAPANESE WAR.

We are pleased to direct the attention of our readers to the review of Chasseur's work in this issue of the JOURNAL, page 590, by Colonel James G. Harbord, Philippine Constabulary (captain Eleventh Cavalry). It is possible that we shall have to look to the French for the best works on this war. It would seem that the relations of France and Russia would offer the officers of the former nation opportunity for personal observation during the war that was not enjoyed by those of other nations. True there was an Anglo-Japanese alliance, without which Japan could never have hoped for success, unless, by some other means, she could have succeeded in rendering inoperative the two nations that prevented her reaping the fruits of victory over China in 1894. But we are under the belief, shared by attachés and newspaper men, that British officers with the Japanese armies shared little better than those of other nations as far as observation of movements and inside information are concerned.

General Hamilton tells very pointedly what amount of inside knowledge he gained, and his remarks upon that subject are recalled to our readers, who may remember our review in last issue upon the General's work, "A Staff Officer's Scrap Book." We dare say the French officers were in closer touch with the Russian ideas than were ever the British with the Japanese. And so we are not surprised that Frenchmen write more intelligently about this war at the present time.

* * *

We wish to call the attention of our readers to a small book by the talented French general, De Négrier. It is a small book of eighty-three pages, but we have seen nothing on this war more replete in every page with lessons for military men. Its very title is descriptive of what the book is, "Lessons of the Russo-Japanese War," and it does not belie its title one particle. On receipt of this little work we picked

it up from the table in a spare moment, and never dropped it till we had finished the eighty-three brilliant pages. Then we turned it over to the instructor of Military Art in the Staff College, and he used it for short readings to the staff class, many, if not all, of whom immediately ordered the work.

Many volumes will be ordered for the Staff College library, but the modest price, 2s. 6d., place it in reach of all. It is a book that should be read by every officer in the American service, and we particularly direct the attention of cavalry officers to the book. They will find much to ponder over, and the work should set them to thinking very deeply.

It is almost impossible to pick out any particular portions of the book that are better than others, but we shall make a few selections to show the General's method of handling the subject, and to give an idea of the remarkably clear and pointed style. There is no table of contents, nor is the book divided into chapters, but the pages run on one after the other in a beautiful sequence that captivates and holds till the end is reached.

We have first a few remarks on "General Bearings on Future Campaigns," followed by the subject of the "Russian Cavalry." Then several pages are devoted to the "Functions of Cavalry." This is discussed under three heads, namely: "Reconnoissance," "Cutting Enemy's Communications," and "Cavalry in Action." These remarks on "Cavalry" are followed by a couple of pages on "The Japanese Plan of Campaign." We quote from pages 35 and 36 to show how the lessons of the war are brought out by this remarkable work:

"The Russian cavalry, unable to pierce the screen, found it impossible to obtain any reliable information. So completely were they baffled in this respect that General Kuropatkin believed that on this side he had only to deal with an unimportant demonstration. Even on March 6th he still sent reassuring dispatches to St. Petersburg, for along the whole of his front, from the south of Mukden to as far east as Tita, a distance of fifty miles, the Japanese had everywhere been repulsed with considerable loss. On the evening of the 6th,

however, the real danger became apparent. The army of General Kaulbars had been forced to change its front, while still actually engaged, thus giving proof of its remarkable cohesion. The Japanese were only able to make headway against it to the extent of little over three miles. By the evening of the 9th, however, the battle was definitely lost.

"Why did not the Russian cavalry take action as a whole, and use their firearms, like Sheridan's Horse at Five Forks? All might then have been saved. It would have hampered General Nogi's movement, and given General Kaulbars time to re-form his troops in échelon facing south. The Japanese attack, forced to extend instead of contracting, would have become exhausted, and a Russian victory might then have become probable. But another point of view has to be considered. An army on the defensive is obliged to retain a number of reserves. At the commencement of a battle, in fact, it is difficult for it to foresee the particular point upon which the enemy's principal efforts will be brought to bear. The great resisting power of the fighting front tends to cause the reserves to be placed at the wings, and it becomes all the more necessary that they should be so composed as to be able to intervene in time. In consequence of the enormous extension of the fighting front, infantry, which are unable to get over the ground faster than two or two and one-half miles an hour, cannot any longer properly fulfill the duties of a general army reserve, much less those of the reserve of a group of armies. Henceforward these duties belong of necessity to the mounted arm. Two or three divisions of from 6,000 to 8,000 cavalry, good marksmen, provided with pom-poms, guns, and howitzers, will allow the general-in-chief commanding either to repulse an attack or to bring about a decisive result at the right moment."

On page 38 we find the following, under the heading of "What Might Have Been:"

"Admitting that events were what they were, Mukden would have been nothing more than a battle lost without disaster. The retreat ordered on March 8th was carried out, we know, in perfect order by Linievitch's army to the east,

as well as by Bilderling's left. On the 9th, however, a gap having been allowed to open between Bilderling's right and the left of Kaulbars, a Japanese detachment provided with artillery dashed through it towards the north and opened fire upon the rear of Kaulbars' troops while they were facing west. This it was that caused the disaster. It was here that the greater part of the 40,000 prisoners were taken. The 3,000 or 4,000 cavalry in reserve at Mukden, rapidly sent to block the gap or to sweep out the Japanese detachment, the strength of which was comparatively insignificant, might have saved the situation."

Now follows a discussion of "The Japanese Cavalry," and then "Artillery." From the first few lines on the subject of "Artillery" we quote as follows:

"The advances made during the last few years in the construction of artillery have created an impression that the part it will play in the battles of the future must be absolutely decisive. It will be nothing of the kind. Its part will be important, but not conclusive."

The reasoning convinces, in the following pages, that the General knows what he is talking about. Any officer that has not carefully weighed the importance of the artillery, and the great amount of transportation required for ammunition, is far from being up to date or even fairly well read.

Next the General pays his compliments to "The 'Positionist' Heresy," and does it in good trenchant style. We next have a page dealing with the lessons of "Trenches and Covers." He states in this regard that no lessons are to be learned from the Russian tactics. With regard to the Japanese it is quite another matter. And some pages are then given up to the subject. On page 64 he starts a lesson from Liao-Yang, and quotes from a former French officer who had just seen more than a year's service as a volunteer in a Boer commando, and afterwards became an amateur war correspondent in the army of General Oku, following the firing line of one of the most sanguinary episodes in the battle of

Liao-Yang. He gives some three or four pages of this correspondent's writing.

The author is now nearing the end of his lessons. Under the subject of "General Tactics" we find some of the lessons as follows, clipped here and there from the reading matter: "To march and attack by night, to shelter in earthworks by day; such are the essential characteristics of the tactics actually forced upon us by the efficiency of modern firearms. In the offensive the intrenching tool is now indispensable to every infantry soldier. He should be practiced in digging while lying down, so as to lower himself gradually into the ground until he is sufficiently sheltered. * * * The general form of attack has never varied. * * * The Russo-Japanese War has demonstrated once again that by offensive tactics alone can victory be assured." Under the head of "Changes Essential," he discusses cavalry, artillery and infantry. We wish every cavalry officer in our service would read the few pages devoted to essential changes in cavalry. It is sufficient to say the General believes the shock action of cavalry obsolete, and that dismounted fire action is largely its rôle. He believes in mounted infantry, but his remarks, that scouting must hereafter be done by experts, shows him wide awake to the necessity of a most carefully trained body of cavalry of large numbers. He wants all cavalry armed with machine guns, preferably of the Danish pattern, and we call attention as regards this matter to the article furnished the JOURNAL upon that subject by Colonel Macomb, in this issue, pages 443–452.

"As regards the tactical part cavalry is called upon to play, it must now be regarded as the arm which allows an officer commanding in chief to move, with the maximum of rapidity, the rifles, guns and machine guns to any point where he wishes to produce a special effect, or to guard against any threatened danger. Thanks to the swiftness of their movement from place to place, bodies of cavalry must play a dominant part in the battles of the future. They will form the reserves which a general will have at his disposal, and with which he will be enabled to carry out his

tactical surprises. With the enormous fighting front of modern battles, no other arm can arrive in time to produce effects of this kind. By its fire suddenly opening upon an unexpected point it will change retreat into rout. Then, mounting once more to pursue, it will utilize the horse as its weapon no less than the traditional cold steel, to reap more trophies than it ever garnered in days of yore."

In his general conclusions, he states:

"In formulating the conclusions my object has been simply to call attention to the essential characteristics of the late war. Many other lessons might be drawn from it, such as the particular disposition of the troops necessary for reinforcing the fighting line in battles of several days' duration, the distribution, actual position and intervals of reserves, both in the offensive and defensive. All these, however, may be inferred from the facts already discussed.

"It is for the high military authorities to analyze the details. On the whole, however, it is evident that the Russian soldier still retains those qualities of steady pluck and staunch endurance which excited the admiration of Napoleon; and, on the other side, that the extraordinary energy—physical, moral and intellectual—of the Japanese has justly challenged the amazement of the world. It was, indeed, an impressive object-lesson in the overwhelming influence exercised by moral forces—unconquerable self-reliance, devoted patriotism, and chivalrous disregard of death. It is now universally recognized that the individual courage of the soldier has never shown itself more predominantly than in his use of the deadly weapons which modern science has placed in his hands."

This is a book we hope our officers will buy, and its price will allow anyone to be the owner. It is published by Hugh Rees, Ltd., 124 Pall Mall, London, S. W. It will also be obtainable from the Secretary of the Staff College, Fort Leavenworth.

The JOURNAL'S list of books and magazine articles upon the war now stands as follows:

On the causes:

The Russo-Japanese Conflict. (Asakawa.)

On the War:

From the Yalu to Port Arthur. (Wood.)
The War in the Far East. (The Military Correspondent of the *Times*.)
A Staff Officer's Scrap Book. (Hamilton.)
Lessons of the Russo-Japanese War. (De Négrier.)
Articles in the *Outlook*. (Kennan.)

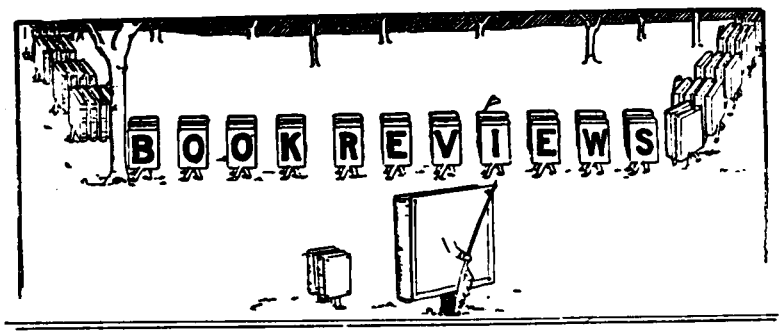
For Comparison:

The Chinese-Japanese War. (Vladimir.)

All of the above have been carefully reviewed in the JOURNAL.

The *Outlook* has not as yet published Kennan's articles in book form.

Asakawa's book can be purchased from Houghton, Mifflin & Co., for $2.00; Wood's and Vladimir's from the Hudson Press, Kansas City, Mo., for $1.50 each; The War in the Far East, from E. P. Dutton & Co., New York, for $5.00; Hamilton's, from Longman, Green & Co., New York, for $4.50; De Négrier's, from Hugh Rees, 124 Pall Mall, London, S. W., for 62½c.



A Study of the Russo-Japanese War.

"A Study of the Russo-Japanese War," by Chasseur. Among the volumes dealing with the Russo-Japanese War, there is no summary of this struggle that the writer has seen which so well presents its broad issues as this one Its author writes in terse, soldierly style, with the authority of one "having an intimate knowledge of the theater of operations and of the armies of both belligerents." Besides personal knowledge of theater and combatants, he has made use of "all available information," his list omitting none of the familiar books except General Ian Hamilton's "Staff Officer's Scrap Book," to which some think Chasseur stands in the same relation that he does to the subject of this review. Perhaps time has not afforded the proper perspective to historians of this war, but the work of Chasseur carries conviction of the correctness of his information and the accuracy of his conclusions.

Undoubtedly much of the Russian, Japanese and Chinese intrigue which preceded the war is not apparent to us in the West. The familiar statement, that Japan's policy is defensive, Chasseur admits as a truism on its face, because preparedness for war is the strongest and most pacific defense that any nation can have. Both Japan and Russia were really struggling for an expansion economically necessary to

both. Granting Japan's purely defensive instinct, he does not doubt that during many years she prepared against the eventuality of this war with Russia. Her recent insignificance was one cause of her success. Russia, in the terror born of her unfathomed strength, had carried colossal weight in western politics for twenty years, and her most astute statesmen did not believe that Japan would invite "effacement by breaking a lance against the solidity of the Russian Empire." Ready herself, Japan had the fullest information of Russia's unpreparedness. As an instance of the information, when Russia was denying the existence of fortifications at Liaoyang, Port Arthur and Yongampo,. the war minister of Japan had reports on his table from his officers, who as laborers were helping to build the works. Russia's unpreparedness lay not only in paucity of troops and munitions, but in lack of system and in the venality of her officers. Public funds lined private pockets instead of providing machinery for war.

The soundness of making Korea the first objective is apparent, it "being as essential to Japan's naval strategy as for her military campaign." Togo required it for his offensive, and it was absolutely necessary that the Russians should not secure a harbor for use against Japan. The first transports landed troops at Chemulpo, in the presence of a weak Russian squadron, whose chief did not have the grit to resist it. Later, under challenge from Uriu, it steamed out to accept battle, amid the applause of other naval forces. This proceeding was gallant in its conception, but dismal in its ending, for the courage of its chief forsook him, and he fled for his anchorage, opened the seacocks of his vessel and blew up her companions.

The attack of Togo's destroyers on the Port Arthur fleet is described, and the morality of the Japanese stroke is not questioned. The failure of the destroyers to return again and again and maintain the panic, instead of waiting until later in the night, is criticised. A dominating factor in the strategy of the war is found in the belief that after this engagement, the Japanese rated the commercial value of the

Russian fleet higher than its fighting value, and shaped their plans to ultimately possess it.

On the sinking of troopships by the Russian Vladivostok squadron, it is remarked that "the loss of troopships will always be distressing when the transportation of troops is undertaken before a nation has complete command of the sea," *something that our country will do well to remember.*

The Japanese were "prepared for all contingencies except unchecked success;" and the Russian naval breakdown found their third and fourth armies and the siege material for Port Arthur unprepared, and delay ensued, which Chasseur thinks militated against their complete success on land. In April Kuroki's army had established itself on the south bank of the Yalu. The second army was "destined to effect a complete isolation of Port Arthur, and consequently was intimately connected with Togo's naval strategy." In May it beat the garrison back from Nanshan, giving the Japanese an essential port for the maintenance of armies marching north, and for organization of the operations against Port Arthur. The June sortie of Admiral Witgeft is detailed, but as Chasseur remarks, "The story is short and dispiriting, and bold as Admiral Witgeft's intentions may have been he made the 'fatal half turn' which discloses moral inferiority." In August the dismal ending to the Russian battle squadron came, "two-thirds of its strength lying down to die in Port Arthur, the other third ignominiously fleeing to the shelter of a neutral port and accepting emasculation as the price of protection." He forgets our modest claims for Dewey and Schley by characterizing this as the "first fleet action of modern war ships in the world's history," and finds "something uncanny in the thought that the blood red battle flag, the emblem of a rising eastern sun should have triumphed over the blue St. Andrews cross."

"Three main objectives stand out in the Japanese campaign. The first and essential, is the command of the sea; the second, the occupation of Mukden; and the third, the isolation and incidentally the reduction of Port Arthur." They hoped to do this before the winter of 1904–05 and "the impression also remains that once this end had been accomplished, the Japanese would have been willing that diplomacy should end the struggle." Until Kuropatkin arrived the Russians had no plan beyond a "feeble endeavor to reinforce the threatened area of invasion and a fevered haste to pour a garrison into Port Arthur."

At the landing of Kuroki's army in Korea the Japanese brought landing piers of bamboo, the better to negotiate the mud-flats; they brought a flotilla of tugs and lighters from Japan, and in one week they had converted the wretched little Korean town which fringes the mud-flats, into a veritable military emporium, complete in every department, with godowns, repository works, and even a light railway. The battle on the Yalu had a wide significance. "On sea the results had been disastrous to the Occidental. Would the working of Oriental evolution be crowned with similar results on land? * * * The Russian had never had a character as a sailor, but the West could remember a hundred incidents in evidence of his peculiar attributes as a soldier." Chasseur presumes from the dispositions that it was never intended by Sassulitch to do more than make as brave a show as possible and withdraw with a force numerically inferior in men and artillery. This happened, and "as a feat of arms there was nothing extraordinary about it." On the Japanese side, "Kuroki put into force a far more elaborate design than the strength and condition of his enemy warranted, and as a consequence was unable to pursue." After the Yalu "the plan of the major land operations began to unroll."

General Kuropatkin on his arrival in Manchuria gave utterance to sentiments which showed that he was "cognizant of the existing state of criminal inefficiency," and was prepared if necessary to abandon Liaoyang and even Mukden to his enemy until he had constructed a field army. Chasseur still believes that "Kuropatkin has proved himself a soldier of first rank. He was required to construct his army in the face of a superior, aggressive and victorious foe." Conceding that he should have withdrawn the garrison from Port Arthur, and abandoning Liaotung Peninsula, have organized his field army in Manchuria, it is remarked that "It is given to comparatively few commanders in the

field to hold both the military and political reins of a campaign." No American can look forward to such conditions. His plan had to include the Kwantung Promontory. This had the advantage of attracting the Japanese to the magnet of Port Arthur, while he gained time to make a staff and the railroad brought an army. There was more foresight in this jeered-at strategy than has found credit, and the reader may "form his own opinion of the opposing strategy which dallied with extremities while the heart was anæmic, and ultimately struck at the vitals when those organs were more robust." The battle of Nanshan, "magnificent example as it proved of the fighting qualities of the Japanese soldier, saved the Russian arms from that total annihilation in the field which would in our opinion have terminated the war with the subsequent destruction of the Pacific squadron and fall of Port Arthur."

The fetich of the Japanese general is to strike his enemy as soon as he finds him, and in the genius of finding him in the least favorable condition his limitations become evident. Oku's proceedings at Tehlitz, when he turned north with all but one division, are described as "butting in" with his frontal attack. A counter-stroke was arrested by Japanese cavalry, which, however, was fifteen miles from its assigned place, due to "difficult country." "Oku's success was purchased at the price of a military exhaustion, which permitted him to cover but fifty miles during the ensuing month."

In June the Japanese were converging on Liaoyang by three main roads from the southern seaboard, while a fourth force was to drive in the outposts of Port Arthur. An interesting account is given of the part played by climate and transportation. The contest over Motienling is described, and the engagements at Kaiping, Tashichaou, Haicheng, and An-shan-chan, which gave Japan a summer sea base at Yinkow. In July Count Keller was killed, and while believing that his death was a great loss to Russia, the author thinks "it would have been better for Kuropatkin and Russia's cause if casualty had more thinned out the officers in high command during the earlier phases of the struggle."

At Liaoyang "Oyama and his staff learned the lessons of modern war, which six months later were to give them the overwhelming victory at Mukden." The struggle for Liaoyang is well described. Kuropatkin saved his army practically complete, except for 16,000 casualties; Oyama had paid 30,000 dead for his possession of the Russian positions, and failed to bring about a result which would have saved his country from a second year of war.

An exceedingly interesting chapter is devoted to the conditions which centered round Port Arthur in 1904; to the gallant investment and equally gallant defense. The faculty for military fortification for which the Russians have had credit since Todleben's day was put to its best use at Port Arthur. The natural strength of the environment of the port was remarkable. And over forty thousand troops held the defenses. Beside the mere reduction of a hostile citadel, the last Russian ice-free port in the East, the Japanese army had to capture or destroy the Pacific squadron as it lay under the shelter of the Port Arthur batteries, and free Togo to deal with the reinforcement sailing from the Baltic. "The Siberian Railway had proved of a military value far in excess of the assessment made for it, both in European and Japanese estimates," and the need at the front of the four divisions in the Kwantung Promontory made it imperative that the stronghold be reduced. It was those considerations that allowed Nogi to sacrifice his infantry by battalions to achieve that result. Apparently the Russian garrison lacked most in the matter of leadership, and was not reduced to exhaustion at any period. "We find in the ill-fated Kondrachenko the heart and soul of the splendid defense which the Port Arthur garrison made against perhaps the most scientific, persistent and vicious siege that in the history of war has ever been pressed against a beleaguered garrison," but "once he was gone, the whole fabric seemed to wither, and within a very few days the permanent *enciente* was pierced." One can hardly imagine the terrible scenes of carnage when Nogi, in August, made his desperate effort, "trusting to the magnificent *elan* of his men rather than to the prescribed occidental methods of approach to a first class fortress, hitherto unpre-

pared and unassailed." * * * Every devilish device that modern science could contribute to the defense was employed by the subtle Russian sappers. Wire entanglements were electrified for miles, dealing death upon touch to the eager pioneers, who sought to clear a way for the desperate infantry behind them." Light steel shields, non conductive gloves, hand grenades, bamboo mortars, spar torpedoes, and every ingenius device was used, but Port Arthur, unprepared by artillery and unapproached by sap, was not to be carried by escalade. "The spade, the mattock and the large calibre howitzer are the prime implements in the reduction of a first class fortress, notwithstanding the fact that the besieging general commands incomparable infantry." And by such means Port Arthur fell, after a fine resistance, which lasted 155 days.

Two exceedingly interesting chapters describe the journey of Rojdestvensky's armada and its arrival and overthrow. The Dogger Bank incident and Captain Klado's extraordinary essays on the Russian navy are discussed at length. As will be remembered Klado was dismissed for his strictures on the imperial navy. Chasseur believes his was a deliberate sacrifice to create a campaign of agitation, rivet attention on the last desperate chance of Russia's navy, and stir up the government. This seems probable, as Captain Klado has, in October, 1906, been restored to the navy. The admiral is credited with having conducted his fleet the long 15,000 miles with skill, systematically exercising the vessels in gunnery and steam tactics, and reducing the fouling by a specially designed contrivance." The sanguinary encounter in Tsushima Straits, which practically annihilated the armada, is reckoned by the author as the deciding issue of the great struggle. "Few people even now appreciate what this final triumph of Oriental over Occidental means to the peoples of the East." Chasseur's description of the great battle is most interesting, but, as he says, "the story is too awful for cold blooded speculation." There are few more pathetic scenes in history than the surrender next day of Admiral Nebogatoff and the residue of his squadron, off Liancourt Rocks. The captain of the *Admiral Oushakoff*, who sunk his ship and

took his chances in deep water rather than surrender, played a better part. One little vessel, the *Almaz*, found her way to Vladivostok, where she was hailed with wild enthusiasm as the advance messenger of a victorious Russian fleet. The residue of the Baltic fleet struggled into Manila Bay a week after the battle. Of the whole strength of the Baltic fleet, one cruiser and one destroyer remained in Russian waters.

Seventeen interesting pages describe the battle on the Sha-Ho, "which in point of numbers engaged, the area over which the operations took place, and the issues involved, is probably with the exception of the subsequent battle of Mukden, the most famous of all time." In actual casualties it cost the Russians 47,000 officers and men. The approximate loss of the Japanese is figured at 36,000 officers and men. They had beaten their enemy a second time, but it required another six months to oppose him with enough men to crush him. Both armies went into winter quarters on opposite sides of the Sha-Ho, and local armistices were established for camp economies. These peaceful months on the Russian side were occupied in bickering, petty jealousies and open mutiny among the chiefs. Gripenberg tore up Kuropatkin's messages and flung the pieces in the messenger's face, and Kaulbars slapped the face of the chief of staff. On the Japanese side "their unity of purpose and fixed idea was sufficient to eradicate even the jealousy of the sister services." Mischenko's cavalry raid around the Japanese left "reads more like the American Civil War than anything we have hitherto had in the history of the campaign," but did not fulfill its promise, and all the flying columns were chased back to the Liao-Ho. During the winter each army connected its wings with light railroads, telephones, and all scientific means of inter-communication. The Japanese prepared a second and third line of defense within an easy distance of their front; the Russian second line was forty miles behind Mukden.

The battle of the Heikautai in January is still an enigma. Gripenberg's army made an attempt against the Japanese left, and ignorant of the second line, "simply 'butted in' between two held parallels, and had neither the information

nor the direction to grapple with a situation, the success or failure of which depended upon the active coöperation of Kuropatkin's center and left, or a magnificent effort of the Cossack divisions on Gripenberg's right." No coöperation came, and in six days a broken and defeated rabble was hurled back. The Russian loss is estimated at 20,000; the Japanese at 7,000. The mutinous and sore-headed Gripenberg flung his resignation at Kuropatkin and started for Russia. "Heikautai probably furnishes the most curious and disastrous example of disagreement between officers in high command in the field that is to be found in all history," and Kuropatkin "accepted defeat for his whole force on the fortunes of an infinitesimal portion of it." Meanwhile no such apathy existed on the Japanese side. Nogi's Port Arthur army had come up, and another army consisting of veterans brought to the colors through the new extensions of service requisition.

Although the Russians settled back quietly into their dugouts, Kuropatkin himself seems to have been preparing to take the initiative, or at least to meet the Japanese attack. Among the indications of a coming advance was the affair of Hsin-kai bridge in February, where, 160 miles north of Mukden, the railroad was cut by Japanese cavalry, the first time they had attempted any such enterprise. "This raid, which reminds us of the Southern cavalry enterprises during the American Civil War, was a really magnificent piece of work."

The battle of Mukden, perhaps the most comprehensive military movement of modern days, consisting of a series of different battles, each approximating Waterloo in magnitude, is dealt with by outlining the positions of the chief units in the opposing armies, and then following the victors in detail from right to left. The occupation of Hsin-min-ting by Nogi on the Russian right confirmed all doubts as to the efficiency of Mischenko's cavalry Cossacks, "for if in the whole theater of operations there ever was a terrain that was suited to the movements of an independent cavalry division, it was in this particular section." The Russian force is

placed at 361,500 and the Japanese at twenty-five per cent. over that.

Chasseur's description of the Homeric fighting in which these tremendous forces engaged is most interesting and inspiring. He believes that Kuropatkin failed, not for lack of military intelligence or other attributes of a great general, "but because he attempted the impossible in endeavoring to maintain in his own hands the command of the vast army concentrated in Manchuria;" and "to this account must be laid the lack of coöperation and cohesion, which undoubtedly was the main cause of Russia's military collapse." The comments on Kuropatkin's conduct when beaten, and the closing scenes of the battle are very convincing. The conclusion is reached that Mukden, while a heavy defeat and crowning disaster to a disastrous campaign, was almost as disastrous in its military paralysis to the victors as to the vanquished, and Japanese magnanimity in the surprising peace of Portsmouth is traced to the effect of Mukden on her military resources.

While Chasseur finds in the Japanese the finest type of regimental officer in modern history, he agrees with Douglas Story that the Russian officer's "faults and virtues are those of a strong race, of a man whose blood runs warm in his veins." Of the rank and file, their opposite qualities bring them to a similar level. "The Japanese is a fine fighting man on account of his inherent discipline and patriotism, the Russian on account of his lack of intelligence." Both armies have dependence on their immediate superiors, and he concludes that in the raw material Japan had other advantages besides numbers. Perhaps the most extraordinary military trait of the Japanese is their "peculiar nerve-recuperative power under failure," steadfastly "believing that the sacrifices they make are providing some benefit in another part of the field. This is the true martial spirit."

The book is well printed, but has some errors indicating carelessness in proofreading. On page 125, "June" is given for July; page 141, "northwest" is used for southeast; on page 166, "east" should be west; on page 316, Kuropatkin's "left" is given for his right in the sixteenth line. The

maps are good enough for their purpose. The book has 332 pages. Generally the book is so satisfactory that if restricted to two dollars and one book on this war, this is the one we should buy. It is published by William Blackwood & Sons, Edinburg and London. It was on sale in Manila in May last, but the supply was soon exhausted, and we have not been able to find it on sale in the United States in New York or Washington. Its purchase by officers is recommended.

HARBORD.

Private's Handbook of Military Courtesy and Guard Duty.*

Captain Rowell's book has left little to be desired. Now that guard duty is largely being done by companies, there should be a large call for this handy book, for companies will emulously strive for the distinction of the best informed organization in the post. Several of these books distributed throughout the company will assist the company officers more than anything else. The simple language, the neat and attractive appearance, and the clearness of the cuts, all go to make a valuable compilation.

The contents of the book are as follows:

Military Courtesy:
- Saluting.
- Salute with the Hand.
- Rifle Salute.
- General Rules for Saluting.
- Honors.

Manual of Guard duty:
- In General.
- Privates of the Guard.
- Orders for All Sentinels on Post.
- Orders for All Sentinels except No. 1.
- Orders for Sentinel No. 1.
- Night Orders.
- Compliments from All Sentinels.

*By Captain Melvin W. Rowell, Eleventh Cavalry. From the press of the Hudson Publishing Company, Kansas City, Mo.

- Special Orders for Sentinels in Charge of Prisoners.
- Orderly for the Commanding Officer.
- Musicians of the Guard.

We quote from the preface as follows:

"The private of the National Guard, or of the Volunteers, often meeting with doubts and difficulties in referring to unabridged manuals for details, a handbook for his individual guidance is of considerable assistance, if not a necessity, to company commanders in the routine instruction, or quick training, of their commands in fundamental duties.

"An effort has been made to place before the soldier, in a convenient, compact and economical form, essential features which he must learn, not only in order to perform well his present duties, but that, should he later rise to the position of a noncommissioned officer or officer, his comprehension of his new duties as a subordinate and as an instructor will rest on a solid foundation. With this object in view, certain paragraphs of authorized manuals and regulations of the United States army are presented, with supplementary paragraphs (printed in small type) where thought necessary to aid the inexperienced.

"On my own responsibility, the changes in the manual of arms, saluting, etc., due to the recent modifications (and their adaption to the Krag-Jorgensen and Sprinfigeld arms) have been embodied in the paragraphs from the authorized manuals."

This is a book that a private will like to read. The orders are so neatly arranged that it will be a pleasure for the private to learn them, which is saying a great deal. Troublesome little points of detail are settled, and we will find men doing guard duty in one certain way, and not according to the individual ideas of company commanders. It would not be a bad idea to have a school of short duration in this manual for privates.

The only regrettable feature about the work is that this second edition was not made somewhat smaller, (though it can now be carried in the blouse pocket), and bound in leatherette of durable quality, as the English manuals are. We

have been harping so long on this method of getting out our small military works that we are beginning to be disappointed that some of our publishers have not yet seen fit to consider the matter. Our drill regulations might serve them as a guide, and we dare say profitably.

The Final Conflict.* Mr. E. S. Ricker, of Chadron, Nebraska, who has headquarters at Grand Junction, Colorado, has been engaged for some time in the collection and preparation of materials for an Indian history of the United States from about the period of the Mexican War to the present time. The title will be "The Final Conflict Between the Red Men and the Palefaces." The purview embraces an amount of discursive history not suggested by the title. Judge Ricker's original idea was to write a monograph on the tragedy of Wounded Knee, being inspired by his acquaintance with the field, the facts and many of the participants, and a residence of more than twenty-one years in the neighborhood. His contemplations at length extended his perspective, when he decided that his plan ought to take in the operations on the Little Big Horn in 1876, when General Custer and his brave band perished under such painful and heroic circumstances. These events, he determined, have a certain balancing character in history; and the next logical step was to go back just prior to the time when the rush to the Pacific Ocean began, in which movement originated immediately the crowning griefs of the aborigines.

Travel, transportation, settlement and hunting brought the red and the white man into deadly and almost perpetual conflict. It is his aim to tell in detail the story of the picturesque and desperate struggle, the collapse of the Indians, and the unique undertaking of the government to assimilate them as part of the blood and bone of our civilized population.

*"The Final Conflict Between the Red Men and the Palefaces." By E. S. Ricker, ex-county judge and late editor of the Chadron *Times*.

In his prospectus, which he sends out to those from whom he solicits information, he says:

"After three hundred years of conflict the threatenings and realities of border warfare have ceased to surprise and alarm the country; the white invaders and foemen have conquered resistance and planted peace by the iron power of integrity, rapacity, perfidy and numbers; the Indian race in its native vigor and glory is crushed out; the last chapter of its untamed history has been made and may now be written; and whatever there may yet be new in aboriginal story will be but the mournful record of how the embers of a fiery race died out upon the hearthstones given them by the Great Spirit they worship, in the ultimate absorption that is to be.

"To aid in a better understanding of the 'Final Conflict,' I shall advert to the period when the Missouri River was the great artery of traffic and communication, and introduce the reader to the work of the good missionaries whose names must resound forevermore in praise and reverence, and take him upon a lively excursion among the absorbing events of primeval life in this deep wilderness of the unknown West—events so thrilling that they seem to verge more on fancy than to be plain recitals of actuality.

"Exploits of trappers, adventures of fur traders, and hardships of explorers, in this wonderful region coursed by this mighty waterway, will receive such treatment as the limits of the work will permit. The routes of overland travel and express are historic highways strewn with the bones of daring men following the course of empire to the golden shore; these furnish themes for fascinating narrative which cannot be passed without ample notice.

"Bold and hardy characters for generations threaded these plains and crossed the mountain ranges, and by tireless and dangerous service, and by examples of personal courage and rugged endurance, have made a story as charming as ardent imagination can picture. My aim will be to furnish authentic details concerning many of these daring spirits. Habits, customs, rites, imagery and oratory of the Indians, together with an account of the present reservation system

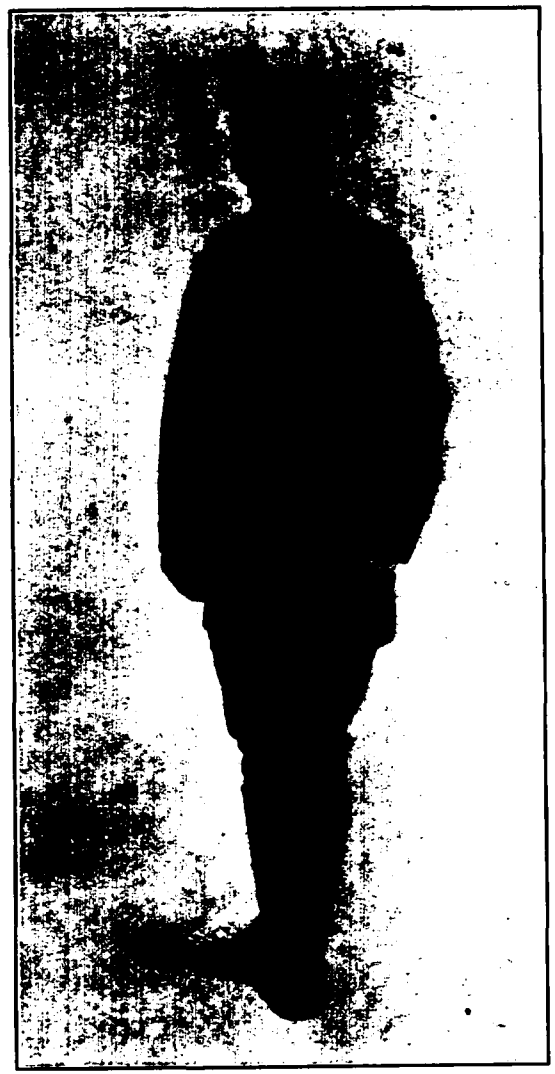
and the change which is taking place in forcing on them the forms of civilized existence, will be an extensive feature of the performance."

Mr. Ricker will be very grateful to army officers that will communicate with him (Chadron, Nebraska) with a view to furnishing any information they care to regarding events of the time covered in the above work. We should help such work as this upon which Judge Ricker is engaged.

Letters on Applied Tactics.

The Franklin Hudson Publishing Company, of Kansas City, Missouri, has just issued one of the most important books for the use of army officers that has been printed. It is a new translation by Major Chas. H. Barth, Twelfth Infantry, of the Baron Von Griepenkerl's "Letters on Applied Tactics," in which Major Barth has introduced the United States organization, together with the English scale of miles and yards. This book contains a large number of problems on field maneuvers, together with discussion of same, and will henceforth be used by student officers in the Fort Leavenworth Service Schools in place of the English translation used heretofore.

The new book costs $2.00, and may be obtained from the Secretary of the United States Army Staff College, Fort Leavenworth, Kansas.



BRIGADIER GENERAL WINFIELD S. EDGERLY,
UNITED STATES ARMY.

JOURNAL

OF THE

United States Cavalry Association.

VOL. XVII. APRIL, 1907 NO. 64.

MORE ABOUT MACHINE GUNS.

BY LIEUT. COL. MONTGOMERY M. MACOMB, [illegible]

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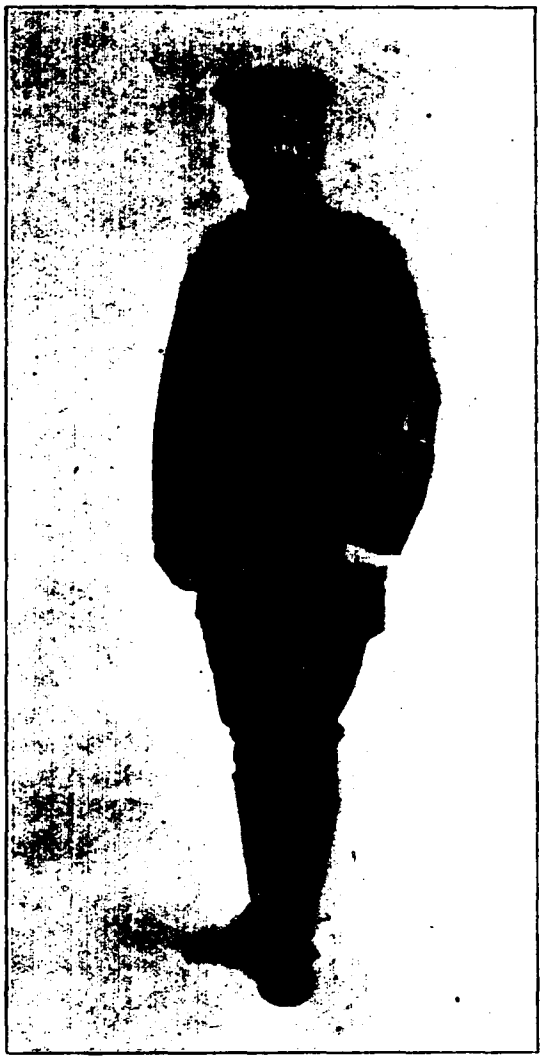

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Perhaps this Danish "one man" gun may suit better, due

to its weight being only about sixteen and one-half pounds, and the fact that a single soldier can carry it on his mount, serve it himself, with the assistance of another man to supply ammunition, and easily and quickly change position, either advancing or retreating, without exposing himself.

It is also possible that it would be easier to organize the machine gun platoon in our cavalry squadrons with a weapon of that type. 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.

With the Danish gun it would be possible to get up a fighting battery of four guns, as follows:

1 Lieutenant in charge	1 horse
2 Non-commissioned officers	2 horses
4 Gunners (each with 400 rounds)	4 horses
4 Ammunition horse drivers (with one pack-horse each, carrying 2,400 rounds)	8 horses
1 Armorer	1 horse

Total, one officer, eleven men and sixteen horses; 2,800 rounds per gun.

In addition to the above there should be an ammunition train with eight mounted men and eight pack animals carrying 2,400 rounds each, and a four-horse wagon for baggage, and 9,600 rounds of reserve ammunition, requiring in all ten men and twenty animals. This would make the ammunition supply 10,000 rounds per gun, for war, distributed as follows:

With the guns	2,800 per gun,	11,200 per detachment
In the pack train	4,800 per gun,	19,200 per detachment
In the troop wagon	2,400 per gun,	9,600 per detachment
Total	10,000	40,000

In time of peace it would not be necessary to organize the ammunition train, and the fighting battery would not be too cumbersome to be assigned to a troop for administration and instruction. In tactical exercises it could be assigned to advance or rear guard work, or held at the disposition of the squadron commander, as the case required.

The advantages of having these machine gun detachments part of a troop until we develop a definite and final

policy concerning them is self-evident. They can be so much more economically administered, supplied, and so much more quickly made efficient in this way. Later, when they have shown their value and our officers begin to learn how to use them, it will be time enough to have an independent unit with each regiment, so organized, however, that an efficient element of that unit may be assigned to any squadron which is detached or working independently. In this case this element or subdivision would be assigned to one of the troops for mess, etc.

It should be remembered that if we are going to have independent machine gun units, we must make proper provision for them at all regimental posts, which means additional barracks and suitable stable accommodations. All this cannot come to pass for some years. In the meantime the cavalry should make every effort to ascertain for itself the automatic weapon best suited to it. The Maxim as now issued is an excellent weapon, but there is some doubt as to its being mobile enough for quick work. For this reason the attention of our cavalry is invited to the Danish mitrailleuse.

Not only have the Danes and Russians adopted this weapon for their cavalry, but no less an authority than General Négrier, in his "Lessons of the Russo-Japanese War," says: "Every squadron ought to be provided with two machine guns of the Danish cavalry pattern." For our squadrons about four of these guns would be sufficient.

As to weights carried with such an outfit, the following figures are approximately correct:

Ammunition animal, with 2,400 rounds in six pairs of cases, on special saddles, total load	259.6 lbs.
Gunner's mount, in addition to weight of rider, including gun, saddle, 400 rounds and kit	100.6 lbs.

From this it is evident that the gross loads do not exceed those expected of a cavalry horse. The gun itself weighs about 16.5 pounds. Rate of aimed fire, 200 rounds per minute; maximum rate, 15 rounds per second.*

*Lieutenant Briand is authority for this statement. Fifteen rounds per second seems pretty big, and it could not be continued without getting the barrel white hot.

In my article in the January number I gave an outline of what the Russians were doing with this arm in Manchuria, and noted that they lightened the loads somewhat by not requiring the gunner to carry any ammunition, and by placing only four pairs of cases (total 1,600 rounds) upon the ammunition animal, instead of six pairs (2,400 rounds) as above.

What is being done in Denmark with this so-called "recoil gun" is very thoroughly set forth in a report by Lieutenant Christian Briand, Fifteenth Cavalry, who had an opportunity of seeing it in use with the Danish dragoons and hussars in September, 1905.

It is worthy of remark in this connection that the Danish rifle mitrailleuse was tested by the Board on Automatic Machine Guns in 1903, and they rejected it mainly because the feed mechanism in the *model exhibited* failed to function properly. The great portability, ease of handling and suitability for cavalry were not taken into consideration, and could not well be, for the board was endeavoring to select, without delay, the most perfect machine gun for our service.

For *general use* the Maxim, which they chose, is certainly excellent, the best in the market probably; but since the board experimented the Danish gun has been perfected, and the trouble with the feed is said to be overcome in the model of 1904, and Lieutenant Briand assures me that he saw considerable firing done with it without a mishap, and that he fired it himself with no "jams."

The detailed drawing and specifications of this gun are given in the report of the Chief of Ordnance for 1904, but Lieutenant Briand gives in addition an excellent description of the use of the gun in the Danish cavalry, illustrating his report with very clear photographs. It would be interesting if the CAVALRY JOURNAL would publish an extract from this paper at once, as the question of automatic guns is now being agitated throughout the service, and anything which sheds light upon this subject is of especial value to us at this time.*

*See following article.

THE DANISH RIFLE MITRAILLEUSE.

BY FIRST LIEUTENANT CHRISTIAN BRIAND, FIFTEENTH CAVALRY.

[Extract from a Report on Military Observations in Denmark.]

WHILST the machine guns in general use, as for example, Hotchkiss, Maxims, etc., are all so heavy and are mounted in such a way that in order to bring them into the field it is as a rule necessary to use horses for transport, the above mitrailleuse, the Danish rekul gevar,* can be carried by a man in exactly the same way as a rifle, and has consequently made it possible to use the mitrailleuse much more extensively than formerly. Such a mitrailleuse can be utilized where otherwise it would have been impossible on account of the difficulty of transportation, or because the heavy machine guns could not be brought into the line of action when the engagement takes place at a short distance.

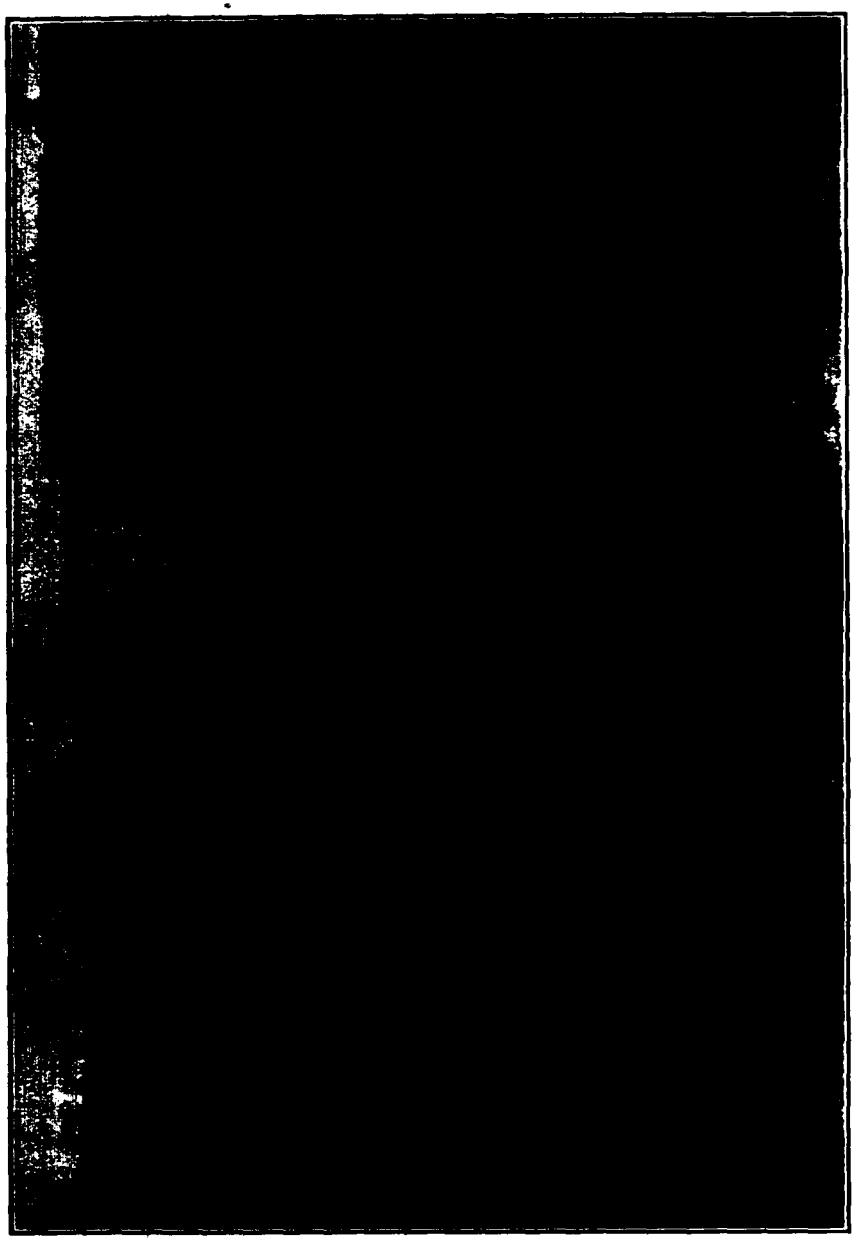
The rifle mitrailleuse has after trials and tests been adopted both in the Danish army and navy, and has worked to great satisfaction. It is made for any cartridge. Weight of gun, 7½ kg.;† rate of fire, fifteen rounds a second. The loading is effected with the help of loose magazines, which hold a changing quantity of cartridges, according to size of calibre. The magazine will hold twenty-five of the 8 mm. cartridges.

The advantages which the rifle mitrailleuse has above all other models of such weapons are its light weight and convenient form, which make it especially adapted for cavalry and infantry.

Better results can be obtained with this machine gun than with any other on a moving mark, on the grounds that this one may be served in the same manner as a rifle, by

*Recoil gun.

†One kg. = 2.2 lbs.



GUNNER, AUTOMATIC GUN DETACHMENT, DANISH DRAGOONS. (OFF SIDE.)

which it becomes much easier to follow the movements of a body of troops.

The rifle mitrailleuse can follow the cavalry anywhere, which is impossible with other machine guns. It is very easy and quick to bring into action, and may be brought forward anywhere like an ordinary rifle. It is impossible for the enemy to observe if the cavalry or infantry is furnished with these arms or not before shooting begins. It is very easy with these guns to cover a moving target and also to follow the enemy with the fire when he is advancing or retreating, and it is also easy suddenly to change the fire to another point in case the enemy appears in quite another direction.

BY CAVALRY.

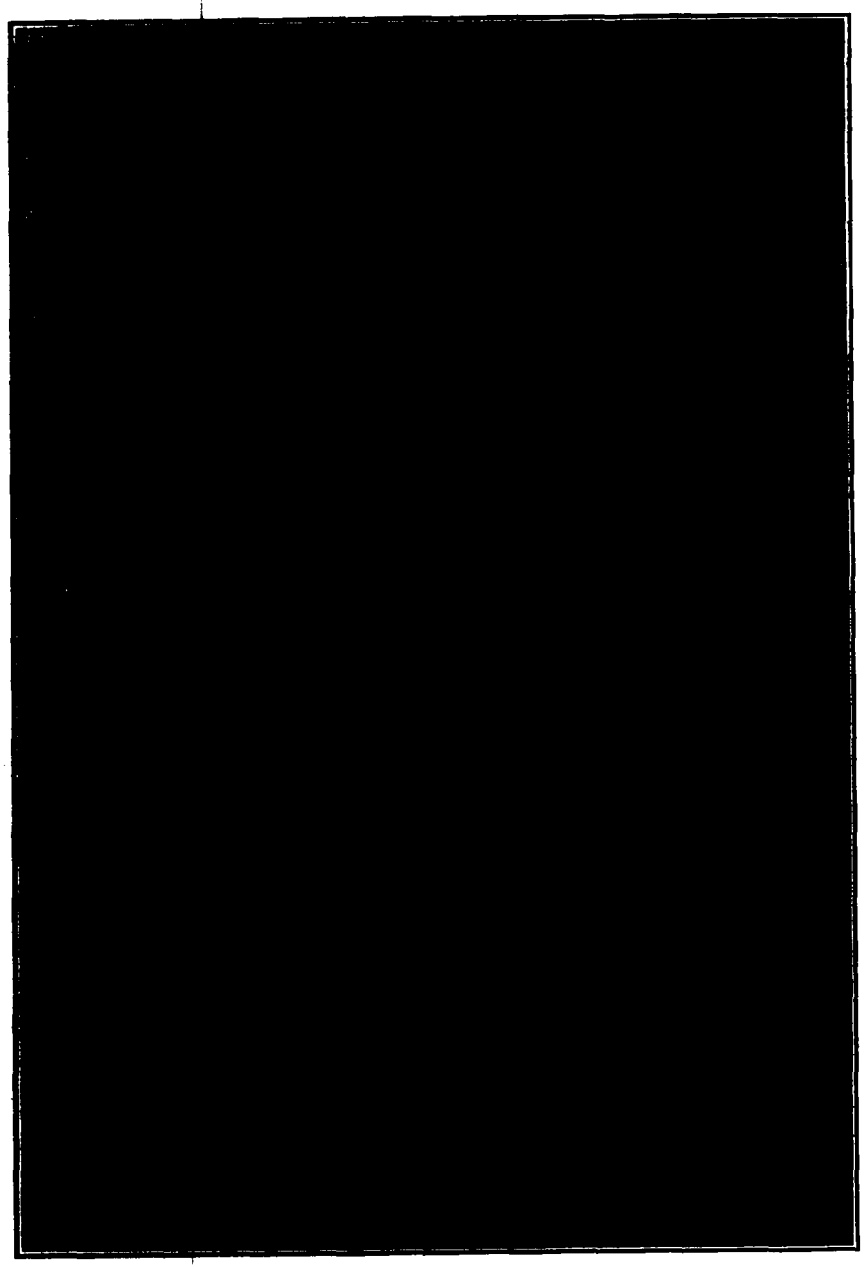
Whilst the rifle mitrailleuse is carried in a case on the left side of the saddle (see photo), on the right side of the saddle the man carries his baggage in a leather pocket.

In front of the saddle the man has a pair of ammunition cases (see photo) containing 400 cartridges. The weight of the arms, ammunition, saddle and all other baggage carried on the horse is only 45¾ kg., (100.6 lbs.) or the same weight as for an ordinary horseman.

For every three weapons an ammunition horse carries on a separate saddle (see photo) six pair of ammunition cases containing 2,400 cartridges; total weight of ammunition, saddle, etc., 118 kg. (259.6 lbs.)

As the horses carrying the rifle mitrailleuse have only the same weight to carry as the other horses in the eskadron, they can always keep with the troop, and when it gets into an engagement with firing arms the captain as a rule only lets the three men with the mitrailleuse dismount to shoot at the enemy; the balance of the troop remains on horseback.

A man armed with the rifle mitrailleuse can shoot 200 sighted shots in a minute; in other words, he can produce the same fire as twenty men armed with the ordinary magazine rifle, while he affords the enemy only one-twentieth of the target that the twenty men do.



GUNNER, AUTOMATIC GUN DETACHMENT, DANISH DRAGOONS. (NEAR SIDE.)

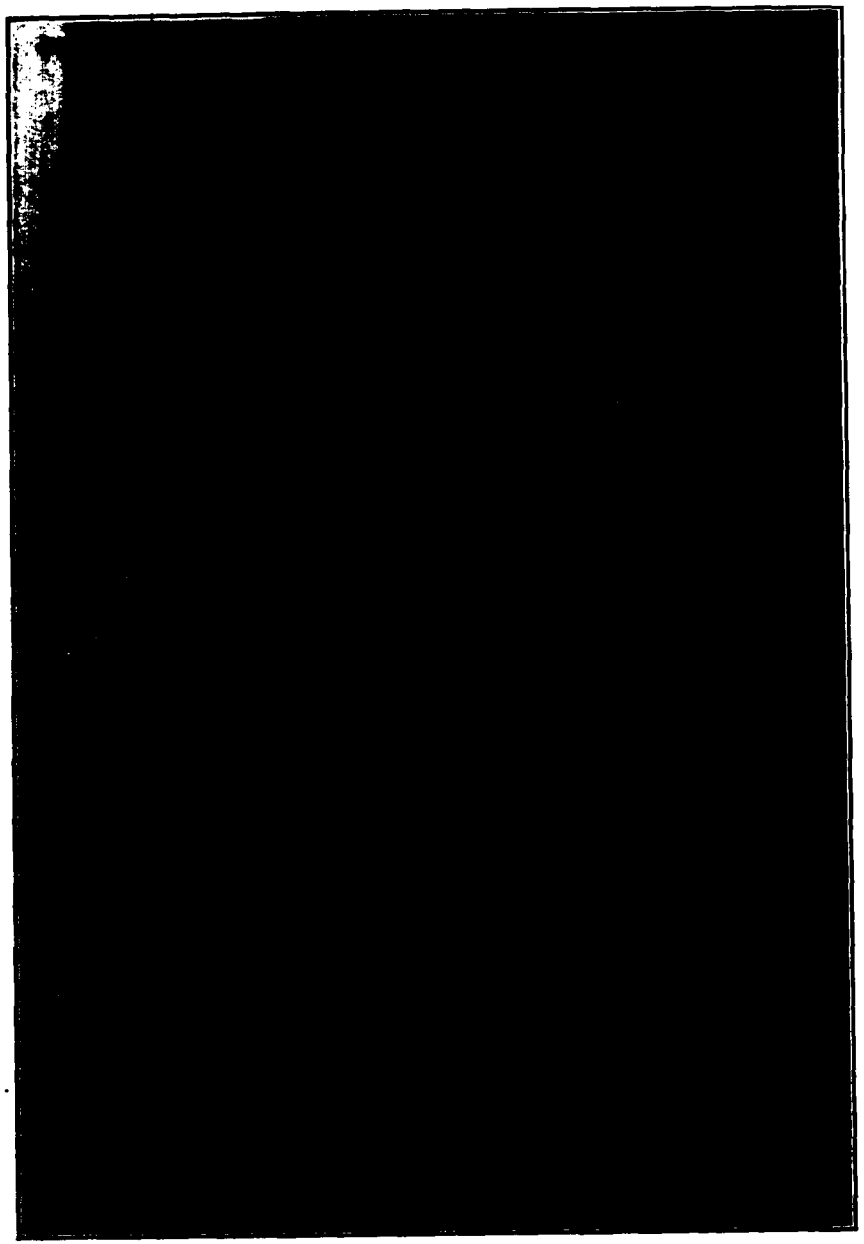
The three men armed with the rifle mitrailleuse can easily find a good position and are much more difficult for the enemy to discover and hit; at the same time the troop is on horseback ready to attack if the enemy is thrown into disorder by the firing of the rifle mitrailleuse, and in case the attack does not succeed the rifle mitrailleuse can protect the retreat of the troop.

In the case where troops are without rifle mitrailleuse, a certain number of men of the troop must dismount, and another number of men be employed to hold horses. If an opportune moment for an attack now occurs, it cannot be utilized, as it would take too much time for the shooting party to come back and mount their horses, and besides, this movement is always connected with a certain amount of disorder, so that an attack at that moment by the enemy's cavalry would result in a disaster. Small patrols furnished with one or two of these weapons can hold a heavy strategic point, for instance a bridge, defile or the like, for a short period against a much stronger force. To put it short, arming cavalry with a rifle mitrailleuse is equivalent to giving them a certain force of infantry for their support and guard.

In the Danish cavalry each eskadron (troop) has three rifle mitrailleuse, and carries 1,200 cartridges for each weapon. The weights are as follows: Saddle and equipments (see photo) 14 kg.; rifle mitrailleuse, 7½ kg.; ammunition cases and 400 cartridges, 16½ kg.; cloak, 3½ kg.; other equipments, 2¼ kg.; pistol and ammunition, 2 kg.; total, 45¾ kg.

BY INFANTRY.

An addition of these mitrailleuses to a regiment or brigade will in the greatest degree augment the infantry's attacking strength. The artillery and heavy mitrailleuse can support the infantry during the attack until it has reached within 500 meters of the enemy's lines; but from that point on the attacking infantry will be left to themselves because the artillery will not be able to shell the enemy's position over the heads of the attacking infantry for fear of shooting



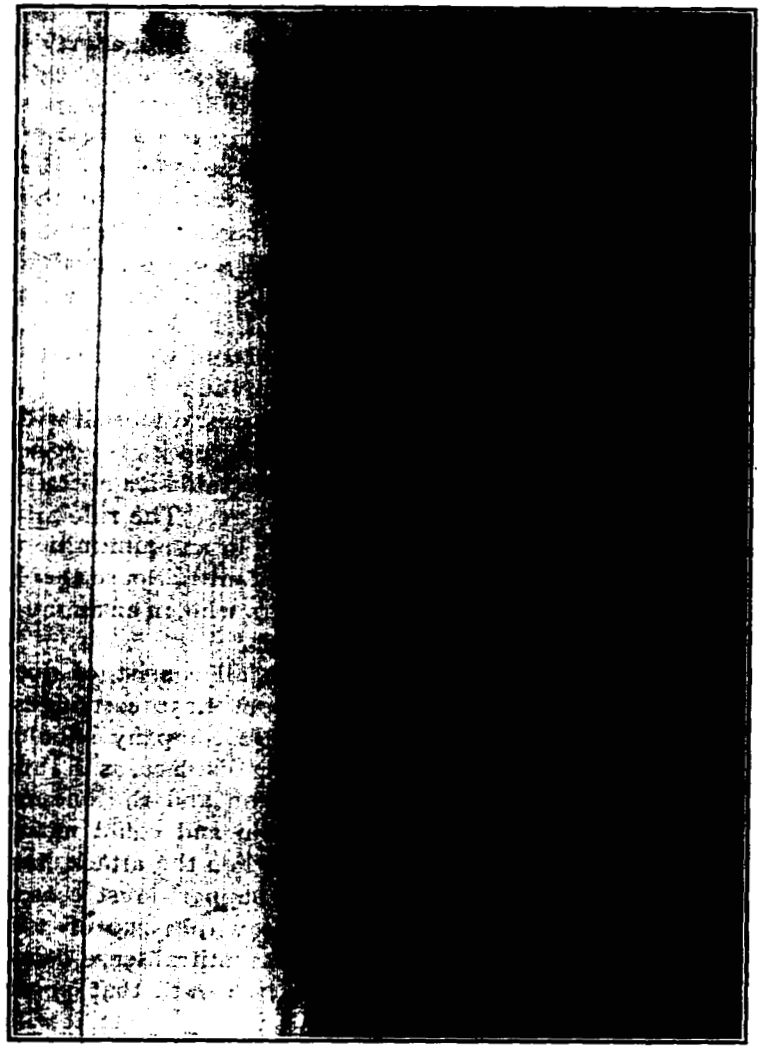
AMMUNITION HORSE, AUTOMATIC GUN DETACHMENT, DANISH DRAGOONS.

them, and the heavy machine guns will not be able to follow the firing line during the last part of the attack because the horses would probably be shot during the movement from one position to another.

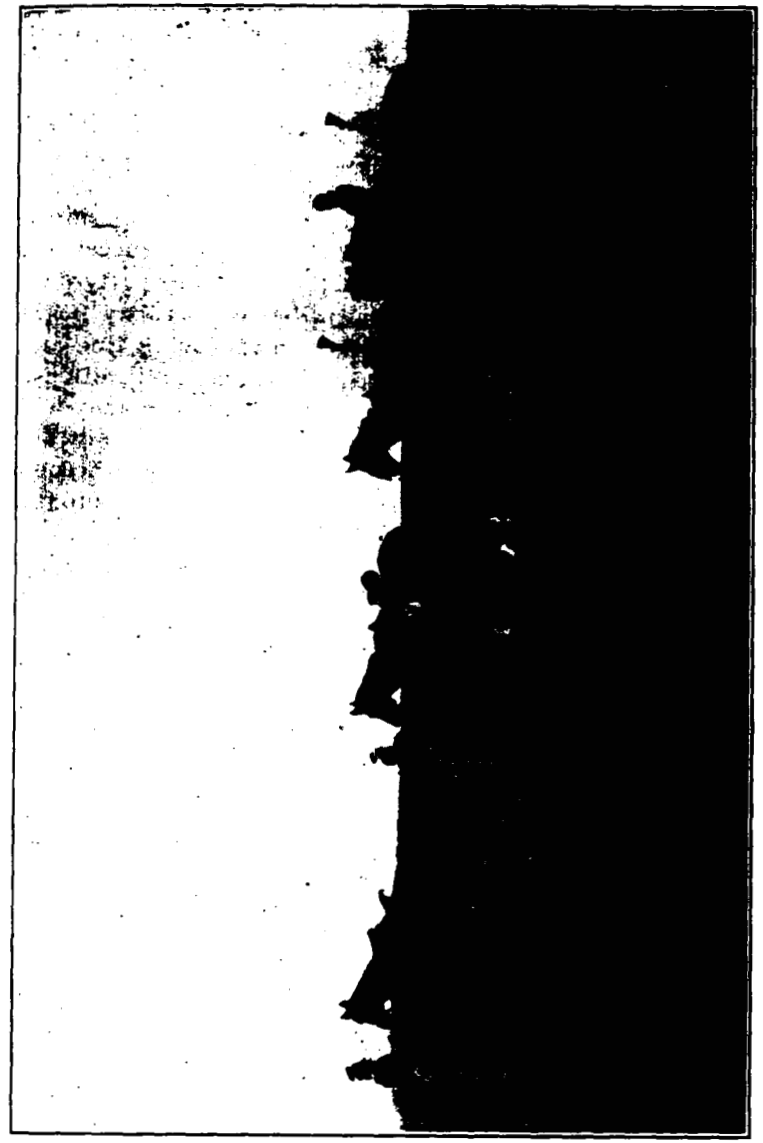
The infantry will then, under attack of one of the enemy's occupied positions and in one of the most dangerous and difficult moments of the attack, be completely left to look out for themselves, and if the enemy's infantry is not shaken by the artillery fire in conjunction with the effect of the shooting from a distance with the heavy mitrailleuse, the attack will be a complete failure. To succeed, the attacking infantry must be able to bring forward a firing strength which is greater than the enemy's. This will be difficult without help, as the enemy, when the artillery firing ceases, will be able to draw its reserves forward and with this fill in the gaps caused during the first part of the fight.

With the infantry armed with the rifle mitrailleuse it will be almost impossible for the enemy to bring up its reserves. One case for example: For each brigade establish a mitrailleuse company consisting of 100 mitrailleuse. The rifle mitrailleuse can be carried by one man, who, in an ammunition case, can carry 250 cartridges. For every mitrailleuse there should be two additional cartridge bearers who, in an ammunition case, can carry, each, 500 cartridges.

The mitrailleuse company should in all consist of 300 men, and these will have a supply of about 1,250 cartridges for each mitrailleuse. Such a mitrailleuse company should not take part in the engagement at a long distance, as in this way they would use up all the ammunition and the enemy would have their attention drawn to them and could make their arrangements accordingly. Only when the attack has reached so far forward that the artillery support must cease, that is when the attacking line has come within 400 or 500 meters of the enemy, is the time for the mitrailleuse company to attack. Send out this company toward that point where the enemy's line shall be broken through, then it will be possible to direct at that point such an overwhelming fire that it will be impossible to withstand same. The shorter the distance with the mitrailleuse the more overwhelming



DANISH HUSSAR AUTOMATIC GUN DETACHMENT DRILLING WITH THE "REKUL GEWAR."



DANISH HUSSAR AUTOMATIC GUN DETACHMENT DRILLING WITH THE "REKUL GEWAR."

and more accurate the fire, and consequently the quicker the ending. Should any of the gunners who attend to these guns be shot, their places can be taken immediately by any of the cartridge bearers. On account of the much superior firing the loss to the mitrailleuse company will be very small. It would perhaps seem possible that the defenders could put their mitrailleuse company into action at the same time that the attacking party begins with theirs, and thereby prevent it from obtaining the firing superiority which will be necessary before the attack can be successful.

It must here be remarked that the attacking party does not show where it will let its mitrailleuse company begin the attack before they are in position on the firing line and have opened fire (it must be remembered that a mitrailleuse at a distance exactly resembles a rifle, so that the enemy will be unable to distinguish the difference between the mitrailleuse company and ordinary infantry). If this is once accomplished it will be impossible to bring forward reserves to the defender's firing line, as the firing from the attacking party's mitrailleuse will be so terrible that the support will be unable to reach the firing line. The rifle mitrailleuse could be used with advantage in many other ways, such as when a rear guard must hold its position as long as possible, or when a small reconnoitering party must defend a defile or pass, and in many other instances of a similar kind. The mitrailleuse can be also used by artillery with good advantage.

SHOOTING TRIALS WITH THE RIFLE MITRAILLEUSE, WHICH TOOK PLACE DURING THE SUMMER OF 1905 BY ROYAL DANISH HUSSARS.

Trial	Distance Yards	Target	No. of Shots	No. of Hits	Per Cent	Time set Seconds	Manner of Shooting
1	300	Head of a man.	14	14	100	10	Single shot.
2	300	Head of a man.	40	37	92½	25	Single shot.
3	500	Five men.	10	3	30	6	Single shot.
4	500	Five men.	10	8	80	8	Single shot.
5	300	2 yds. x 5 yds.	200	70	35	62	Automatic.
6	300	2 yds. x 5 yds.	20	6	30	2	Automatic.
7	300	2 yds. x 5 yds.	20	12	60	2	Automatic.
8	300	2 yds. x 5 yds.	140	50	36	38	Automatic.
9	400	2 yds. x 5 yds	20	20	100	2	Automatic.
10	400	2 yds. x 5 yds.	20	20	100	2	Automatic.
11	400	2 yds. x 5 yds.	40	30	80	6	Automatic.
12	400	2 yds. x 5 yds.	140	72	51	42	Automatic.
13	200	Heads of 3 men.	168	165	98	25	Automatic.
14	200	Heads of 3 men.	120	110	92	20	Automatic.
15	300	Heads of 3 men.	48	48	100	6	Automatic.
16	300	Heads of 3 men.	20	20	100	2	Automatic.
17	500	2 yds. x 5 yds.	400	296	75	85	Automatic.

WEAPONS AND MUNITIONS OF WAR.

PART I.—Infantry Weapons.

By Captain CHARLES CRAWFORD, Twentieth Infantry.

[The following is an extract from the course in the above subject at the Infantry and Cavalry School.]

AUTOMATIC RIFLES.

EXPERIMENTS have been going on since 1900 to perfect an automatic rifle made on the principle of the Mauser pistol. One that will fire ten shots without reloading and will require a separate pull upon the trigger by the finger to fire each shot, is sought.

Each shot fired from a small arm must be aimed, because the recoil and the flash will always throw the sights off the target. Aside from rapid loading and consequent rapid firing, the automatic rifle has the important advantage of reducing the fatigue of firing. Firing a number of rounds from a prone position is exhausting work when using the clip or magazine; for after each shot the body must be partly rolled over on the left side, the weight of the rifle shifted to the left hand, the right arm raised to force the bolt backward, then forward, and the original position again resumed. One is under a strain in the prone position anyway, and so fatiguing is all this that the men in a firing line, advancing to a position from whence they can assault, will be almost exhausted physically, for they each will have fired from 100 to 150 cartridges.

The objection to such a rifle will probably be: (1) the complexity and weight of its mechanism; (2) the necessity its use will entail of increased fire discipline.

Then, too, the more complicated the arm and the more ammunition it can fire per minute, the greater will be the need for having a highly trained soldier to use it.

The manufacture of such an arm seems feasible and its use advantageous, but so far little attention seems to have been given it by others than inventors.

MACHINE GUNS.

The rifle caliber machine gun is a more or less intricate mechanism to produce infantry fire. It is carried upon wheels or upon a pack animal, and requires an appreciable length of time to come into action.

Firing from a wheel mount or from a tripod it can deliver 600 shots per minute, so that it is equal in fire effect to about sixty men. Its advantages are:

1. By it a rapidly concentrated fire effect can be secured and controlled.
2. It is easily concealed, especially when mounted on a tripod and used close to the ground.
3. It can be used as a range finder; the strike of the rapidly-delivered fire being visible when the strike of ordinary fire of infantry could not be seen.

Its disadvantages are:

1. The length of time required to come into action.
2. The noise it makes, which reveals its locality.
3. The fact that it can be used at a halt only.
4. Inability to keep up a long sustained fire.

Whether machine guns should be distributed among the smaller units of a command, one to each battalion for instance, or whether they should be concentrated into sections or batteries and used together like guns of a battery of artillery, has not been decided. The prevailing military opinion in Europe favors concentrating them into sections of about six guns each and attaching these to battalions or regiments. Operating more than six guns together is not favored, because grouping the guns draws artillery fire. Our plan is to distribute them among regiments organized so that they may be grouped by order of brigade or higher commanders.

Machine guns are better adapted to defensive than to offensive action, because their fire cannot be delivered while

advancing as can infantry fire, nor can they compete with artillery in length of range. It is believed that about two machine guns per thousand infantry should be provided, although no rule fixing the proportion can be prescribed, because we have not had sufficient war experience to determine the exact place of the machine gun in tactics.

THE MAXIM AUTOMATIC MACHINE GUN, CALIBRE .30, MODEL 1904.*

The United States has officially adopted the Maxim automatic machine gun for service. It is adapted for mounting upon either a tripod or a two-wheeled carriage. The former mount is issued for use by troops in the field, and the latter for use in and around sea coast fortifications. In both mounts the parts connecting with the gun are alike, so that guns are interchangeable with mounts of both types. The ammunition used is the same as that for the U. S. magazine rifle, caliber .30, model 1903.

In this gun the force of recoil is utilized to open the breech, to extract the empty case, and to insert and fire the next cartridge. The cartridges are held in a canvas belt, which is drawn transversely through the casing of the gun by the action of the feed mechanism. When the gun is fired, the barrel and lock move to the rear a short distance. At the end of this recoil the lock is drawn back from the chamber, thus opening the breech, and at the same time drawing a loaded cartridge from the belt and extracting an empty case from the chamber.

The barrel is chambered and rifled the same as the U. S. magazine rifle, model of 1903.

The water jacket consists of a piece of drawn steel tubing, holding twelve pints of water. With rapid fire, 750 shots may be fired before replenishing the water. Thereafter it is necessary to add six pints of water for each 500 shots.

*A full description of this weapon is to be found in the "Handbook of the Maxim Automatic Machine Gun," in the Staff College library.

THE REXAR RIFLE.

Inventors are now working on a device having a combination of the principles of a rifle and a machine gun; the Rexar rifle is a type. It weighs seventeen and one-half pounds, and can fire 300 rounds a minute. It is like the rifle in that it is fired from the shoulder, but its weight is such that the person firing it must take a prone position.

For infantry its advantages over tripod types of machine guns appear to be neither many nor important, although its portability may make it of great service to cavalry. Any machine gun carried on a pack horse, yet not impeding the movement of the cavalry it supports, should be a great factor in the operations of this arm; for a small number of men with machine gun fire can defend a line or a position which otherwise would immobilize a large number of troopers. The cavalrymen thus set free increase the force which can utilize the mobility of the arm or engage in mounted action.

DURBAR WEEK AT AGRA.

By Captain S. A. PURVIANCE, Second Cavalry.

THE traveler arriving in the City of Agra in the early part of the month of January could not fail to notice that great preparations were being made for some coming event in the ancient Mogul capital on the banks of the Jumna.

As the train came into the Agra Fort station, he would see that the station was decorated with flags and bunting, and the streets were lined with poles decorated with streamers and garlands, and arches with similar decorations were erected at the intersections of the principal streets.

The streets too were crowded with all sorts of men and animals. Fierce looking Afghans mounted on sturdy little ponies, Hindus riding stately camels or driving little pack donkeys in droves, bullock carts loaded with camp equipment with Tommie Atkins perched on top, native vehicles of all sorts drawn by horses or bullocks, English cavalrymen on Australian horses, Sikhs, Jats, Gurkhas and native soldiery of all sorts, mounted and on foot, made a scene that for variety and color is not often met with even in India.

The occasion of all this gathering was the approaching durbar in honor of the Amir of Afghanistan, who for the first time in his life had left the borders of his own country, and was making a tour of India; and as the durbar was to be the principal event of the Amir's visit, no efforts were spared by the Indian government to make it a success.

The historical City of Agra, in the central part of India, with two railroad stations, was an ideal place of concentration for the troops and visitors, and both the town itself and the surrounding country were well adapted for the numerous camps erected to shelter the thousands who came from all parts of India to witness the durbar.

The task of the Indian government in looking after the vast number of visitors was an enormous one, and the greatest credit is due the hard worked officials in charge for the efficient manner in which it was carried out.

In addition to the Amir with his retinue, there were some fifteen native princes and chiefs with their large bands of retainers, for each of whom a special camp was provided.

Then the Viceroy and numerous civil and military officials with their staffs made another long list of camps to be prepared.

Every available space in the southern portion of the city was covered with camps, complete in every particular, and fitted up in a manner known only in India, the land of camps, some of the larger tents being marvels of beauty and luxury, and furnished with every convenience from parlor to kitchen.

As the average up country hotel in India is bad beyond description, even to one who has lived in a Manila hotel, the government established and maintained what was known as the visitors' camp, where the casual visitor could obtain board and lodging for the week.

All the tents in this camp, however, were booked some weeks in advance, so the writer was obliged to go to one of the local hotels, and had it not been for the hospitality of the different officers with whom he dined during the week, his name would doubtless be added to the long list of victims of an Indian famine.

South of the different guest and visitors' camps were the camps of the infantry divisions, while the cavalry and artillery were in camp several miles west of the town, but with easy access by several good roads and a branch railroad which ran hourly trains between the town and camp.

The Amir arrived in Agra on the 8th day of January, and was met at the station by the Lieutenant-Governor, Sir J. P. Hewitt, and other civil and military officials, and the escort, composed of a battery of horse artillery, two regiments of lancers and several infantry regiments. The Amir was escorted to his camp, where he was greeted with a salute of thirty-one guns, and the week's festivities had begun.

The remainder of the week was occupied by ceremonies and entertainments of all kinds; official calls were exchanged between the English officials and the Amir and native princes, dinners were given, the Viceroy entertained with a garden party and the Lieutenant-Governor with a gymkhana, the feature of the latter being a well executed musical ride by forty troopers of the Fifteenth Hussars.

The week's ceremonies closed with the Chapter of Indian Orders, held in the old hall of public justice in the fort, where the ceremony of the Investiture of the Orders was carried out.

During the week, a polo tournament was played on the Agra Club grounds, teams from the different regiments competing for a silver cup donated by the Viceroy.

The majority of the games were well played and closely contested, the cup going to the Fifteenth Hussars, who beat the Central India Horse in the final game by a score of five goals and five subsidiaries, to three goals.

The big event of the week, the review of the troops, took place January 12th on the plain west of the town, and bright and early that morning the roads and fields were covered with vehicles and people moving toward the reviewing field, where tiers of seats had been erected on each side of the saluting point.

The morning air was crisp and cool, and the rain of a few days before had laid the dust so that conditions of ground and weather were both favorable.

The troops were on the ground early, marching to take their positions in the long line which stretched across the plain as far as the eye could see, the horse artillery on the extreme right, next the ten cavalry regiments, then the field and heavy artillery, with the infantry on the left in long lines of green and scarlet.

At the saluting point were the Viceroy, the Amir and Lord Kitchener, the commander-in-chief, with their escorts, and promptly at 10:30 the headquarters trumpeter sounded the attention, and the 30,000 British and native troops, under command of General Sir Alfred Gaselee, started to march past.

After the General and his staff, came D and O Batteries of the Royal Horse Artillery, marching battery front and presenting a splendid appearance, as both men and horses were fine specimens physically.

Next came the cavalry division under command of Major-General J. E. Nixon, preceded by the regimental bands combined in one huge band, which turned to the left after passing the saluting point and played while the cavalry and artillery passed, changing the air to the regimental tune of each regiment as that regiment neared the saluting point.

The cavalry marched past in column of squadrons, each squadron in double rank with a front of about forty lances in the British squadrons and about fifty or sixty in the native.

The Seventeenth (Duke of Cambridge's own) Lancers, popularly known as the "Death or Glory Boys," headed the division in blue uniforms faced with white, followed by the Fifth Cavalry in scarlet and the Thirty-first Lancers in blue with scarlet facings.

Then came the First Royal Dragoons in a showy uniform of scarlet and blue, followed by the Sixth Cavalry in blue, and the famous Ninth (Hodson's) Horse in blue with white facings.

Next the Fifteenth (the King's) Hussars rode past in blue and scarlet and splendidly mounted on superb little Arabs, followed by three native regiments, the Eighteenth Tiwana Lancers, the First Lancers (Skinner's Horse) in a striking uniform of yellow and black, with the Fourteenth (Murray's) Jat Lancers bringing up the rear of the division.

Then the artillery, commanded by Lieutenant General R. S. Barker, rumbled by in column of batteries, all the artillerymen uniformed alike in blue with red facings, first two brigades (three batteries each) of the ordinary field gun, followed by a brigade composed of three batteries of howitzers.

Next two batteries of mountain artillery swung by, both men and mules in fine condition, followed by the heavy battery brigade, the huge guns of the first two batteries being drawn by eight horses each, while the third presented a

strange appearance, each gun being drawn by sixteen bullocks, with a native driver sitting on the yoke of each pair.

Four companies of sappers and miners then marched past, looking very business-like with their pack mules loaded with tools of all description.

The cavalry band now ceased playing and moved off as the Seventh Infantry Division under Major General G. Henry marched up.

Each brigade was preceded by the combined bands, who played their brigade past at an unusually quick step, the shrill pipes of the Scots being very much in evidence, as Scottish airs seemed to be the favorite marching tunes.

The infantry passed in double company formation at half column distance, the leading brigade composed of the First Scottish Rifles, the Second King's Royal Rifle Corps, the First Royal Irish Rifles and the Second Rifle Brigade, all clad in riflemen's green.

The next two brigades were composed entirely of Gurkhas, who impressed one as being the best of all the different native troops, and in appearance resemble our battalions of Philippine scouts.

Clad in dark green uniforms, with their small and sturdy figures and somewhat Japanese faces, as they swung by in long even lines, they looked like the soldiers they are said to be.

The Forty-eighth Pioneers, under Lieutenant Colonel Justice, brought up the rear of the division.

The Eighth Division, commanded by Lieutenant General Sir E. L. Elliott, followed, the leading brigade composed of the First Somerset Light Infantry, the First Oxford Light Infantry, the First Durham Light Infantry and the Second Royal Welch Fusiliers, all in scarlet, with the regimental mascot of the fusiliers, a large white goat, marching in front of their leading battalion.

The next brigade was composed of four native regiments, the Eighth Rajputs, the Tenth Jats, the Twenty-fourth Punjabs, and the Ninth Bhopal Infantry, the plain drab uniform of the Bhopals contrasting strongly with the scarlet of the others.

The following brigade consisted of the Eighth Brahmas, the Seventeenth Infantry (known as the Royal Regiment) the Thirty-fifth Sikhs and the Fourth Rajputs.

The Twelfth Pioneers, who passed next, were the last troops in the long column, which had taken an hour and a half to pass the saluting point.

The march past at a walk was a splendid sight, but a still better one was to come, for after the infantry cleared the way, the two batteries of horse artillery and eight of the cavalry regiments countermarched, passing the stand at a full gallop, the cavalry in line of regiments, in some cases the lines extending half way across the field.

The sight was a magnificent one, and the well kept lines spoke well for the horsemanship of both British and native cavalrymen.

The infantry divisions also countermarched in their new divisional formation, each division complete in a dense mass formation with the divisional cavalry (one regiment) on the right flank and the artillery and pioneers in rear of the massed brigades.

After the divisions had passed, the cavalry and horse artillery, that had taken their original positions in line facing the stands, advanced first at a trot and then at a gallop in one long line across the plain until they reached the center of the field, where they halted and gave the Royal salute.

The Amir and the Viceroy then rode out and congratulated the general commanding on the appearance and bearing of the troops during the march past, and the big review of the Agra durbar was over.

FIVE HUNDRED-MILE MARCH THROUGH THE ROCKY MOUNTAINS BY THE EIGHTH BATTALION, FIELD ARTILLERY, FORT DOUGLAS, SALT LAKE CITY, UTAH, TO FORT D. A. RUSSELL, CHEYENNE, WYOMING, APRIL 25TH TO MAY 20TH, 1906.

By Major S. M. FOOTE, Artillery Corps.

LATE in the fall of 1905 it was contemplated, and orders were actually issued, to march the Nineteenth Battery from Fort Riley, Kansas, to Fort Douglas, Utah, and the Twenty-second Battery from Douglas to Riley, the movements to commence in November. On second thought, however, these orders were countermanded, and the transfer was made by rail. The only difficulties to be encountered that might prove to be insuperable would have been from snow in the stretch between Cheyenne and Salt Lake. Cheyenne has an elevation of a little over 6,000 feet, and Salt Lake a little over 4,000. The highest point on the route is between 8,000 and 9,000 feet, and that is in the passes of the Sherman Mountains, about forty miles west of Cheyenne, a few miles east of old Fort Sanders. The Eighth Battalion made the 500-mile march in a rather favorable season of the year in twenty-six days.

Winter marches made through the Rockies on the overland trails fifty to one hundred years ago were almost invariably marked by great hardships and appalling loss of life among both men and animals; but with proper preparation and with railroads to lay down supplies near at hand, the march could be made in the winter by field artillery. However, this would not be what could be called a profitable march, as it would require arctic clothing for the men, the transportation of an ample reserve supply of food, fuel and forage, to guard against being caught by a blizzard without

supplies, and unless most fortunate as to open weather, long delays to dig through deep snows, or make detours to get around them.

In the spring of 1906 the battalion of field artillery at Fort Douglas, near Salt Lake City, Utah, consisting of the Twelfth and Nineteenth Batteries, was ordered to change station to Fort D. A. Russell, near Cheyenne, Wyoming, by marching. Until the middle of April the Wahsatch Range was next to impassable on account of snow. The march actually began on April 25th, and even then four days of snowy weather were experienced in the first week out.

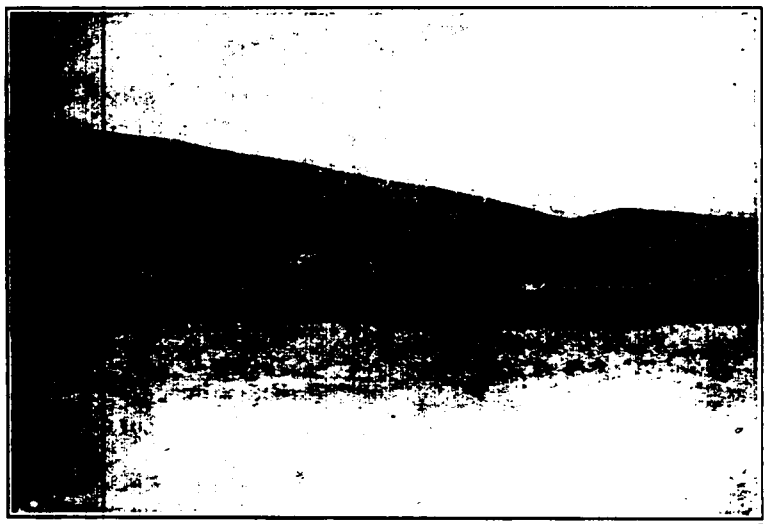
The column consisted of seven line officers, a surgeon, a veterinarian, 213 men, 1 civilian wagonmaster, 8 civilian teamsters, 227 horses, 37 mules, 8 new 3-inch rapid fire guns, 12 caissons, 2 battery wagons and forges, 2 store wagons, 4 kit wagons, 8 four-mule escort wagons, 1 four-mule ambulance. When stretched out on the road the column was a third to a half mile in length.

While nothing was taken along that was not needed, transportation was found for everything necessary to comfort on a long march. The tentage consisted of ten conical, three wall and two common tents for each battery, so that there were ten or eleven men to each conical tent. There were also one conical for hospital, two conicals for officers' mess, one wall tent for battalion commander, one for surgeon and veterinarian, one common tent for the acting battalion sergeant major and one common tent for the officers' sink. Each battery and the officers' mess carried a field range. Only a few Sibley stoves were taken, one for hospital, one for guard tent, one for officers' mess tent, and not more than three or four others. They were found to be sufficient at this season. On cold evenings wood or sage brush was always found to make campfires. The four-mule escort wagons were assigned three to each battery, one for the combined officers' mess, and one for the hospital and veterinarian supplies and headquarters tentage and baggage.

In order to see that everything was in proper shape before starting, the battalion went into camp on Sunday, April 22d, on the Fort Douglas reservation. On Monday camp was

broken, a short march was made and camp pitched. Tuesday baggage to go by freight was shipped and the final preparations made for an early start the next morning, as the first day's march was to be a hard one over a pass of the Wahsatch Mountains.

The post of Fort Douglas was the station of headquarters, band and five companies of the Twenty-ninth Infantry, who turned out in force to see the artillery off, the band playing enlivening airs at reveille and the battalion escorting us through the post, when we left camp at 7 o'clock Wednes-



BIVOUAC AT KIMBALL'S RANCH, UTAH.

day morning, April 25, 1906. It had rained the day before and was cloudy and windy when we left camp, giving a shadowy beauty to the city below, the lake beyond, and the snow-clad mountains against the distant horizon. Our route was by way of Parley's Canyon, over a divide of the Wahsatch Range at an elevation of 7,100 feet. The elevation at Fort Douglas is 4,700 feet. Shortly after leaving the post it began to rain, turning to snow later in the day. The mud became deeper, and for the last ten miles of the day's march the wheels of

the supply wagon at the rear of the column sank to the hubs in many of the mud-holes which it was impossible to avoid. Just before reaching camp word was received that the train had been stalled five miles back, and that several escort wagons were hopelessly mired, and that most of the mules had given up. Some artillery teams were then sent back to pull them out, but the mire extended for such a distance that more teams were needed. Darkness came soon on account of the heavy snow then falling, and several wagons were left under guard to remain until the next morning. The men bivouacked that night, and it was nearly noon of the 26th before the last of the wagons was gotten up. The most of the mules furnished for this march were too light for draft mules. The wagon master had never had any experience with a train, and knew nothing whatever about either wagons or mules. He was dismissed a few days later and a teamster put in his place. One of the teamsters was old and decrepit, and gave out the first day.

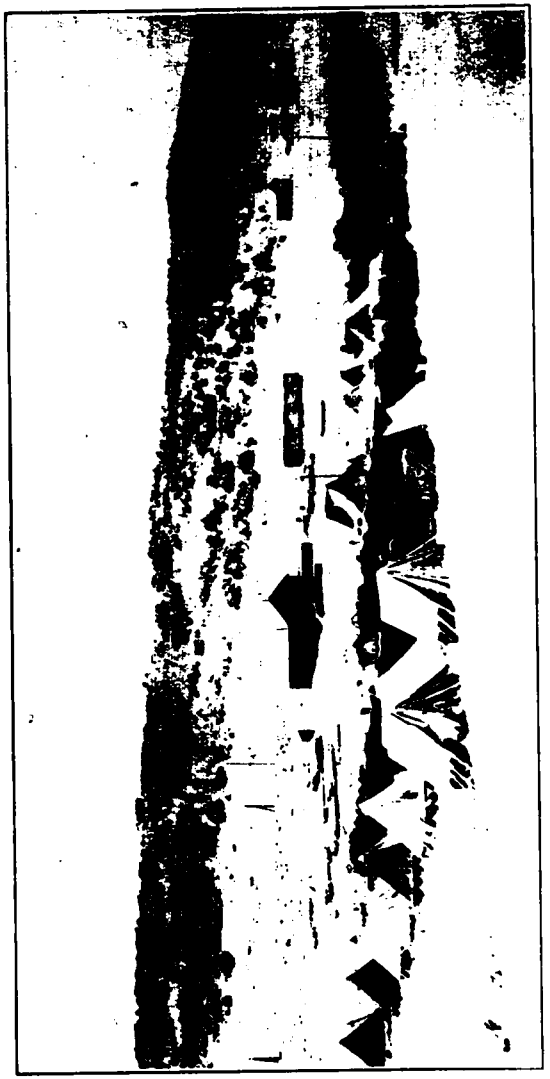
April 26th. Sent the wagon train ahead; left camp about noon and marched in rain, snow and mud to Wanship, twelve miles. Late in the afternoon the weather cleared. Camp ground was a clean turf near a running stream.

April 27th. Marched down to Echo, which is on the main line of the Union Pacific, and up Echo Canyon to Emory, twenty-two miles. Good weather, good roads. Rough ground for camp alongside railroad tracks. Water from Echo Creek, near by.

April 28th. Evanston twenty-six miles. Up grade most of the way, but good roads and good weather. Camp in edge of town, near stockyards. Clean, level ground. Water for kitchens from hydrants on ground; water for horses from troughs in the yards.

April 29th. Sunday. Remain in Evanston. This is a town of about 3,000 inhabitants. The people of Evanston made our stay over Sunday very agreeable to all.

April 30th. Spring Valley, twenty one miles. The last few miles in rain and snow. Went into camp and mustered the battalion in a blinding snow storm. Snow continued



CAMP AT SPRING VALLEY, WYOMING.

during the afternoon and night. Fair camp ground near railroad station. Water from railroad tank.

May 1st. Fort Bridger, nineteen miles. This was about the hardest march on the whole trip, and seemed much longer than nineteen miles. Snow was lying eight to ten inches on the level. All tentage, harness, everything, was frozen stiff, and it was over an hour after the usual time before the battalion was ready to leave camp. As the day warmed up, the mud grew worse. It became necessary in places to cut down the roads on the upper side in order to keep carriages from slipping down and overturning on the hillside. The gumbo mud was so thick and sticky that many wheels filled solid from hub to felloes. In several places it was necessary to double up some of the teams in order to get through. In dry weather this is probably a very good road It passes north of Bridger Butte. The approaches to the ford of Black's Fork being in very bad condition, camp was made on a bluff west of the stream. Ground covered with sage brush. Most of the barracks of old Fort Bridger have been torn down. One is used as stable. Part of the old Mormon wall is still standing. The evergreens planted there are flourishing and are fine trees twenty to twenty-five feet high. Some of the officers' quarters of logs are still standing. The commanding officer's house has been moved down near the stone commissary and quartermaster buildings and is now used as a hotel. The commissary building is now a country store, run by Mr. W. A. Carter, son of the former post trader. This Mr. Carter and his sister own the old fort and several thousand acres of ranch land near there. Information acquired at this place indicated that the fords of Black's Fork would probably cause much difficulty. It was therefore decided to make a detour by a "high water" road, and thus avoid crossing Black's Fork at all.

May 2d. North bank of Little Muddy, twenty-two miles. Marched ten miles to Carter Station in the morning. From Carter to Granger is forty-six miles, without good water. Unharnessed at Carter Station and remained until 4 in the afternoon. Then watered and marched northwest nine miles,

crossed the Little Muddy on a bridge and went three miles to camp. Carried water for coffee. The water of the Little Muddy is very alkaline, and it is not well to let animals drink much of it. Many horses had that morning shown

PART OF WAGON TRAIN.

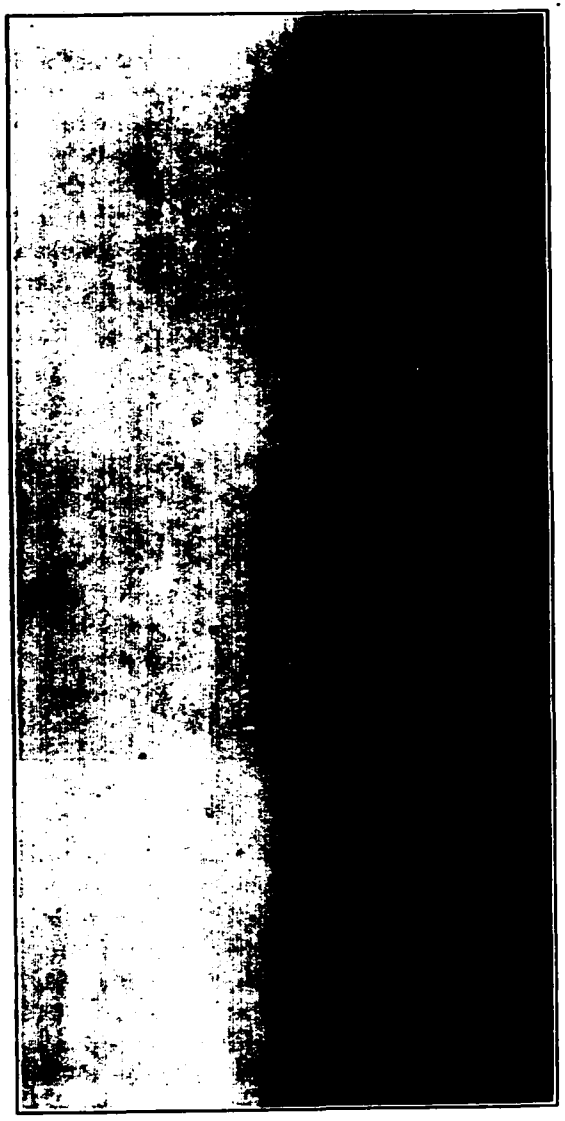
nausea, approaching colic, which was thought due to the alkaline water of this country. The weather was fair and the ground nearly dry by afternoon. The roads for three days, 2d, 3d and 4th, were merely dim trails, and not a single person was encountered on them.

May 3d. Granger, twenty-four miles. Good weather. Crossed Ham's Fork at Granger by a good ford a mile or so above its junction with Black's Fork and went into a clean, turf camp on the banks of Ham's Fork. Broad stream, stony bottom, good water. Up to this point we had followed close to the old Mormon and Emigrant trail, along which Echo Canyon, Fort Bridger, Black's Fork, are all landmarks; but directly east from here lay the Red Desert for a stretch of 150 miles, an impassable barrier for the emigrant wagon trains owing to lack of grazing and water. Therefore the

WATERING AT THE FORD OF HAM'S FORK.

old trail continued from here northeast and crossing the Divide at South Pass followed east and southeast down the Sweetwater and North Platte to old Fort Laramie, and so on east. The Union Pacific Railroad now runs almost due east across the desert, and we followed this route, relying upon the railroad for fuel, water, and transportation of forage.

May 4th. Bryan, twenty-one miles. Camp in sage brush near station. Water from branch of Black's Fork. Good weather. The only game that came within our reach during the whole trip consisted of a few rabbits. A bunch of antelope was espied on a distant skyline one day. A few fish



THE CONTINENTAL DIVIDE.

were caught from time to time, notably mullet, in a branch of Black's Fork near Bryan.

May 5th. Rock Springs, twenty-nine miles. Road from Bryan to Green River is excellent. Crossed the Green River by a good wagon bridge, a half mile or so below the railroad bridge. Here begins the Red Desert, which extends from the Green River to the North Platte. From Green River to Rock Springs, the road is only fair, and in wet weather would be quite impassable on account of the alkali flats, which water converts into mires. Rock Springs is a coal mining town of about 5,000 inhabitants. Camped in the edge of the town. Camp ground none too clean and very dusty in a high wind. Water from hydrants of the city supply pumped from Green River, a distance of fifteen miles.

May 6th, Sunday. Remained at Rock Springs. Agreeable stay, and the weather good, except for the wind.

May 7th Point of Rocks, a monotonous march of twenty-seven miles. Hot part of the day. Camp in sage brush. Water from railroad tank.

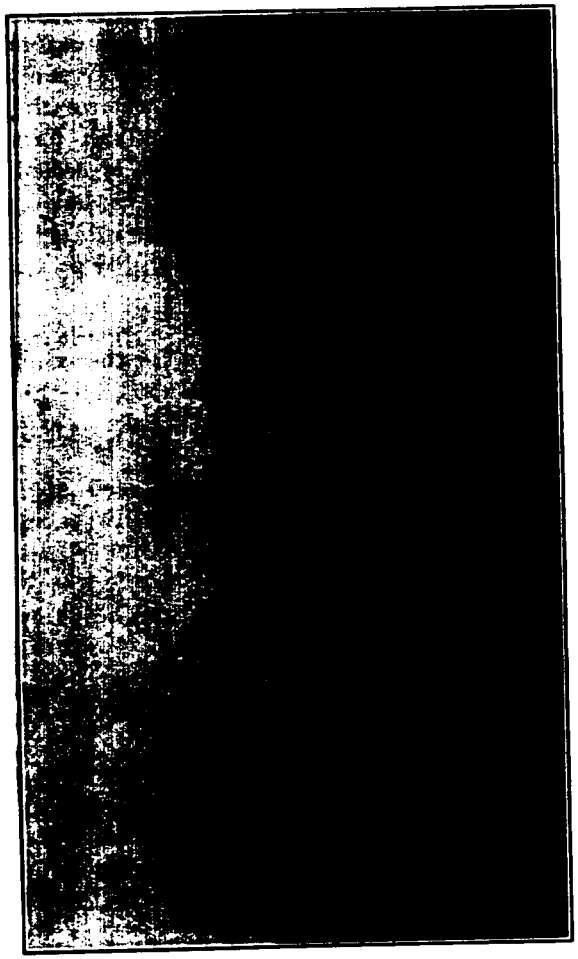
May 8th. The bridge over Bitter Creek at Point of Rocks was found in very bad shape. After repairing it, everything was gotten over in safety by unhitching and taking the carriages over by hand. Bitter Creek Station, twenty-two miles. Hot weather; monotonous march; camp in sage brush; water from railroad tanks. At this point met a new outfit of transportation, which had been sent from Fort D. A. Russell by rail to take the place of that which had been supplied from Fort Douglas.

May 9th. Started the empty train back for Fort Douglas by marching. Marched to Hillside, twenty-one miles. Most of the places where we camped were not towns, but merely small railroad stations with water tank and sometimes a country store. Hillside is simply a railroad siding; no building here, not even a section house. March same as that of 7th and 8th; camp in sage brush; water from railroad water cars.

May 10th. Latham, twenty-one miles. March, camp and water supply same as preceding; weather fine.

May 11th. Daley's Ranch, twenty-one miles. Marched through a gently rolling country and crossed the Continen-

tal Divide, not marked by any special feature, but the waters west find their way to the Pacific, those east to the Atlantic. March, camp and water supply same as preceding; weather



OFFICERS' QUARTERS AT OLD FORT STEELE.

fine. This is a big sheep ranch and sheep shearing corral. Everyone in this part of the country proudly recalls a visit and stay over night at the ranch by Colonel Roosevelt a few years ago, before he became President.

May 12th. Rawlins, thirteen miles. A little better country; camp in edge of town in sage brush; water from city supply, pumped from the North Platte, fifteen miles distant. Rain and snow, with a cold, high wind, continued during the entire time of stay.

May 13th. Remain at Rawlins. This is a town of about 3,000 inhabitants. Sheep country north and west, cattle south and east.

May 14th. Scribner's Ranch on Pass Creek, twenty-six miles. Good road to Fort Steele on the North Platte, sixteen miles. This is old Fort Fred Steele. Many of the barracks, stables, and officers' quarters are still standing. Three-quarters of a mile down stream crossed the North Platte on the old wooden bridge, recently repaired. With careful driving everything came over safely. The river was too high to ford. It was learned that the bridge over Pass Creek on the direct road to Elk Mountain had been washed out. The battalion took the road south and crossed the bridge at Scribner's Ranch. Here there was a fine turf camp on the banks of Pass Creek. The roads were good and the weather cleared during the day.

May 15th. Elk Mountain Postoffice, twenty seven miles. Hilly road north of Sheepshead Mountain and over the northern spurs of Elk Mountain. Reached an elevation of over 8,000 feet. Fine weather; clean turf camp on a branch of the Medicine Bow. Passed the site of old Fort Halleck about ten miles north of Elk Mountain Postoffice. There are no buildings of the old fort left. The place is now a prosperous looking ranch, fenced in for miles on every side.

May 16th. Crossed the Medicine Bow on a wooden bridge and marched to Dutton's Creek, twenty-two miles, passing over spurs of the Snowy Mountains until three miles from Dutton's Creek, when the column debouched from the mountains and entered Laramie Plains. Fine weather. Clean turf camp.

May 17th. Stickney's Ranch, on the Little Laramie River, twenty miles. A cold, high wind, but good roads, conducive to rapid marching. This is a fine grazing country east of the North Platte for horses, cattle and sheep, well watered, pretty

well settled and fenced, some timber on the mountains, some beginnings of crop raising.

May 18th. Laramie, seventeen miles. Excellent road and excellent weather. Crossed the Little Laramie at several places on good bridges, and the Laramie River at the city by a good bridge. The authorities offered their new fair ground for camping, and it gave a clean turf camp site. Water from city hydrants and plenty of watering troughs

The University of the State of Wyoming is located near the fair grounds, and most of the faculty and students visited camp. The battalion baseball team played a game with the University team during the afternoon. Laramie is a city of about 8,000 inhabitants, and is the shire town of Albany County. Old Fort Sanders lies about two and one-half miles south of Laramie. Most of the old buildings have been taken away.

May 19th. Fye's Ranch on the North Crow, nineteen miles. It was necessary to cross the chain of mountains directly east of Laramie. Went through Cheyenne Pass, which offers an easy grade. The road in places was pretty rough, and a number of times it was necessary to prepare the road with pick and shovel before it was passable. After crossing the Divide, 8,600 feet elevation, some eight miles from Laramie, the column entered the Forest Reserve, which is also the Fort D. A. Russell target and maneuver reservation. This is a well watered and in parts well wooded tract in the mountains at a general elevation of some 8,000 feet. It is the most picturesque country seen on this march. There are a number of ranches in the reserve with ranch buildings, fences, irrigation ditches, etc. There are plenty of good camping places near good water, with wood and grazing in the vicinity. The Happy Jack Road from Cheyenne Pass to Fort D. A. Russell, through the reserve, is an excellent gravel road and with little attention would be good any season of the year.

May 20th. Fort D. A. Russell, twenty-six miles.

There was usually all the space desired for camping, and the battalion habitually employed approximately the normal formation laid down in the Field Service Regulations, the

interval between sections being ten yards. The picket line was stretched through the rear wheels of each rank of carriages. The kit wagons were parked on the right, in front of the first sergeant's tent. The kitchens were sometimes placed on the left when it would put them on the bank of a running stream. In such cases the sinks were located at sufficient distance from them. Two Sibley tents pitched close together, facing each other, made a most convenient arrangement for the officers' mess. The field range was put up like a Sibley stove in the cook tent. A Sibley tent with a stove was taken for the hospital, but fortunately there was little use of it except as a tent for the hospital corps men. A Sibley tent with a stove was also used for the guard tent. Instead of each battery having a guard of its own, there was mounted a battalion guard of officer of the day, one musician, three non-commissioned officers and nine privates. Sentinels on the picket lines were always men belonging to the same battery as the picket lines where posted.

The following order was issued before starting on the march:

HEADQUARTERS PROVISIONAL BATTALION FIELD ARTILLERY,
FORT DOUGLAS, UTAH, April 25, 1906.

ORDERS No. 2.

The following orders will be in force during the march of this battalion from Fort Douglas to Fort D. A. Russell:

I. LIST OF CALLS.

First call	5:00 A. M.
Reveille	5:05 A. M.
Assembly	5:10 A. M.
Mess call	5:20 A. M.
The General	6:00 A. M.

The bugler of the guard will report to the battalion commander on arrival in camp for list of afternoon calls.

Tattoo	9:00 P. M.
Taps	9:30 P. M.

The new officer of the day will hold guard mounting immediately after retreat. The officer of the day will inspect camp at taps. He will inspect the guard at least once between taps and reveille, noting on the guard report the time of such inspection.

II. Kitchen and latrine sinks will be dug on arrival in camp, and will be covered in before leaving.

III. On the march each battery commander will have at the head of his battery a pair of spare horses, harnessed, and will have with the leading section of his battery a detachment of men provided with tools, ready to promptly repair roads.

IV. There will always be an officer of each battery present when the horses are watered.

V. No men will be permitted to fall out while on the march except by permission of an officer and accompanied by a non-commissioned officer. The junior lieutenant on duty with the rear battery will march at the extreme rear of the entire column. The surgeon will habitually march near the ambulance, which will follow the rear battery. The veterinarian will habitually march behind the leading battery.

VI. In towns special care will be observed to wear the uniform in as good condition as possible, to keep the blouse or overcoat buttoned throughout, and to maintain a soldierly bearing.

VII. There must be no trespass upon private property. All officers and non-commissioned officers of the command are particularly cautioned to see that this order is strictly obeyed.

VIII. Men will not be permitted to take their revolvers out of camp except on duty.

By order of Major Foote.

(Signed) CHARLES T. SMART,
Second Lieutenant Artillery Corps,
Adjutant.

The battalion usually left camp a few minutes before 7 o'clock. The batteries alternated in marching at the head of the column. A halt was made of ten minutes at the end of each hour's march. A halt of about thirty minutes was usually made for luncheon, and to give a half feed. On a march of over twenty-five miles a halt of an hour was made, horses unharnessed and given a half feed. Whenever possible, horses were watered at least once during the march. The rate of march varied considerably. On cold mornings, with a rear wind, or descending a long, gentle grade, four miles an hour; on hot days, or marching up steep or long grades, not more than three miles an hour. The trot was given on only a few occasions during the entire march.

When arriving in camp before 3:15 o'clock, stables were held at 4, retreat at 5:30, and guard mounting immediately after retreat. Supper after guard mounting. On arriving in camp later than 3:15, stables were held about three-quarters of an hour after arrival and retreat about an hour and a quarter after stable call.

The following variation from the above order was made: The Twelfth Battery put six horses on each kit wagon, with artillery harness and a driver for each pair. In this case the spare pair of harnessed horses at the head of the column was dispensed with, as it was thought a pair could be spared from a kit wagon if needed.

The Nineteenth Battery had four horses with quartermaster harness on each kit wagon. Unfortunately, the only quartermaster harness obtainable at Fort Douglas was mule harness, and the result was a number of sore shoulders among the horses in this harness, due to ill-fitting collars.

Nearly all the horses on this march were mountain bred —Utah and California. Many of them were too light for artillery horses. Three died on the trip. The veterinarian reports: "One wheel horse died May 1st of stomach colic (*gastro enteritis*). One horse died May 16th of diabetes. One horse died May 20th of inflammation of the bowels (*enteritis*)." All had lost flesh perceptibly by the end of the second week, some more than others, due to weak constitution or nervous temperament. The week crossing the Red Desert was hard on them. Some hot weather, plenty of dust, water in buckets from railroad tanks, cisterns and cars, wild hay (wire grass), all helped to pull them down somewhat. Incipient galls were industriously treated, with the result that there were no sore necks or sore backs among the artillery horses, and all the animals were remarkably free from shoulder galls except the horses in the quartermaster harness, all of which had collar galls. With a new outfit of fitted collars for these horses, the condition of the stock on our arrival was such that the march could have been continued indefinitely. The line harness for use on the kit wagons should be the usual artillery harness with the substitution of a back strap and belly band in place of saddle. The steel collar when properly fitted is better in every respect than the leather collar. The veterinarian, both battery commanders and the battalion commander are all agreed that on a long march it would be well to authorize an increase in the allowance of hay, especially in a windy or cold country.

Three men had to be sent to post by rail on account of rheumatism. Otherwise the health of the personnel was excellent. The surgeon reports: "The command was freer from sickness than any command of like numbers with which it has been my pleasure to serve."

The battalion started out with five days' field rations, except fresh beef, in the wagons and one emergency ration issued and carried in the personal kit. Drew seven days' rations, except fresh beef and vegetables, at Evanston, Rock Springs and Rawlins.

Fuel, hay, oats, fresh meat and vegetables were readily obtained and at reasonable prices, by giving a few days' notice in advance. As a rule it is, of course, much cheaper on a long march, and more convenient, to buy forage delivered on the spot where wanted, than it is to have it shipped from post. The Union Pacific officials, the postmasters, and all the people dealt with were most courteous and accommodating.

An experienced wagonmaster is absolutely essential to the proper handling of the supply train. It results in economy of mule flesh, wagons, time for packing, speed of marching, etc. The battalion started out with a civilian wagonmaster, absolutely ignorant of his duties, and after changing him for a civilian driver of experience there was no trouble until the battalion reached Bitter Creek and changed transportation. The civilians had to be sent back with the Fort Douglas transportation, and it was necessary to take men out of the batteries to drive the wagons. A private, who had formerly driven a mule team, was put on duty as wagonmaster. It is thought that soldiers should not be detailed for these duties if it can be helped, but if detailed they should be given extra duty pay, as they have more work and more responsibility than in the performance of straight duty.

The ordnance material stood the march without a single break of any importance. The brackets securing the spare wheels were too weak, but that was found out and the necessary repairs made before starting. The wheels were of the later type and not one suffered any appreciable damage, although roads of every description were marched over, some of which subjected the carriages for miles at a time along hillsides to a jolting side thrust. The liberal supply of spare parts carried was hardly touched. A detailed inspection made after arrival at Fort D. A. Russell showed all the material to be in excellent condition, so far as could be determined without actually firing the pieces, and later in the season the pieces and carriages stood target practice without developing any injury whatever.

The battalion was twenty-six days on the march, twenty-three marching days and three days of rest. The longest march was twenty-nine miles; the shortest twelve miles. The exact distance marched was 498.1 miles, an average of nearly twenty-two miles per marching days or nineteen miles per day for the whole period.

We found no map showing roads or trails except the Salt Lake, Fort Steele and Laramie quadrangles of the Geological Survey and Chittenden's Department of the Platte map. Chittenden's appears to be the most reliable map of the country yet published, but there have been so many changes in the past fifteen years that old maps are often misleading.

The officers and men of the command displayed care and zeal on all occasions and, through the varied and repeated experiences of the march, acquired a lasting familiarity with field duties.

HANDLING A WAGON TRAIN.

A. W. WHITEHEAD,
SUPERINTENDENT OF TRANSPORTATION, Q. M. D., FORT LEAVENWORTH, KANSAS.

A MISTAKEN idea seems to prevail amongst many people that anyone can drive a team of mules. Anyone can drive old played out mules, but it takes an experienced hand to drive four young frisky mules at all inclined to bolt or shy, and to prevent them from turning and breaking out the tongue—jack-knifing, as it is called—and it must be remembered that holding the lines properly does not mean that a man is a good teamster. A man to be a successful teamster must have a knowledge of mules—their care, condition, the amount of work they can perform, the size of a load they can pull, when they pull evenly and steadily, when they need rest, and when they need the whip. He should not pull and haul, using the common see-saw motion, and he should be very particular and not continually lap a mule with whip or reins. When there is cause for whipping, do so with vigor; continually cutting and whipping a mule only excites him, and is the cause in many instances of balking. A good teamster will not do this, nor will he allow his team to rush up a hill and play them out; he will usually stop at intervals and allow his mules to "blow" and get their wind.

A teamster should have some knowledge of wagons, carts and harness, how to load a wagon, who to take orders from, and the forage allowance.

I would rather have a man who has never harnessed a mule than one who imagines he can drive anything that walks. Usually the former makes a good teamster, the latter a complete failure. I find the best method to be pursued is to explain the proper manner in which to hold the lines and whip to prevent a team from jack-knifing, and then from time to time a word as to the care of

the animals, and if he is a good man he will learn sooner by observing the old teamsters than by all the instruction you can give. An old teamster is continually working around his outfit; he changes a strap here, tightens a nut there, watches his mules for any signs of sickness, fondles them as you would a dog, and in a thousand ways shows his affection for these strong, sturdy animals. When once a team of mules has been assigned to a teamster, they should not be taken from him unless he mistreats them, which is a rare occurrence. When once he has a team, he naturally cultivates their good will, and in a short space of time the mules become familiar with him so that he can do anything with them. You can always tell a poor teamster by his mules; they show it in disposition and care. I have seen many an excellent teamster quit before he would permit his mules to be taken from him.

The following is the equipment of wagon trains sent from this post* to the Fort Riley maneuvers in 1906:

Axe right side of body in socket.
Bucket G. I. on snap near axle under body.
Sponge in tool box.
Can axle grease in tool box.
Lantern in bucket packed in hay.
Monkey wrench or wagon wrench in tool box.
Open links in jockey box.
Tongue left side lashed in side irons.
Reach lashed to tongue.
Pick axe right side of wagon in socket.
Rope 100 feet left side of seat.
Spade under foot board lashed to irons.
Wire and straps in tool box.
Lead bars or double trees lashed to tongue.
Feed box on end of wagon against tail gate.
Extra wheels in the wagon body.
Curry comb and horse brush in tool box.

It will be observed from the foregoing list that no articles are placed under the wagon body except the G. I. bucket.

* Fort Leavenworth, Kansas.

Experience has proved that carrying spades, single-trees and lead bars under the body of the wagon is not a good method for the reason that should you get mired it will be necessary to spend considerable time in digging and unfastening the articles under the body of the wagon before they can be of any use. It is often necessary to get these articles quickly. Your lead bars may get caught in trying to pull them out from under the wagon; it is a simple matter to get your spade from under the foot board and your lead bars or double-trees, axe and pick axe from the side of your wagon.

I am in favor of standard type of wagon for field work and one for post work. In my opinion, the iron axle, wide tire wagon is the best in practice marches I have had at this post. I have never had a wagon break down which had iron axles and wide tires with iron hubs, and the only objection to these wagons is that they are not universally in use throughout the country. These wheels are not as easily obtained as the narrow tired wheels with the hollow skein axles.

In the march to Fort Riley we used three different kinds, and it became necessary to carry parts on each wagon—this can be overcome. If we have one type of a wagon with parts interchangeable, a tongue and reach for every second wagon is enough. Tongues and reaches are not now alike as they should be. During the march to and from Fort Riley we did not break a tongue or a reach, and only one lead bar clip. This is considered remarkable, and is not to be surpassed by any wagon team in the service

The practice marches to the maneuver camps brought forth good results in loading and unloading wagons. A special detail did all this, and they became so proficient that the wagon teams were never delayed more than a few minutes at a time, and this but seldom. The loads withstood the rough places in the road, the wagons and animals were greatly benefited by it and the men were not called upon to readjust loads, thus burdening them with additional labor. If a wagon is properly loaded, etc., heavy articles in front, the tail gate not used and the load lashed down before the wagon sheet is put on, no trouble will arise during the trip,

and if lessons in this work were taught at army posts, it would materially benefit all concerned.

A wagon train should be preceded by a wagon master, who should be accompanied by one of his assistants, the other riding in rear of the train. Evenly gaited and good pulling teams should lead, a good pulling team should be in the center of the train, although this is sometimes impossible where the train is made up in battalion formation. In my opinion the wagon master should have complete charge in arranging his wagons in column, as it often happens that he has a slow pulling team or a fast pulling team. Neither of these teams should lead, nor should the slow pulling team be placed in the rear; they should be put in between other teams. Again, men will get careless in driving; some will whip unnecessarily, some will lag, some will play out their mules. All these things should be considered and the men placed where they can do the least harm, and at the same time be watched. The wagon master should continually ride his train, keeping the teams ten yards apart. It is a mistaken idea that some have, when a wagon train becomes caught in the mud and is delayed, for the rest of the train to move on. If there is to be considerable time lost in putting a wagon together after being broken, then the rest of the train should go on with one assistant wagon master. If a wagon is simply mired, the train should be held intact, because it is necessary in that case to have all the help you can get. If a wagon in the center of the train gets mired and the first half goes on, you will pull your last half out by mules already played out, if all your good pulling teams are in the lead. If your fifth chains happen to be on the wagons that have gone on, suppose you have to unload, isn't it quicker to have all the train help than a mere handful? I have found in such an emergency as this a block and tackle will quickly start a wagon; the lead mules are used to work the block and tackle; the wheel mules remain hitched to the wagon to steady it. A wagon will usually start when pulled evenly, even if the hubs are down in the mud. The mules often cannot obtain a foothold and they themselves become mired by the constant stamping about in the mud. To my

mind, a block and tackle should be on every wagon train. It can easily be carried on the side of a wagon.

Mules should be watered several times a day en route. If they play out and it is impossible to make camp, unhitch them, let them roll about and eat grass for about an hour. By this method they become refreshed and will usually go on again without any trouble. A small amount of aromatic spirits of ammonia, diluted, given as a drench will refresh an animal wonderfully, also some water to drink, and his nose, mouth and face sponged off. A mule in this condition will need careful nursing the entire day and the team left to come in slowly.

When camp has been reached and your place assigned you, which is usually near water, your wagons should face the camp at intervals of about seven yards, if the formation of the ground will permit, so that at first call in the morning you have a clear space to the company kitchens.

Harness is better placed upon the hind wheels, if they are not too muddy, and if you feed from the wagon tongue. If you stretch a picket line between hind wheels, place your harness on the tongue using the lead bars as a prop. The collars should be scraped and thoroughly cleaned, placed under the front part of the wagon with the inside of the collar up; the harness should be carefully inspected for loose parts, broken leather, etc.; the pin from the tongue which holds the double trees should be placed in the jockey box. Mules should not be watered for at least an hour after reaching camp. Use the hour in cleaning the shoulders; use castile soap, and if they are galled use "white lotion" or castile soap and a dusting powder.

Young mules just received from a dealer should not be used before they have been worked a month or two in a post. They gall easily and do not stand the hard work as well as old mules. On the trip to Fort Riley I had six young mules, received a few days before we started, and these six gave me more trouble than all the rest combined. Their shoulders galled badly, their necks became sore, and consequently they were afraid to pull. But before we reached Fort Riley, by careful attention and the application of the remedy I have just mentioned they became well. Collar pads should be carried along for just such emergencies as this. They can be placed in a box with a kit of wheelwright and B. S. tools. Medicines in a veterinarian's pannier should also be on the train, usually on the hospital wagon in the rear where they can be provided quickly.

At feeding time issue forage for night and morning, otherwise some animals will suffer, for no matter how you may guard your forage allowance, teamsters will get it, for they will feed the mules if forage can be had. A G. I. bucket holds about fourteen pounds of oats net; a bucket and a half at night and a bucket for morning feed; a flake of hay weighs twelve pounds approximately, a bale seventy-two pounds. Two bales of hay to three teams. A bucket of shelled corn weighs twenty-one pounds approximately. A bucket of mixed corn and oats about seventeen pounds. A sack of bran should be carried along for animals that get sick or off their feed.

In the foregoing I have given as nearly as possible the main features for successfully conducting a wagon train according to my ideas gained by experience. No literary effort is here attempted. In all printed matter on army transportation I have never seen this subject covered fully.

ARMY HORSESHOEING.

By GERALD E. GRIFFIN, Veterinarian, Artillery Corps.

ARMY horseshoeing is a subject that has been written and talked about, in the army itself, from time immemorial. Frequently the writers had a practical knowledge of the subject, while the talkers, as a rule—talked.

Since George Fleming wrote his incomparable essay on horseshoeing in connection with the comfort and soundness of the horse (1870) up to the present moment, hundreds of books and thousands of papers have been published on the same subject, and I feel free to say that few of these publications have done or ever will do any direct good. I mean by this, stimulate the horseshoer himself; for as a general thing he considers reading of this kind dry and depressing work, and consequently avoids it.

It is probably needless to remark that the paragraph in drill regulations relating to horseshoeing is clear, explicit and rational; and that the little book issued by the Fort Riley school for horseshoers could not easily be improved upon.

But are they read by the shoers? My experience with the men has taught me that they are not, and simply because they will not voluntarily burden themselves with the task of studying out of a book.

In recent years a school for horseshoers has been maintained at Fort Riley, but this school, strange to say, has never received from the service the moral support it is entitled to. The reason is not far to seek.

I have heard this school and its work discussed pro and con, mostly con, on marches, in camp, and in clubs by officers of different grades. Many of these officers knew comparatively little about the school itself. They seldom, if ever, visited their own shoeing shops and, I think I am not going

too far when I say, the chances are that they never have picked up the feet of a freshly shod horse of their own organization with a view to examining and criticising the work of their man.

How then do they form their opinions of the school? Their opinions on this subject were formed for them, roughly no doubt, by the talk of the men of their organization, who receiving their cue from the old blacksmith, jealous of the "Riley graduate," possessed of a diploma and some anatomical knowledge, proceeded, as it is classically expressed in the service, to "knock him." Need I say that when a man or his system begins to be "knocked" in the army he might as well beg for mercy and "be good."

When one of these "Riley graduates" is put in the shop his every act in connection with his trade is subject to the closest scrutiny and prejudiced criticism of his non-graduate fellows, until often he is glad to be relieved.

Every innovation has to suffer for a time from the blows of the sledge hammers of custom. Those that prove useful survive.

I believe myself that the Riley school for horseshoers is proving that the severe criticisms to which it has been subject are undeserved, and that now with the new order governing the discharge and reënlistment of its members it will prove itself worthy of the distinguished consideration of both the cavalry and field artillery.

No one, I presume, pretends to say seriously that the average man can be taught the art of practical horseshoeing in from six to twelve months. Such an assertion, I hold, would be absurd. If it were true horseshoers would be un able to command from four to six dollars a day in large towns. I do not know that the authorities of the Fort Riley school make such a claim; in fact, I believe they do not.

The man, on passing the school examination, returns to his organization possessed of a good knowledge of the anatomy and physiology of the horse's foot, an acquaintance with the tools of his trade, but possessing a certain hesitancy and awkwardness of manner in their manipulation—lack of manual dexterity. He can properly level and shoe a foot,

and fit the same in a creditable manner if he be given the necessary time and not made nervous by too close a scrutiny, but when from six to ten horses a day in a field battery of one hundred and sixty animals, are awaiting to be shod in a month of twenty working days, time is of consequence.

A horseshoer, working for $15.00 a month should not be required to shoe more than three horses daily, or their equivalent, except in cases of urgent necessity. I have noticed that when this number is exceeded the workmanship deteriorates.

Our new "Riley graduate" knows his limitations. He knows, and we know, that for the first few months it will take him from two to three hours to properly shoe a horse "all round" according to his teachings, and that his time will be spent as follows:

Examining feet, raising clinches and pulling off four old shoes	12 minutes
Comparing angle of hoots	3 minutes
Cleaning out feet	4 minutes
Cutting superfluous horn and leveling wall	20 minutes
Selecting and measuring shoes	3 minutes
Heating, cutting, punching and leveling shoes	30 minutes
Releveling shoe and foot	3 minutes
Driving, driving home and clinching	20 minutes
Finishing	4 minutes
Time wasted in talking, loafing and fighting horse	25 minutes
Total time of shoeing one horse	124 minutes

He observes the number of unshod horses accumulating in his command, and at the same time listens to the innuendoes and harrying of the sergeant in charge, with the result that he soon slights his work and ignores his teachings, acquires a sloppy style and a bad name. Another man across the way, doing just as poor work, but doing it more quickly, goes scot free. The man is ruined as a shoer, and any good work he may accomplish will be done under the eye of a superior officer, who, he may think, knows something about the matter.

Even under the eye of an officer I have seen men do miserable work, and escape censure by resorting to the trick of besmearing their inferior workmanship with wet coal dust, or horse droppings. Once a man discovers that he may, with impunity, do slovenly work, he soon degenerates into a sloven, devoid of all pride in his handicraft.

Defective shoeing of the horse, unless it be very bad indeed, will not be apparent in the gait of the animal for several months, or in cases of strong limbed animals for two or three years, but when it does appear it comes suddenly and persists unless measures in the shop are immediately taken to correct it. If ignored there the animal soon appears on the I. and I. report, with a record of any foot trouble or disease that may appeal to the fancy of the commanding officer or the sergeant at the time.

I know it is a hard matter to continually watch the shoeing shop, but if there is any one place more than another in a mounted command that needs constant supervision and discipline it is that same shoeing shop.

The solution of the whole problem lies in the hands of the veterinarians. It is their plain duty, I take it, to minutely supervise the shoeing of their respective commands. It is their duty to visit the shoeing shops at least once a day, preferably about 10 o'clock, as at that time the morning shoeing is coming to a close; remain in the shop for one hour, and conscientiously inspect the methods and work; encourage the slow and disheartened new "Riley graduate" until he gains confidence and speed; and bring to a sense of their condition the sloppy and careless workers. It is the plain duty of the veterinarian to give a course of lectures every winter to all of the horseshoers of his post, and these lectures should approximate those given at Fort Riley. The common names as well as the technical ones of the different parts of the foot should be taught. Preference should be given to the common names, as the men soon lose the technical terms or get them badly distorted.

The men should be impressed with the fact that they are being impartially supervised and instructed, without reference to their attendance or non-attendance at the Fort Riley school.

Neglect of the daily supervision and picket line check by the sergeants are soon made manifest by careless work and

negligence, which shows itself in corns, bruised frogs, interference, forging, and long toes, also thrush.

The trouble with the shoeing now, as well as in years past, is lack of interest in and intelligent supervision of the horseshoer. I have long been deeply interested in the proper shoeing of our horses, and have years ago put my finger on this weak spot.

The blacksmith shop, instead of being a meeting place for drinking horseshoers and their friends after pay day, should be as orderly and as well disciplined as any other part of the garrison.

The men from the Fort Riley school should be given credit for their knowledge and encouraged to study and experiment, and all of the shoers should be given an opportunity to do a small amount of outside work when it does not interfere with that of their organizations.

I am disposed to think that a general shoeing shop is undesirable, as it has a tendency, if not well and regularly supervised, to cause men to become dishonest. The temptation to dispose of new shoes and nails and with the proceeds purchase intoxicants is great. Detached shops in the vicinity of the picket lines would be productive of discipline at least, and unauthorized absences and lame excuses for same would not be so prevalent under the eye of a good sergeant.

The pay, of course, is not sufficient to retain a good, sober man in the service. It should be $25.00 or $30.00 a month.

The good, sober men do not reënlist, and while I have regretted to see them go, I have always been glad to help them establish themselves in civil life, where they generally make a success.

The horse shoer does the hardest manual labor of any man in an organization. He is usually good natured and contented when properly handled, and if he receives more privileges than any of the other men he is certainly deserving of them.

The foundation of good shoeing and sound-footed horses in the army is constant supervision, proper instruction and healthy discipline.

UNITED STATES VS. BURNS.

SECOND LIEUTENANT WALTER SINGLES, ARTILLERY CORPS.

WHETHER the government retains the title to a soldier's clothing after it has been issued to him for use in the military service, and if so, what are the proper steps to be taken in the prosecution of those who buy and sell articles of the soldier's uniform, are questions which have been attracting considerable attention recently.

In the April, 1906, number of this JOURNAL an exposition of the law governing the purchase, sale, barter or exchange of articles of government ownership was set forth by Major Boughton, Eleventh Cavalry, of the Infantry and Cavalry School and Staff College. It seems that the statutory law, taken in conjunction with the recent decisions of the different courts and of the Judge Advocate General, is amply sufficient to deal with this class of persons and to check to a certain extent, if not to eradicate, the evils which arise from soldiers disposing of their own and others' clothing, equipment, etc.

There being so many troops at Fort Leavenworth, quite a profitable business was conducted by several parties in the town in this illicit barter and exchange, and it is estimated that their profits were considerable. Moreover, they conducted their business in a very open fashion, so open, in fact, that one Patrick Burns, who was the proprietor of a saloon, announced that he also conducted a military exchange, and in consequence thereof did a thriving business. So easy was it to turn almost any article of government issue into money and so great the temptation to do so, that the effect of his business was felt in many organizations.

It is the purpose of this article to relate the incidents and procedure which led to the arrest and conviction of Burns and others.

In December, 1905, the writer was directed to investigate the disappearance from his organization of several articles of clothing and some ordnance property. The result of the investigation showed that most of the missing articles had been disposed of at Burns' place. These facts, together with the result of a more careful examination into the nature of Burns' business, were reported to Colonel C. B. Hall, commanding the post, who directed that the necessary steps be taken for the prosecution of all persons in Leavenworth engaged in similar enterprises.

About this time Captain Munroe McFarland, of the Eighteenth Infantry, was conducting a similar investigation, and after a consultation with him it was decided that sufficient evidence was on hand to warrant the arrest of Burns and one other man. As the State civil authorities have no jurisdiction in such cases, warrants for the arrest of these men were sworn out before United States Commissioner Bond, and also warrants to search their premises for articles of government ownership. Accompanied by a Deputy United States Marshal, the two officers concerned repaired to Burns' place where the marshal placed Burns under arrest and the three searched the place. The search developed the fact that by some means Burns had learned of his contemplated arrest and disposed of most of the articles of government ownership that he had acquired. But like most guilty persons, he still had left enough to incriminate himself. These articles, some of which were ordnance property, were secured; and a few days later a warrant was sworn out against Otto Van Buren, Burns' son-in-law, for having in his possession without authority articles of government ownership. A search of his dwelling recovered most of the articles of which Burns had disposed, amounting to several hundred dollars worth of all kinds of soldier's clothing.

A few days later Burns and his son-in-law were given a hearing before the U. S. Commissioner at Leavenworth and held under bond for their appearance before the U. S. District Court. The grand jury found a true bill against Burns and also held him responsible for the articles found in possession of his son-in-law as the evidence before it showed

that the son-in-law had no guilty knowledge. Burns was arraigned before the September term of the U. S. District Court, plead guilty and was sentenced by Judge Pollock to pay a fine of one thousand dollars and costs. Several other prosecutions since then have rendered it very difficult now for soldiers to dispose of their property anywhere in the town, as the people there are very chary about rendering themselves liable, and Patrick has erased the sign from his front window.

When the United States marshal attempted to serve the other warrant that was issued at the same time as Burns', he found that the person named therein had departed for parts unknown and he has not been heard from since.

What has been done in Leavenworth can be done as well in other places, and all that is necessary for you who are similarly troubled by this class of people to do is, secure evidence that the law is being infringed, hunt up a U. S. Commissioner, swear out warrants and leave the rest to the U. S. courts.

THE GERMAN FORT RILEY.

EXTRACT FROM REPORT BY FIRST LIEUTENANT GORDON JOHNSTON.*

TWO mounts are required and two full sets of equipment with stable requisites. Two equipments are needed, as the fresh horses are brought into the riding halls promptly at the end of the hour, and one must mount and be ready at once for the next lesson. Our own equipment would not answer, as the pigskin saddles are required, and also particular bridles and bits.

As for the duty performed, it consisted of about seven hours riding per day for three days in the week, including cross-country work and three hours per day in the riding hall during the others. There is also an hour a day devoted to longeing, estimating distances, lectures by the veterinary and fencing.

The cross-country work behind the government fox hounds was intensely interesting as well as instructive. This will be the subject of a special report.

The work in the riding hall consists generally of three hours in succession in which three horses are ridden—a school horse ridden without stirrups on the flat saddle, the chargers and private mounts with stirrups, and all with the snaffle.

The school horse, furnished free, is a perfectly trained animal, and the instruction is confined to the seat, hands and use of aids. The gait is a trot and shakes one down into the seat on this saddle more than bareback or blanket riding. The hour with the chargers consists of about the same instruction except that the chargers are not so perfectly

*Lieutenant Johnston is now on duty as a student officer at the Military Equitation Institute, Militai-Reit Institute, Hanover, Germany.

trained, and so make more demands on the rider. The riding of private mounts is not under such strict instruction as with the former two, as these horses are often quite green and are receiving their first lesson under the supervision of the rittmeister (riding-master).

The description of the work in detail involves a discussion of the whole German riding system, and I will naturally be far better qualified to report on this later.

My time is fully occupied in studying the "Riding Instruction for Cavalry," and the manuals. To learn a new system of riding under masters who are most exacting and where the commands and expressions used are entirely unfamiliar is not an easy matter. The difficulty of the position is not lessened by the fact that the detailed officers are selected riders who have shown exceptional aptitude in their regiments for this very work.

To me the work has been far more than interesting, even fascinating. The works of distinguished cavalry officers on riding and cavalry matters, as well as the manuals, are of absorbing interest.

The reason is that the Germans in their thorough manner have mastered the mechanical and muscular construction of a horse for the purpose of bringing him to the most perfect fitness for the demands which he must meet. They have not hesitated to take whatever seemed good to them and uniting it with their own long experience in a branch of the service to which they are particularly partial, they have developed a splendid system for training both horse and rider.

As for horse training, I think the object of their system may be covered under the following heads, which I have taken from Lieutenant General of Cavalry Pelet-Narbonne's book entitled "The Cavalry Service." He first discusses the value of equilibrium or balance to the horse; that the natural balance is changed by the weight of the rider; that the forehand is more overloaded even than in nature; by actual experiments this over-balance is from one seventh to one-twentieth of the whole weight, according to whether the head is carried low with long neck or high with bent neck; that the

haunches can share the burden more than they naturally do and that, by bringing the hind feet under, the spinal column is arched and so better suited to bear weight. He says:

"The purpose of our development is to bring a horse into such a balanced carriage, through gymnastic transformation of his body, that the weaker and more upright forehand burdened with head and neck, shall be lightened and the burden carried further back towards the more powerfully built haunches. Through this transformation, and also by the haunches being brought into better use, we get the following results:

"1. Saving the weaker members, in particular, the forehand, by using the stronger ones more.

"2. Obedience—by bringing the powerful haunches under the control of the rider.

"3. Alertness, agility—by making the horse capable of transferring his weight to the haunches. Only by this capacity will the horse be able to execute short, sharp turns under the rider and according to the rider's will, collect himself or release the tension.

"4. Greater endurance under severe and long continued effort, as the trained horse uses his members according to their ability and does not overwork any single part. Also by the act of shoving the haunches under, the back is arched and its capacity for bearing weight is increased.

"5. Greater speed and a more reaching gait. Being in perfect balance and on account of greater flexibility of muscles and joints, the horse is able to make a better use of the haunches, to draw the latter further forward with the fore legs and gain more ground to the stride. The gait becomes safer as well as more extended."

The thing that impresses me most at this institution is the strict adherence to that which fits both man and horse for cavalry work in war. To build up a horse which will perform all that may be called for from a cavalryman's mount in the field, speed, endurance, perfect obedience, and one that

will last as long as possible before he yields his last ounce to the service.

To build up riders who can make a green horse quickly; who can take the last ounce out of their mounts on occasion or postpone that moment to the very limit of a horse's power; who can cross any sort of country that may face them with the least effort to horse and rider.

A GLIMPSE OF FOREIGN ARMIES.

By First Lieutenant GEORGE STEUNENBERG, Thirteenth Cavalry.

IT is not the intention to give a description of foreign armies in this article, but rather to show how little can be seen of them on a flying trip. The following account is written from memory of observations taken in the spring of 1905, but it is safe to say that few if any changes have taken place in the meantime.

So many of our officers have visited Hong Kong that it is almost superfluous to give any description of the British troops there. Suffice it to say that their service uniform is very similar to ours, or, rather, that ours is patterned after theirs, even to the campaign badges. Although the weather was far from warm, they were wearing helmets, and, I understand, have no other headgear for service.

On visiting one of the posts I was shown around by the adjutant. He was a captain, about thirty years of age, and wore a blue uniform, with tight fitting trousers, held down by straps. On our way through we chanced to meet the colonel, and it was rather a surprise to find that he was scarcely past middle age. Several detachments were drilling, and their manual appeared to be much like ours, with a couple of exceptions; for instance, in parade rest the position is stiff and the rifle held to the front with the right hand; then, in returning bayonet they insert the point in the scabbard and lean over and watch the right guide; as he thrusts the bayonet home the rest do likewise and straighten up.

The quarters for both officers and men were substantial stone buildings, and stone sidewalks ran everywhere. The men's quarters were furnished with iron bunks, and in passing through the kitchen it was noticed that the cooking was

done by Chinamen. At a glance their rations seemed hardly to compare favorably with ours.

In the officers' stables were some splendid polo ponies which the adjutant stated they had bought in Arabia for fifty pounds each. He was quite a polo enthusiast, but had an idea that it was not very popular in our army. He asked a great many questions about our service, and seemed greatly surprised to learn that our men draw only three pounds a month and that our government does not pay more than twenty-five pounds for horses.

Later on I saw thousands of British soldiers at a field meet at the race track; they all wore blue, with sidearms, and presented a very neat appearance, with the exception of their feet; their shoes were big and clumsy, and the tight trousers tended to show them up conspicuously.

Native Indian troops were seen all about the city on police duty; they were tall, black bearded men, but round-shouldered, with thin legs, big feet and poor set up.

There was nothing different noticed in the British troops in India, Colombo, Aden and Egypt, except that in Alexandria some were wearing broad brimmed hats; they were broader than our campaign hats and somehow suggested the Transvaal. While in Alexandria I managed, with the assistance of an Arab guide, to go through a garrison of native Egyptian soldiers in the British service. They were quartered in a long, low stone building, to which we gained access with little difficulty. They wore khaki uniforms, with a red fez, and their equipments proved to be very much like our own. On learning from the Arab that I was an American soldier, they crowded around, anxious to tell all they knew, readily displaying rifles and equipments, and telling about pay, rations, etc. Their beds were stone benches, with no mattresses, and their rations principally corn bread; they claimed that they received meat only twice a week. They were anxious to learn about our army, and on learning that an American soldier draws the enormous pay of fifty shillings a month, their eyes grew big with wonder. They were not a robust looking lot, having generally thin legs and poor set up.

In Cairo I noticed some mounted native troops, but did not learn whether they were cavalry or mounted police. They wore glittering accoutrements, and were splendidly mounted; the horses were mostly dapple gray and were certainly magnificent animals.

In Italy there is little opportunity for viewing the military. Our attaché, Major Edwards, stated that he himself had never been permitted to see much. He had attempted to secure permission for other officers, but it required two weeks time, and even then the permit was so limited that it was of little value. The soldiers seen strolling about the streets were a fair looking lot and wore a sort of blue serge uniform. Sentinels walking post at the king's palace wore hats covered with feathers. Apparently their discipline was not of the best, for we saw one sentinel outside the walls of Rome who had left his post and was talking to a couple of girls through a fence.

In the museum at Pompeii they point with some pride to the plaster cast of a man said to have been a Roman sentinel who died at his post when the city was buried. It is a nice story, but the body wears the belt of a slave and has the features of an African.

The Pope's Guard at the Vatican is a very picturesque little army. They are all Swiss, and wear a sort of Zouave uniform of yellow, black and red. It is said to have been designed by Michael Angelo.

In Geneva the American consul stated that there were no troops in the city, so the three days there were passed without a sight of the Swiss army.

In Germany the military was in evidence everywhere, and it seemed that every officer and soldier wore side arms. In Strasburg an officer took a seat near me in a trolley car, which afforded a good opportunity for a careful scrutiny of his uniform. The cap was blue with a brown band, and similar in shape to ours. The coat was light blue and the trousers dark blue; he wore silver shoulder knots, large, bright bronze buttons, and had spurs screwed to his heels. Afterward I noticed the bright bronze buttons everywhere.

In Cologne the American consul stated that it would take

several days to obtain a pass to the barracks, so I strolled over to the cuirassier's quarters one morning and stood in the stable door while they were saddling up for drill. They were all big men, wore steel helmets, white flannel coats and breeches, and high, heavy black boots. The breeches were reinforced with white leather. A sentinel was walking post with drawn saber, but offered no objections to my looking on.

The stable had a tile floor and the stalls were bedded with clean straw a foot deep. The horses were no larger than ours, but apparently better bred and more carefully groomed. They had a curb bit similar to ours and a bridoon bit. The saddles were after the English pattern, with open steel stirrups.

While waiting there a troop of lancers in column of twos came riding in, apparently from drill. Each man was armed with a lance, which he carried as our sergeants carry a guidon. The horses were all docked. They were clean limbed animals, and there were several mares among them.

Shortly after a company of infantry came along in column of fours preceded by a band. They were in heavy marching order and carried knapsacks of cowhide with the hair on. They wore black helmets and blue uniform with trousers in their boots. The boots were not like those of the cavalry, but came only half way to the knee. They marched with the precision of machinery and, as they were all one height, they made a fine appearance.

From conversation with Germans who have served in the army, it appears that they have little love for their compulsory service. They say that the small pay, poor rations and iron discipline make it a hard life.

In Holland, Belgium and France, owing to limited time, observations were confined to soldiers on the streets. Once at Helder, Holland, the place Napoleon called "the Gibraltar of the North," I saw a squad of soldiers patrolling along the top of a dike on bicycles. They wore a neat blue uniform, and each had his rifle slung on his back. Others on the street wore high fur caps, tight breeches, spurs screwed to

the heels and something like a small flat valise attached to the saber. (I forget the name of it.)

In Paris I saw a number of slouchy soldiers with red trousers and blue coats, but much more conspicuous were the cuirassiers with their steel helmets and long black horse-hair plumes. They are much in evidence on public occasions, and I remember seeing a squad of them escorting the President out to the Bois de Boulogne one Sunday afternoon to see the Grand Prix.

In London there was no difficulty in entering the barracks of the Royal Horse Guards and mingling with the soldiers. By the judicious investment of a few mugs of ale I won my way through the barracks and stables and saw everything. They were all big men, the minimum height being 5 ft. 11¼ in. However, very few of them could be called well built. They wear a steel helmet and breastplate, close fitting breeches of white leather and high black boots. The horses were all fine big blacks; they pointed out one that stood 17½ hands and was well proportioned. The equipments are much like ours, with the exception, of course, of the English saddle. Two men of this regiment are kept on guard in the gateway at St. James's Park. Changing the guard here is considered one of the sights of London. There is no apparent use for a guard, and it appears to be more for display than anything else.

At St. James's Park I was fortunate enough to see four companies of the Coldstream Guards going through the drill for "trooping the colors." This ceremony is held on the King's "official" birthday and is the most imposing military ceremony held in London. It is similar to our review, but much more formal and ceremonious. They passed in review twice, once at a slow goose step and then in quick time. As they passed the reviewing stand each company executed "Eyes right," and the officers saluted by holding the sword upright and moving it to and fro in front of the body. In making the turns the companies turned on a fixed pivot, each man marking time as he came on line. In marking time on the turns they raised the knees as high as possible, making a motion like our setting-up exercise. In making the turn in quick time,

they executed this peculiar step in double time, making an almost ludicrous appearance. Then in returning bayonet they went through the same ragged movement that had been noticed in Hong Kong. They had a very showy uniform consisting of an enormous black fur cap, red coat and dark trousers. I saw them later on standing guard at Buckingham Palace and Windsor Castle. They did not walk post, but stood at attention in the hot sun with the great fur cap and coat buttoned to the chin.

Taken altogether, it is very likely that a glance at foreign armies tends to make the average American thankful that his own army still differs from them in some respects.

WEAPONS AND MUNITIONS OF WAR.

PART V.—Field Equipment of Signal Troops.*

By Major GEORGE O. SQUIER, Signal Corps, U. S. A.

THE technical equipment of Signal troops for service in campaign has been rapidly expanded and developed in the past few years, so that at the present moment no well informed military commander fails to demand the best which this service affords for his field operations in campaign.

The fact that widely separated bodies of troops can now be maneuvered and fought under the guidance of one central intelligence, permitting an extent of terrain hitherto impossible, is due primarily to the development and efficiency of military electrical lines of information and control.

The element of *time* has always been a paramount factor in war, and the electrical messenger has no competitor when the distances involved are those now met with in modern combat.

It will be the object herein to give in brief outline, without detailed description, the principal technical apparatus and appliances now furnished Signal troops for field service.

*This extract is taken from a lecture in the Military Art course at the Infantry and Cavalry School. Another extract from the same general subject appears in this issue, page 620. The course in this subject comprises the following:

Part I.—"Infantry Weapons," by Captain Charles Crawford, Twentieth Infantry.

Part II.—"Cavalry Weapons," by Captain John P. Ryan, Sixth Cavalry.

Part III.—"Artillery Weapons," by Captain Oliver L. Spaulding, Jr., Artillery Corps.

Part IV.—"Auxiliary Weapons," by Captain Campbell King, First Infantry.

Part V.—"Field Equipment of Signal Troops," by Major George O. Squier Signal Corps.

ELECTRICAL EQUIPMENT FOR MILITARY LINES OF INFORMATION.

Electrical methods of intercommunication for military field lines of information have been developed to such perfection that they have become of first importance in war.

For strategic lines of information, in the event of war in any civilized country, the existing systems of commercial telegraphy will, of course, be adapted and utilized. It is not necessary to more than mention here the types of instruments used for this purpose, as they are familiar, in a general way, to every one. The American system of commercial telegraphy employs the Morse code of signals, which is read by sound. This code is made up of dots and dashes in different combinations to represent the individual letters and conventional signs needed for the transmission of intelligence. The European system employs a slightly different code, known as the "Continental Code," whereby the signals are usually received upon a strip of paper recorded in ink, giving a permanent record. This system of commercial telegraphy employs conducting wires elevated on poles, and is represented by the enormous telegraph plant which now exists in this country and throughout the civilized world.

For semi-permanent lines erected by Signal troops in the field, the conducting wires are strung on light lance poles and operated by simple and portable instruments known as the closed-circuit relay and sounder, and the pocket relay, all constructed on similar principles.

The closed-circuit relay can be used over well insulated lines for distances up to about 500 miles, and over hastily constructed field lines about 150 miles. With these instruments it is essential to have good insulation, good joints in the wire, and good ground connections, since the earth is used as a part of the telegraph circuit.

By the use of "telegraph repeaters," messages may be transmitted over land lines without limit as to distance.

THE "BUZZER."

This instrument, in its present developed form, is believed to be superior to that used by any other army in the world. The Japanese "buzzer" is almost an exact copy of the Signal Corps "buzzer," but lacks some of its good points.

As stated above, the standard Morse relay and sounder require comparatively carefully constructed telegraph lines giving good electrical insulation from the earth. Tactical field lines, built and operated under service conditions, cannot insure this construction, and an instrument whose operation depends on other principles became a necessity long ago. The first prominent mention of such an instrument in military telegraphy was by Major Cardew, R. E., in 1881. Its utility, through a poorly insulated line, where the ordinary Morse instruments were impracticable, was mentioned in the account of the expedition of the English up the Nile in the attempt to relieve Gordon at Khartoum in 1884.

The Signal Corps of the army has experimented with this instrument for a number of years, and developed in succession types of buzzers until the present latest model of field buzzer has been evolved, and is now issued to all Signal troops for service in campaign. The buzzer substitutes for the ordinary telegraph relay, used in commercial telegraphy, the head telephone as a receiving instrument; and as a transmitter sends out upon the line a succession of pulsatory electrical currents of high electromotive force in place of the single impulses of low potential used in ordinary commercial telegraphy. Without entering into a detailed engineering description of this instrument, it may be said that the theory of the buzzer is based upon the fundamental principles of the efficient transmission of electrical energy over poorly insulated lines, namely, transmitting the energy at a comparatively high voltage and low current instead of at low voltage and larger current; the energy transmitted being always proportional to the product of these two factors.

The American army in the Philippines and in China has made extensive and continuous use of the buzzer as a means of maintaining communication between an army in the field and its base, and as an habitual method of telegraphy over

hastily constructed lines where the insulation was too imperfect for Morse working. In the recent Russo-Japanese war the field buzzer was extensively used.

Without describing the actual wiring of the standard field buzzer, the following explanation of the action of the instrument will give the principles involved:

Each of you, no doubt, has noticed the phenomenon of the electric spark, which can be produced in a variety of ways.

If we have a source of electromotive force, such as a few dry cells of ordinary battery, joined up in series and connected outside by a conducting wire, it is noticed that when the wire outside is connected, thus completing the circuit, no spark is produced; whereas, when the circuit is broken, such as by removing the wire from one of the terminals of the battery or in any other manner, as with a key, a minute spark may be observed. Modern theory shows that at making the circuit, which permits a current to flow from the battery, the energy of the current is used up in producing strains in the medium surrounding the wire, and in heating the wire itself, so that at "making" the circuit no spark is produced. On "breaking" the circuit, however, the energy which has been stored in the surrounding medium, which is the ether pervading all space, is given back and appears in the form of light and heat at the terminals of the break in the circuit, and is known as the electric spark. If, instead of connecting the terminals of the battery directly by a conducting wire, we insert in the circuit a coil of wire surrounding a piece of soft iron and then repeat the experiment, it will be noticed, as before, that at the instant of "making" the circuit with the key or otherwise, no spark is observed; whereas, at the instant of "breaking" the circuit a much greater spark is seen. Furthermore, the length and size of this spark will depend upon the suddenness with which the break occurs. We have here introduced what is known as the phenomenon of self-induction, and measurements would show that the spark in the second case had a much higher voltage or tension than in the former case, where it is limited to the voltage of the battery used. If we should also connect an

ordinary telephone receiver in the circuit we would hear the clicks in the receiver whenever the circuit was broken; but the sound can be made much louder in the second case when the coil is used. In other words, the coil is a simple device for transforming the energy of the low voltage battery into a form having higher potential or greater voltage, which latter quality serves to drive the current produced over greater distances when used on poorly insulated lines.

Instead of "making" and "breaking" the circuit by hand, as explained above, it may be done with more regularity and suddenness by using an automatic interrupter, which consists essentially of a straight stiff spring momentarily attracted by the iron core of the coil every time the circuit is closed by the sending key, and immediately restored by the action of the elasticity of the spring itself. Such interrupters may be easily adjusted to give very regular vibrations and produce a definite note to the ear. In this case when the telegraph key is closed, a succession of regular interruptions to the current occur until the key is released, and by holding the key down for shorter or longer periods, the elements of the Morse code may be produced.

In addition to providing this means for field telegraphy, the latest patent buzzer is also invariably furnished with a specially constructed telephone transmitter suitable for field work, and means provided for using the instrument as a telephone set, independent of its use as a telegraph set. The same telephone receiver is used to hear the Morse signals in the one case and speech in the other.

This is accomplished in the field buzzer by means of a simple switch placed in the side of a telephone transmitter, so that when using the instrument as a telephone set this switch button must be depressed. The operation of the switch is to introduce a part of the battery into the coil circuit instead of the key and interrupter.

It may often be desired to utilize existing telegraph lines as a part or the whole of the circuit for buzzer working, at the same time not interfering with the use of the wire for Morse working.

This is effected by using condensers between the line and

the buzzer. Each condenser consists of many sheets of tin foil separated from each other by sheets of paraffined paper, all the alternate sheets of tin foil being connected together, thus making two sets of tin foil leaves, the two sets being separated by the paraffined paper yet being very close together. No current will flow through the condenser if the battery be steadily applied, and, therefore, if one set of leaves is connected with the telegraph line and the other set with the ground, no appreciable effect will be produced by the comparatively slow pulsations of the ordinary Morse sending.

If buzzers are bridged on to a part or the whole of such a telegraph line where ordinary Morse working is being used, the rapid pulsations of current produced by the buzzer readily pass through the condensers which are contained inside the buzzer case, and are transmitted to the distant buzzer without affecting the Morse relays or sounders in regular use on the line, since the changes of current are so rapid that the armatures of the telegraph relays have not time to respond. These rapid pulsations are, however, readily taken up by the more delicate telephone receiver used in the buzzer as a receiving instrument.

The field buzzer is substantially mounted in compact form in a wood and sole-leather case, with an adjustable strap to sling it from the shoulder. It weighs eleven pounds complete, and can be carried by mounted men for reasonable distances, although, as will be explained later, it is carried on the march with other equipment either in the chest of the field-wire wagon or in the squad boxes provided for pack transportation.

THE CAVALRY BUZZER.

The cavalry buzzer adopted for the Signal Service is an extremely neat and compact form of the buzzer, especially designed for use with the cavalry, where the equipment must be carried habitually by mounted men. The principles of this instrument are identical with those of the field buzzer just described, but there are several changes which make for compactness and portability. Dry cells are used,

but they are very small, and the telephone transmitter and receiver are both mounted together on an adjustable frame so that they may be carried in the smallest space possible, and both used with one hand.

The switch employed, when the instrument is used as a telephone set, is contained in the handle of the frame. The telegraph key is merely a button in the top of the case and may be used without removing the leather case. This instrument is especially adapted for rapid field lines such as used in service with the cavalry screen or with outposts, etc., where light field buzzer wire laid directly on the ground may be used. The instrument weighs five pounds complete, and is carried in two small leather cases, both swung from the same adjustable shoulder strap.

It is believed that two of the present cavalry buzzers (one set) should be issued to every company of infantry and every troop of cavalry in our service, for use in their own interior intercommunication, in addition to all other methods of information furnished them from the outside by Signal troops.

For a company of infantry on outpost or similar duty, such an equipment would be simply invaluable, and as the present regulations require that two men in each organization shall be instructed in signaling, these men would naturally be the ones to carry, install, and operate this equipment.

FIELD TELEPHONE.

The Signal Corps has experimented for a number of years looking to the development of a portable field telephone without any telegraph arrangement, for use in the field, in semi-permanent camps, on the march, etc., where a telephone service only is desired. The great advantage of the telephone service is that it requires no trained operators to use it, and that commanding generals and others may have the advantage of direct and confidential communication without the intervention of other parties, and also with the least possible delay; whereas the telegraph with trained operators possesses great advantage for the transmission of

orders and instructions on the battlefield, since it is much more accurate and reliable and gives a permanent record of both the transmitted and received message. The telephone always has at times its peculiar advantages, and is therefore invariably supplied in the field buzzer outfit.

The field telephone, being solely a telephone set, is superior for telephone practice alone to that provided in the field buzzer equipment.

In the field telephone the essential parts are the transmitter, the receiver, and the calling apparatus. These parts do not differ in principle from those used in commercial telephone practice, except that they are made in more substantial and compact form.

The transmitter and receiver are mounted on the same hand support, so that one hand only is required for conversation; the wiring is very strong and durable, and all parts can be readily examined in case of trouble. The case is neatly made of wood with metal corners, and as far as possible is weatherproof. The whole equipment weighs about twenty-one pounds and has a strap sling for carrying purposes. The theory of the telephone transmitter and receiver and the practice as used in the Signal Corps is clearly given in the Signal Corps manuals issued to officers and noncommissioned officers of the Signal Corps.

A field cordless telephone switchboard has been devised, and is used in the equipment of field "central" stations where several field lines converge, such as at army, division, or brigade headquarters. This board is very compact and may be mounted either directly upon the ground or upon a tripod furnished for the purpose.

FIELD WIRELESS TELEGRAPHY.

There has been developed recently a satisfactory equipment for field wireless telegraphy, and experiments are now being made with the Army of Cuban Pacification to determine the possibilities and limitations of this method of signaling for the field operations of an army. This subject is also being studied practically and theoretically in the U. S.

Signal School, and a complete equipment for two field stations has been recently received here.

This equipment includes a sixty foot mast, comprising jointed sections, which is held in an upright position by guy ropes. With a trained detachment, the mast can be erected and the whole station installed in fifteen to twenty minutes. The apparatus, including transmitting coil, condensers, keys, electrolytic receiver, head telephone, etc., is assembled in two pack chests, so that the entire outfit, including the mast, weighs but 320 pounds, and can be easily transported on two pack mules. The electric current is supplied by portable storage batteries, which are conveniently mounted for transportation, and they are recharged by a small gasoline-driven dynamo at the base of operations. For convenience in operating in the field, a tripod is furnished for mounting one of the chests. Several of these field outfits have already been furnished the Army of Cuban Pacification, and field messages are regularly transmitted and received by them over distances of twenty-five to thirty miles, while messages have been received at Camp Columbia, Cuba, from the wireless station at Key West, 125 miles distant.

In addition, the Chief Signal Officer of the Army is at present constructing fifteen sets of field wireless equipments for tests during summer encampments. These sets aim to still further reduce the weight of this complete equipment, which will be contained in one small pack chest made up like a trunk, having a length of about thirty-two inches, a width of about twenty inches, and a depth of about twelve inches, the weight being but about 140 pounds, not including the small portable battery.

This small chest with two storage batteries and the jointed mast, will probably be transported on one mule.

There is no longer doubt that wireless telegraphy will play an important part in the military field operations of the future. The maintenance of a wire between stations always presents obstacles to reliability and efficiency, especially when the wire is in a military terrain. France and Germany have each developed portable wireless field outfits for military

purposes. These outfits compri e, in general, some type of portable engine and dynamo, transformers, portable balloon or mast, etc., requiring several wagons for transportation, and a considerable trained personnel for successful operation. The principal obstacle to field wireless work has been the necessity for transporting some form of mast, captive balloon or kite, to sustain the vertical aërial Last year, at this station efforts were made to develop a more mobile outfit than had been heretofore attempted, and one suited to pack transportation. The object was to attain distances of twenty-five to fifty miles, for use with a cavalry screen, outlying posts, and so forth. To avoid the necessity of transporting a mast or balloon for sustaining the antennæ, special forms of kites were experimented with here with good success. These kites have been regularly adopted as a part of the Signal Corps field equipment. They are made in standard sizes, and may be flown either singly or in tandem. They are made of fine Japanese silk mounted on light bamboo frames, and are collapsible so that they may be folded up in a very small compass. These kites are held captive by the buzzer wire used in field operations, which also serves as the transmitting and receiving antennæ. This wire is paid out from a specially constructed reel, highly insulated from the ground by porcelain legs. The ground connection for both transmitting and receiving, is effected by spreading out upon the surface of short, thick grass a copper wire netting of comparatively fine mesh. It is of advantage that the earth connection should be surrounded for a considerable distance on all sides with moist earth well covered with short grass.

With this simple outfit, which could be installed in a few minutes, whole messages were received at this station from St. Louis, Chicago, and from ships in the Gulf of Mexico.

Since the distances to which messages may be transmitted depend primarily upon the power of the transmitting station, the equipment described was not adapted for sending to such great distances as mentioned above, but messages were easily exchanged between this station and the

wireless station at Kansas City, Missouri. a distance of over thirty miles.

The equipment necessary for receiving messages only can be made extremely simple, so much so that it need weigh but a few ounces and may be carried by a single soldier without inconvenience. In such cases no other form of receiving antennæ need be used than a vigorous growing tree, preferably well covered with leaves. It is only necessary to drive an ordinary nail into the trunk of a tree at some distance from the ground, and connect this nail, through a small pocket electrolytic receiver, to a small iron pin driven into moist earth near the tree, when passing messages may be clearly read by means of a head telephone suitably connected to the receiver.

COMBAT TRANSPORTATION.

The combat transportation for field lines of information will be merely enumerated here, as ample opportunity is afforded for observing its technical use in field exercises and maneuvers. At present it comprises the following:

Automatic field-wire wagons,
Automatic reel carts,
Lance trucks,
Instrument wagons,
Construction wagons,
Balloon wagons,
Standard squad boxes, } for pack transportation.
Standard pack chests, }

TYPES OF WIRE USED FOR FIELD SERVICE.

No. 14 g. i. wire, weight 96 lbs. per mile.

Nineteen strand insulated field wire, weight 120 lbs. per mile.

Eleven-strand insulated field wire.

Buzzer wire, partially insulated, weight 5 lbs. per ½-mile coil.

The light buzzer wire is habitually transported in half-mile coils, and is paid out or recovered from a hand or breast reel carried by a mounted man. In laying and recovering such lines mounted signalmen are employed who carry short wooden pikes, with a special hook at the end, so that the wire can be handled almost entirely without dismounting.

Reprints and Translations.

THE RUSSIAN CAVALRY DURING THE RUSSO-JAPANESE WAR.*

By M. le CAPITAINE SERGE NIDOINE.

General Considerations.

WHEN the Russo-Japanese War broke out everybody was convinced that the numerous Cossack cavalry at Russia's disposal would cover themselves with laurels, not, of course, on the field of battle, but in the very extensive domain of exploration and reconnoissance.

It was also thought that the commander of the Russian forces would frequently send his Cossack troops upon the enemy's rear to cut his line of communications, to capture his trains and to harass him without ceasing. Finally, it was hoped that during the tactical operations the Russian cavalry would be able to properly inform the staff concerning the actions of the enemy, and of his turning movements especially.

We must remember that the Russian cavalry has actually made several raids on the rears of the Japanese armies, but that they have not given satisfactory results.

As for the service of reconnoissance during battle, it was not what it should have been.

We must confess that our reliance on the successors of Ataman Platoff's famous Cossacks had to be based on other things.

*Translated from the French *Journal des Sciences Militaires*, August, 1905, by Captain Herschel Tupes, First Infantry.

It is true that in this campaign the cavalry has often had to operate in unfavorable regions, and this may explain in part why it has been thrown so much in the shade. The Russian officers especially have been the first to acknowledge it; one of them, Captain Engelhardt, of the Nertchine Cossack Regiment, delivered a lecture before the "Societe Adepts des Sciences Militaires" April 24, 1905, from which we quote the following extracts:

"In general, our cavalry has had to operate over terrains which were unfavorable to it. In the mountains it encountered rocks and torrents that often could not be crossed by fording after a rain. On the plains there were other difficulties; the fields were quagmires and the roads were abominable. Finally, we lacked good maps. Such were the difficult conditions under which our cavalry had to act, conditions which have had a very great influence on the operations of the army. Our cavalry could march only very slowly; in a single march of about twenty versts (a verst is 1066 meters) one troop had to ford thirteen streams.

"Small cavalry bodies could ordinarily cover short distances of 500 to 1500 meters at a trot. As for large detachments, they were obliged to march almost exclusively at a walk.

"In reconnoissance, the cavalry was often obliged to dismount and walk for fear of ambuscades, and also because the terrain was badly cut up. When the cavalry was in route column it had to send its scouts out on foot. The result was that in a mountainous country this arm was deprived of its principal quality, speed, for it could march only two or three versts an hour. The information gained by the cavalry would be delivered late at the destination and would often be of no value when the commanding officer would receive it. Furthermore, the power of modern musketry fire rendered the rôle of our cavalry very difficult.

"Generally speaking, our cavalrymen have been able to live on the country, but our horses, on the contrary, have been poorly fed.

"At the commencement of the war we had, in all, six

squadrons and thirty-six sotnias doing duty of the first class. The cavalry received reinforcements at the beginning of March and at the close of the autumn, 207 sotnias and squadrons; of these the Cossacks made up sixty-three per cent.; the remainder, that is to say, thirty-seven per cent. of the cavalry was composed of dragoons—fifteen squadrons—and mounted units of the Frontier Guard Corps. The Cossacks of the second class are badly instructed. The Trans-Baikal Cossacks, in particular, are badly prepared for war; they are brave, intelligent and hardy; but they know nothing of reconnoitering patrols, and have not the least idea of outpost duty; they saddle their horses badly.

"The horse artillery attached to the cavalry has greatly hindered the marching of that arm in the mountainous countries; in defiles it became necessary for the men to draw the cannon. The result was that there were cases when it took seventeen hours to travel fifty versts.

"More than once the cavalry was obliged to relinquish its artillery, and naturally the absence of its guns had an unfavorable repercussion on the results of the reconnoissance. * * *

"The best auxiliaries that an army commander can obtain for purposes of information are spies, patrols and strong reconnoissances. Spies did not give us good service; they furnished but little information that did not have to be verified. Long distance reconnoissance was frequent enough, but touch with the army was also frequently lost. The cavalrymen were frequently obliged to march on foot when traversing the enemy's outposts or skirting around them. Three series of reconnoissance patrols managed to return their horses and then continue their march on foot; the majority of them did not return. The information obtained by patrols sent out on long distance reconnoissance would be obtained by the staff only in about two weeks, and was consequently not of the least value.

"Only the patrols sent out for short distances furnished the staff with valuable information."

Captain Engelhardt also stated that at the end of 1904 the commanding general had, in round numbers, 30,000 cavalrymen at his disposal.

We have hinted above that the service of reconnoissance was not what it should have been. But it is also possible that the staff was not able to appreciate the service rendered by the cavalry. In fact, we read in a letter written by an officer, and dated at Harbin, the 15th of April, 1905:

"The mistake of the Russian generals has been in their not utilizing the information furnished by their cavalry; I will give an example of it:

"At Mukden I was near an old general; suddenly a young second lieutenant arrived from a reconnoissance. He reported that four Japanese regiments were marching around the right flank. The general, instead of taking the necessary action, immediately got red in the face from anger and shouted at the officer: 'My friend, the fear of danger has made you lose your head; go and be more careful!'

"A few days afterwards, another officer rode up at full speed and said: 'Sir, six Japanese regiments are enveloping our right flank.' The old chief made another strong reply. But he soon had to yield to evidence; an entire Japanese army was out flanking the Russian right wing. * * *"

In another part of his letter the same officer highly praised the units of the Frontier Guards Corps. He said in regard to them:

"One knows how important to the Russians is the Trans-Siberian Railway which carries them provisions and reinforcements; let it be cut and all would be lost. The Japanese have well understood this; they have also made every effort to destroy the railway by organizing bands of Khounkhouses. However, with the exception of some slight damage, the efforts of the Japanese have remained unfruitful. To whom is due the honor for these results? To the Frontier Guards. Day and night, during every hour and minute, every kilometer of this railway line has been obstinately defended by the brave and gallant soldiers wearing the green uniforms of the

Frontier Guards. These soldiers are the terror of the Japanese, with whom the order is: 'Make no prisoners of green uniforms; kill them without mercy!' * * *

"The Frontier Guards are not satisfied with protecting the railway in Manchuria and up into Siberia; these are they who, after every battle, are the last to leave the place of combat and who cover the retreat of the army; they defend the railroad until the last minute, for that is the order of their intelligent leader, General Tchitchagoff.

"At Mukden, the Frontier Guards preserved a remarkable attitude in the midst of the general rout; as always, they were the last to leave the place."

The general nature of the theater of war determined the commanding general, in May, 1904, to create a body of mounted scouts consisting of two squadrons. This body, which was made up of the best officers and soldiers of the Manchurian cavalry, was placed under the command of Captain Drozdovski (Thirty-ninth Regiment of Dragoons of Narva), and was particularly charged with strategical exploration. Each squadron consisted of five officers and from 150 to 180 men. All the cavalry regiments were represented in this body; the Dragoons and the Don, the Ural, the Orenburg, the Siberian, the Trans-Baikal, the Amur and the Oussouri Cossacks. The men who were assigned to it were all audacious, intelligent and brave. As for the officers, the most of them belonged to the cavalry regiments of the Guard; Captain Stenbok-Fermor (Hussars of the Guard), the commander of the First Squadron, had taken part in an expedition to Abyssinia in 1902 at his own expense; Lieutenant Radziville had taken part in the Anglo-Boer War as a volunteer; Captain Count Velepoloski, the commander of the Second Squadron, had accompanied Captain Stenbok-Fermor to Abyssinia; Lieutenant Shatiloff (Cossacks of the Guard) had left the Staff Academy to take part in the campaign; Second Captain Grevs (Hussars of the Guard) had accompanied Grand Duke Cyrille Vladimirovitch during his travels in the Far East. One sees that the body of mounted scouts was composed of choice elements.

During battle the scouts were at the disposal of the commanding general, who made use of them to obtain information of the different events of the struggle; during the periods of lull, the scouts made strategical explorations on the rear and the flanks of the Japanese. The colors of the scouts were those which had been offered to General Kuropatkin by the city of Moscow.

During the battle of the Sha-Ho, General Kuropatkin ordered Captain Drozdovski to proceed to a company of infantry which occupied an important position, vigorously cannonaded by the Japanese, and to order its commander to hold the place at all cost. Captain Drozdovski went, accompanied by Captain Stenbok-Fermor and a small group of cavalrymen. Having arrived at the position, Captain Drozdovski found the company already retreating; he informed them that they would be reinforced, and that the commanding general enjoined them to hold the position at any cost. The company commander took no notice of the order and continued his movement in retreat. "Very well," said Drozdovski to him, "I am going to remain on this position; I am going to pasture my horses here, and I will report to the General that I have been able to graze my horses upon a position that you had abandoned under the pretext that it was impossible to hold on account of the enemy's fire." The company commander immediately caused his company to return and occupy the position again.

During the same battle, a Russian battery riddled the crest of an eminence upon which no enemy could be seen. Several cavalrymen of the scout corps received orders to go see if this height was occupied by the enemy. In ten minutes they returned and reported that it was not occupied, but that strong columns of the enemy were assembling in rear of it. The battery mentioned immediately began firing over the heights and delivered an effective fire on those columns.

By these two examples we see what kind of service the body of scouts rendered during battle.

In the month of June, 1905, Captain Krasnoff, military correspondent for the *Russian Invalid*, wrote this article which gives us some information on the employment of Russian cavalry during the war:

"One hears it often asked: What has our cavalry done? Where was it during the war? Why do we not hear something said about it? Why is it that up to the present it has nowhere played a decisive rôle?

"There are people who go so far as to say that the rôle of the cavalry is finished, that it has had its day and that little by little it must be replaced by mounted infantry.

"Is that right? Let us first see if we had enough cavalry to throw into these rather hazardous undertakings on the enemy's rear.

"Normally one must have a division of cavalry with a group of horse artillery to every two divisions of infantry. Such is the proportion of cavalry in all our armies of European Russia. Under these conditions a corps commander has sufficient cavalry to operate along his front and even to charge it with independent missions. At the present time we do not have in Manchuria a cavalry reserve that can be employed in independent missions; the army corps have none at all, and cavalry divisions have been broken up to insure their service. Our adversary possesses still fewer squadrons than we; we have three times more cavalry than he, and this is why we could withdraw from one to two cavalry regiments from every corps to form four detachments of independent cavalry; that of General Lioubaine (formerly commanded by General Rennenkampf), on our left flank; that of General Baumgarten (General Samsonoff's old command), in the center; that of General Mitshenko, an independent command; and, finally, that of General Grekoff (of Vladimir) which is on our right flank. The effective strength of these commands has varied a great deal during the different phases of the campaign.

"Where there is no decisive offensive, no pursuit, no charges to be made against strong bodies of infantry, no carefully planned out raids, the service in the cavalry, is 'slow' and passes unnoticed.

"This is the kind of service to which the Cossacks from the Trans-Baikal, the Orenburg, the Ural and the Don were tied down during the first period of the war; they were limited to the service of security and reconnoissance. Our Cossack troops were consequently subjected to no fewer losses than the infantry, but those losses passed unseen because they occurred daily and only a very few every day.

"While the infantry would lose a great many men at a single stroke, the Cossacks would lose one or two men every day. And there were many such days for the Cossacks.

"Ambuscaded day and night, frequently going whole weeks without being relieved, constantly patrolling, the Cossacks exhausted their strength and their nerves, wore out their horses, and but rarely received any praise. The public was accustomed to read news of this kind: 'A certain patrol has had a skirmish at such a place; it repulsed the Japanese at such a village; but, afterwards, it had to fall back before the Japanese infantry.' Due to the news of this kind, the public has found it tiresome in the end and has given it no further attention.

"Where, then, was our cavalry? asks the public. It was engaged in the *slow* and *unnoticed* service of security and exploration.

"Several times, imposing masses of Russian cavalry would execute raids on the enemy's rear. The three most important of these raids were those carried out by General Mitshenko; in Korea, during the months of February and March, 1904; upon Inkou in January, 1905; and on the Mongolian side in May, 1905. These raids yielded no appreciable results.

"The raid into Korea was undertaken with three regiments of the Trans-Baikal Cossacks; only one-third of their effective strength was composed of young men, and the horses, which had lacked forage, were thin. The column marched, without maps, across a new and almost unknown region, and along a single road. General Mitshenko wished to press as far forward as Seoul—which would have been possible at that time, that is, in the middle of February—

but, at sixty versts from that city they received the order to not uselessly expose the only cavalry at disposal at the time, and they returned to the Yalu. When Mitshenko had returned, he received new orders to advance to the front, and he proceeded by the same route as far as the Tchin-Tchan-han River. He was able to go no farther; the Japanese infantry and artillery were advancing already, and arranging his small forces, he returned toward the north in order not to be cut off by the Yalu, which could no longer be crossed on the ice.

"After this raid in Korea, the Cossacks were constantly employed either on small reconnoissances or to cover the retreat of the army by occupying intrenchments which they would defend with their carbines.

"The Inkou raid did not permit the Russian cavalry to gather the laurels for which they had hoped. Ordinarily, the object and the itinerary of raids of this kind are kept secret; when they must take place on an enemy's rear, they are executed in an unexpected manner and constitute the first or the last act in a general battle. As the Russian army was talking about the Inkou raid from the month of September, the Japanese ought to have certainly been advised of it.

"Consequently, they had all the villages on the route from Mukden to Inkou lightly but energetically garrisoned. The troops taking part in this raid were composed of Cossacks from the Trans-Baikal, Orenburg, Ural, Siberia and the Don, as well as dragoons. Unfortunately this mass of cavalry was weighted down by a heavy train.

"Instead of advancing fan-shaped, as foragers, this cavalry force was divided into three massive columns that marched slowly, making no more than forty versts a day, every halt being a grand halt to await the arrival of the convoy, etc. Having arrived within sight of the railway station at Inkou, they dismounted to make the attack, but were not successful.

"Briefly, the Russian cavalry was employed in operations that overtaxed its strength instead of in operations demanding lightness and mobility. In spite of it all, the Cossacks

alarmed the Japanese upon their rear and burned several of their trains.

"During this raid on Inkou, some of the Caucasian Cossack troops bravely captured, with their side arms, several Chinese villages occupied by the Japanese. Later, near Gountchjouline, at the battle of Sandepou, January 26, 1905, during the Japanese attack, the Don and the Caucasian Cossacks and the mounted troops of the Frontier Guards charged the cavalry and the infantry troops of the enemy with saber and lance.

"Finally, the 17th of May, 1905, the mixed Caucasian division and the Trans-Baikal Cossacks carried away several Japanese machine guns and captured an entire company.

"If the Russian cavalry remained inactive during the battle of Mukden, it was because they had not been assembled with the view to an autonomous mission, and also because its glorious leader, General Mitshenko, who had not recovered from the wound which he had received at Sandepou, could not ride his horse. * * *"

Independently of the Cossacks, Dragoons and Frontier Guards, the Russian staff had likewise employed mounted infantry for additional exploration duty in front of the advance guard.

Role of the Russian Cavalry From the Commencement of the Campaign Until the Fight at Turentchen (Kiulien-cheng) May 1, 1904.

The Russian cavalry came into serious contact with the Japanese for the first time on the 23d of March, 1904, in the neighborhood of Paktchin, situated in the northern part of Korea, about thirty kilometers west of An-Ju. General Mitshenko, commanding the Trans-Baikal Cossack Brigade (three regiments of six sotnias each) had, in fact, crossed the Korean frontier about the 20th of February with two regiments (twelve sotnias) and a battery of horse artillery of six pieces to march on Ping-Yang through An-Ju. The third regiment of this brigade had been sent to the Kwang-tung.

General Mitshenko retired before the advance guards of Kuroki's army and withdrew toward the west.

On the 28th of March, this small body of Russian cavalry had an engagement with the Japanese at Chung-ju, situated about forty kilometers west of An-Ju. Mitshenko had five troops successively dismount and take position on an eminence about 500 meters from Chung-ju and opened fire upon this locality, which was occupied by a few Japanese dragoons. After a fight which lasted one and a half hours, General Mitshenko having been informed that a battalion of the enemy was coming to the assistance of the Japanese cavalrymen, gave the order to retreat. There were very few losses on either side.

On April 4th the heads of the Japanese advance guards arrived at the Yalu in the shelter of which Kuroki's army deployed. This latter army had in its front a Russian covering detachment consisting of about 1100 men under General Zasoulitch, as well as Mitshenko's Cossack brigade.

On account of the wooded and mountainous nature of the region the service of security extending along the Russian side of the Yalu was entrusted, not to the Cossacks, but to the covering detachment of mounted infantry, the *okhotniti* (hunters), as they were called.

Then the battle of Kieuliencheng (May 1st) took place in which no part of Mitshenko's brigade took part. This latter was at that time located on the extreme right of General Zasoulitch and overlooked the seacoast. After the passage of the Yalu, Kuroki's army was directed toward the northwest without energetically following up the Russian retreat.

Lieutenant Colonel Madritoff's Raid Upon the Rear of Kuroki's Army (April–May, 1904).

When Kuroki's army had crossed the Yalu and fought the battle at Kieulien-cheng there was a great deal of astonishment upon learning that the Russian cavalry was still in Korea and was capturing different places occupied, in some places by Korean, and in others by Japanese troops. What

was this body which was operating against the rear of the Japanese army? Where did it come from? It was known later that it was a raiding party commanded by Lieutenant Colonel Madritoff, of the staff. One of the officers attached to the staff of the Manchurian Army, Captain Eletse, has given us the following account of it:

"The present war has already proved how difficult it is to fight the Japanese. This is because the latter combine the knowledge of modern and technical sciences with fanaticism, obstinancy and artifice. It was consequently necessary that we oppose our adversaries with these same qualities in order to attempt to attain any advantageous results.

"One of the means of striking our enemy, who possesses an astonishing amount of tenacity and energy, was to carry out raids against his trains and communications, raids which always presented great difficulties and many risks. One of the most brilliant of these raids was executed by Lieutenant Colonel Madritoff in Korea.

"The principal object of this raid was, in a general way, to reconnoiter the northeastern part of Korea. In order to effect this result it was necessary to advance on the trains of the Japanese army commanded by Kuroki, who was concentrating on the Yalu River, to penetrate as far as possible into southern Korea, to reconnoiter the lines of defense chosen and fortified by the enemy and to do him as much harm as possible by attacking his convoys and destroying his provisions.

"Lieutenant Colonel Madritoff's detachment was composed only of mounted troops, viz: The Sixth Sotnia of the Oussouri Cossacks; one sotnia of volunteer Caucasian Cossacks; two groups of mounted infantry, one from His Majesty's First Regiment East Siberian Rifles and one from the Fifteenth Sharpshooter Regiment; finally, fifty mounted Khounkhouses, who were charged exclusively with transmitting information to headquarters; say in all 500 cavalrymen.

"The train was composed only of pack animals. The detachment, including its commander, had thirteen officers, all

chosen with the greatest care, with one surgeon, two assistant surgeons and a few hospital attendants.

"At the end of the month of March, 1904, the detachment left Mukden, after participating in divine service, en route for Kouanjensian, where it remained three days. Having learned that there were no Japanese on the road they were to follow, the raiding party started to ford the Yalu, which it crossed without opposition at Vanzygooumyn, and entered Korea.

"From there, Second Captain Bobroff, commanding the mounted group of the Fifteenth Sharpshooter Regiment, started with the latter and the Oussouri troop in the direction of Pyanghchang to reconnoiter. The enemy had already passed through Pyanghchang, going toward the Yalu. Bobruff succeeded in capturing 1500 pounds of rice, which he burned.

"The same day, the Caucasian sotnia, commanded by Lieutenant Girs, was sent toward Wiwon for the same purpose. Lieutenant Colonel Madritoff's detachment was well received by the Korean population and by the municipality of Tchkhosan, which it entered after crossing the Yalu.

"The garrison of the town consisted of 100 soldiers, who were under the command of a colonel. As the latter and the mayor of the town had received them well, Colonel Madritoff offered them a banquet. These two functionaries ate a great deal, drank still more and, the repast at an end, fled from the town.

"The same night the bivouac of the detachment was attacked by the Korean troops, who were received by volleys fired by the main guard. The Korean soldiers fled, throwing away their arms and ammunition. Not contented with these perfidous proceedings, the Koreans directed their fire upon several points of the town.

"Madritoff, having disarmed the garrison, continued on his way toward Kangkia. The Korean soldiers and several incendiaries captured by the Cossacks, declared that the hostile attitude of the authorities toward the Russians was due to the influence of the Japanese; that all the garrisons of the northern regions of the country had Japanese officers for instructors, and that these garrisons had altogether about 5000 Korean volunteers who were prepared to resist the Russian invasion.

"It was likewise learned that the headquarters of the Korean partisans was at Kangkia. In fact, the Caucasian Cossack troop sent to Wiwon was fired upon by Korean troops in ambush there. The latter were dispersed with great loss. The Cossacks had only one killed and five wounded. Madritoff, astonished at the attitude of the population to whom no harm had been done, hesitated a moment as to the line of conduct that he should follow; on one hand, in order to carry out his mission, it was necessary to push as rapidly as possible to the south; on the other hand, he wished to chastise the Koreans as they deserved. He decided to set the latter aside for the time being, to leave their chastisement until his return, and to carry out his principal object. As Pyanghchang was in the zone of Japanese activity, the detachment marched due east, from Chungsung to Kangkia, and from there toward Boudjii.

"In the meantime, the Japanese had learned that Russian patrols had made their appearance on their rear. Consequently, Madritoff left the road and struck into the mountains and followed the narrow and almost imperceptible trails in Indian file.

"After a long and difficult march, the detachment reached a road that crossed the Cheng-chen-gang River not far from Boudjii, and started south toward the town of Kai-chen. A patrol explored the above mentioned river, which was noted as being the second line of defense for the Japanese (the first being the Yalu). This patrol reported that the river mentioned was not definitely prepared for defense at the time, and that there were no Japanese on its banks.

"Kai-chen was no longer occupied by the Japanese, but it contained a large amount of supplies for men and horses. These supplies had been collected upon the order of the commander of the Kai-chen district.

"The detachment seized all the supplies, distributed part of them among the destitute inhabitants, and the remainder was burned or thrown into the river.

"Other reconnoissances showed that the Japanese line of communication to the rear was open and undefended, and that all of their troops were directed toward the Yalu.

"Evidently a division of Russian cavalry would have been enough to cause much harm and embarrassment to the Japanese.

"The inhabitants informed Madritoff that a large battle had been fought on the Yalu (that of Kiulien cheng) and that more than 2000 Japanese had been killed. In support of this assertion the inhabitants declared that Koreans had been hired to transport boxes containing the heads of Japanese soldiers who had been killed, and that the said boxes had been despatched to Japan. The inhabitants added that the number of Japanese wounded was at least 6000.

"Profiting by this circumstance, that the rear of the Japanese army was absolutely open, Madritoff resolved to advance on their principal line of communications, that of Wiju, An-ju, Pyangyang. These towns, as well as Suk-chen, Yong-ben, Pak-chen, Sak-chu, Piengsan and others were fortified by small forces varying from 200 to 600 soldiers Some points even had artillery, but never more than two pieces.

"The reconnoitering patrols likewise learned that the Japanese would no longer debark their troops in Korea, but at Tatoungoou, Dagouchan and Pi-Tse Vo.

"The Korean population continued to show themselves hostile toward the Russians. They would give only vague information concerning the Japanese, and made it difficult, if not impossible, to obtain rations or forage. In fact, the inhabitants buried their provisions in the ground, chased their cattle into the mountains or hid them in gorges surrounded by virgin forests, at great distances from the roads. * * *

"As there were no Japanese at Kai-chen, it was possible to advance still further, and Madritoff resolved to make a reconnoissance in force on the town of An-ju, which was one of the points on the enemy's line of communications.

"Instead of following the road leading directly from Kai-chen to An-ju, which would have permitted his detachment to be discovered and its line of retreat cut off, Madritoff decided to advance toward the southeast over the mountains through Tak-chen and Kai-chen.

"The detachment arrived at Kai-chen on the 9th of May one hour before sundown, and after a rest of four hours they continued their march on An-ju. While en route they learned that this town had received quite important reinforcements the day before. This caused Madritoff to renounce his first plan of attacking the town at once; he wished to assure himself beforehand that the garrison had really been reinforced.

"During this night march the advance guard was formed of Caucasian Cossacks, who destroyed the military and State telegraph lines over an extent of six versts. Madritoff had to act with the greatest circumspection because he had received orders to not engage in a serious combat, in order that he might not be embarrassed by the wounded. For this reason, when within five versts of the town, Madritoff sent Second Captain Bobroff and a mounted infantry detachment ahead to reconnoiter the town.

"Bobroff's instructions were to gallop across an exposed strip in sight of the town and occupy a crest 800 paces from the walls and draw the fire of the garrison which, on the unexpected appearance of the Russian troops, would not fail to show its entire strength.

"Bobroff carried out the first part of his instructions perfectly; he crossed the exposed strip rapidly without any losses under the lively but badly directed fire of the Japanese, dismounted, occupied the crest and opened fire. From the appearance of the enemy's fire Bobroff concluded too hastily that there were no more than 200 men, and that his own small detachment could very easily finish them. He brought up all his reserves and said to his men: 'Brothers, you see how badly the enemy are shooting. Make the sign of the cross and follow me.'

"The whole party, preceded by its three officers, advanced to the assault, cheering. The Japanese received the charge by a disordered fire, which soon became inefficacious. But when they arrived within about 200 paces from the walls they were received by volleys. The gallant Captain Bobroff

was mortally wounded, his two officers were badly wounded, and the party had thirty men hors de combat.

"The Russians were obliged to stop; they retreated in rear of the crest, lay down, and in their turn opened fire on the enemy. While the group of mounted infantry attacked on one front the Cossack sotnia was sent to another side, dismounted at 150 meters from the walls of An-ju and also opened fire, getting ready to make a charge in concert with the detachment of mounted infantry. But, having been informed of the failure of the latter, and estimating the strength of the garrison as 500 men, Madritoff decided to beat a retreat.

"This senior officer ordered Lieutenant Piounovski to go and take command of the mounted detachment, to bring in their dead and wounded, and then withdraw.

"Piounovski sent eight men to bring in the dead and wounded, but at the moment they got to them they were almost all killed by the murderous fire of the Japanese. Madritoff then ordered Lieutenant Linevitch (son of General Linevitch) to take with him a platoon of the mounted infantry detachment of the First Rifles, as well as a part of the Caucasian Cossack troop, and to take position on the left of another part of the same troop commanded by Lieutenant Girs. Lieutenant Linevitch was ordered to execute a well directed fire and draw the attention of the garrison upon himself.

"In fact, the Japanese did reply to his fire, and the men of the mounted infantry detachment took advantage of it to approach toward the wounded, but they were almost all struck down themselves.

"Ascertaining that every effort made to carry off the wounded would result only in occasioning more losses, Madritoff ordered everybody to hold their positions until nightfall, when, under the cover of the darkness, they might gain the spot where the dead and the wounded lay and carry them off.

"Such was the situation at 9:00 A. M. The detachment therefore had the prospect of laying in position for at least twelve hours.

"About 9:30 A. M. a company of Japanese preceded by a cavalry patrol was seen on the other side of the river approaching a bridge. A part of the Oussouri Cossack troop galloped toward this bridge and opened fire upon it. Nevertheless, the Japanese rushed forward in a body toward this bridge. The Cossacks fired volleys into them, put them to flight, and they did not appear again that day. They continued to exchange shots with the An-ju garrison until 3 P. M. At this moment the detachment was reinforced by Sub-Lieutenant Eilers who had been sent with a patrol on the Ping-Yang road and had destroyed the telegraph wire for a distance of twelve versts. This officer reported that a column of about 600 Japanese foot soldiers were approaching from the direction of Ping-Yang. In fact, two companies soon appeared, one of which was directed on An-ju while the other advanced on the left flank of Midritoff's detachment. Lieutenant Linevitch, who was on the extreme left flank, had not more than seventeen men on the firing line; the situation was becoming critical.

"Having made a change of front, Linevitch opened fire on the enemy's company, which advanced by successive rushes, and, shortly afterwards, Captain Bodisko took position behind him with the mounted detachment of the First Rifles. Linevitch was then able to carry away the dead and wounded, and he began to withdraw.

"Bodisko allowed the Japanese to approach within a very short distance, and then fired several volleys into them when not more that sixty paces away, so close that the commands of the officers could be distinctly heard. Our volley firing mowed down the first lines of Japanese who, with great losses, gained the walls of the fortress.

"The fusillade continued until nightfall. Our losses were as follows: One officer killed and two wounded; nineteen men killed and forty-three wounded.

"At 2 o'clock in the morning the detachment withdrew. After going fifteen versts, Madritoff allowed the detachment some repose. Our soldiers, exhausted by the long and spirited fighting, had not finished installing themselves in bivouac before the vedettes arrived at a gallop and reported that they had seen the Japanese, who were evidently pursu-

ing the detachment. Immediately all of the wounded were started out under the protection of a half troop of Cossacks, and the detachment took up a position in a defile. After deducting litter bearers, escorts for the wounded and horse holders, there were not more than 180 men available for fighting.

"Two companies of Japanese made their appearance about noon and occupied a position about 200 paces from ours. Friends and enemies remained thus face to face for two hours without firing; then the Japanese withdrew. The latter probably mistook our detachment for the advance guard of a strong column. They could not have supposed that such a weak detachment would have the audacity to venture alone upon the rear of an entire army.

"After having destroyed all of the train that would have delayed the march of the detachment, Madritoff withdrew toward Tok-chen via Kai chen.

"The wounded were carried by requisitioned Korean bearers. While en route, a sotnia was sent out under the command of Lieutenant Girs to reconnoiter the east coast between Gensan and Hamhung.

"At sixty versts from Gensan, Girs learned that this town was occupied by 2000 Japanese having artillery; and that the third line of the enemy's defense, Gensan-Pinghang, was not entrenched.

"Girs then marched toward Hamhung, which was garrisoned by 600 Korean soldiers, who received him by firing volleys on him. In order to punish the inhabitants, Girs fired the town, and in three hours it was completely destroyed.

"Girs' detachment then proceeded, in the light of the flames toward Tchentchjine and joined Madritoff at the village of Bemouri just at the moment when he was having quite a lively skirmish with the Koreans, who had occupied a defile with the view of cutting off the Russian retreat. After dispersing these Koreans, the column, on May 23d, passed through Tchentchjine, which had been abandoned by its inhabitants and by its Korean garrison, which had withdrawn to the fortress of Koui.

"On May 27th Lieutenant Linevitch was sent to the front with half a sotnia to the village of Tchoumack-Kori with orders to hold the place at any price until the arrival of the column.

"Madritoff had taken this measure because a road led from this river northwest to the Yalu, and the Koreans might have been able to block it with important forces. Linevitch, having been fired upon, rushed to the attack, chased the Koreans from the village and held until the arrival of the column. He had only one Cossack wounded and three horses killed.

"Madritoff, who had come up rapidly, dislodged the Koreans from a new position which they had occupied on the heights and pushed them in the direction of Kangkia.

"There was no further reason for attacking this latter place, since Madritoff had gained all the information that was necessary. He consequently fell back toward the Yalu after having burned forty-eight Korean villages whose inhabitants had gratuitously attacked him.

"On June 1st the detachment recrossed the Yalu; it was ceaselessly harassed by the Korean garrison at Kangia, which had fired at it unintermittingly, even while it was crossing the latter stream.

"After crossing the river the detachment marched in the direction of Kounjensian, where it learned that there were Japanese infantry and cavalry with four guns. Lieutenant Colonel Madritoff's detachment, including all the wounded, then joined the left wing of the Russian army. The raid had lasted two months."

From May 1st to June 11th.

After the fight at Kulien-chen, the Second Japanese Army, under General Oku, and the First Cavalry Brigade were disembarked at Pi-Ste-Vo. The Russian cavalry did nothing to prevent this disembarkation. From the line Pi-Ste-Vo-Port Adams, the Japanese pushed the heads of their columns northward. Small detachments of Russian cavalry then had many encounters with the Japanese squadrons, but they

were afterwards obliged to fall back before the Japanese infantry that followed after its cavalry.

On May 26th the Second Japanese Army, under General Oku, captured the position at Kinchau, defended by the Fourth Division of Rifles and, from that time on Port Arthur was cut off by the rest of the Russian army and blockaded by land and sea. The nature of the terrain prevented the cavalry taking part in the battle of Kinchau. The First Cavalry Brigade belonging to the Second Japanese Army (Oku) was at Vafangow, and the three regiments of divisional cavalry of this same army had been divided into a number of detachments which were sent north to insure the service of security. These were the detachments with which the Russian cavalry had the numerous skirmishes mentioned above.

As for the First Japanese Army (Kuroki), it remained at Feng-wang-cheng from the 6th of May until the middle of June. Heavy Japanese reconnoissance detachments turned the strong Russian position near Fenchoulieng and pushed forward to within thirty kilometers of Liao-yang. Other Japanese reconnoissance parties went as far as Chinmuchen (about eighteen kilometers southeast of Haichen) and ascertained the location of important Russian forces.

At the same time the Japanese debarked the Fourth Army at Takushan (the army which invested Port Arthur was known as the Third Army). The Fourth Army advanced on Siu-yen.

After the crossing of the Yalu by Kuroki, the Cossack Brigade under General Mitshenko was charged solely until the middle of May with reconnoissance duty along the front of the First Japanese Army, which had gradually been extended for more than 100 kilometers. In the second half of May the Russian cavalry operating along the first line were strongly reinforced. On the right wing, on the Kaiping-Siu-yen line, was the Oussouri Cavalry Brigade and the Siberian Cossack Division under General Samsonoff. From these forces patrols were sent out as far as the Liao-Tong Peninsula. These patrols had many skirmishes with the

mixed advance guards of the Japanese Second Army Corps, as mentioned above.

Mitshenko's brigade performed the reconnoitering duty to the west of the Hai-chen–Siu-yen road as far as the Liao-Yang–Feng-wang-cheng road, while the Trans-Baikal Cossack Division, under General Rennenkampf, performed the same service from this latter road to the Russian's left wing. General Rennenkampf's cavalry was supported in the mountainous region of this wing, where there are many defiles, by the infantry stationed in the neighborhood of the defile at Fenchouling. Strong fractions of this general's detachment occupied Saimatse and the defile at Motienling.

It goes without saying that the Japanese cavalry were not able to penetrate the heavy screen formed by the Cossacks. In spite of that, the Japanese staff, thanks to the Chinese spies and Khounkhouses, was already exactly informed as to the positions, movements and intentions of the Russians.

In the second half of May, Russia's Southern Manchurian Army, which had received reinforcements from Siberia, numbered about 140,000 men. But these troops were not concentrated; they were scattered about in the following manner: One part occupied all the roads coming from the south, southeast and the east leading to the line Kaiping–Liao-Yang; the other part watched the seacoast. Kuropatkin consequently had only a small reserve at hand. Besides, after the news of the defeat at Kinchau, General Stackleberg undertook his unfortunate raid toward the south. This attempt to raise the siege at Port Arthur would have had no chance to succeed as long as Stackleberg did not have a greatly superior numerical force to that of the Japanese.

This general could not with 36,000 men, including twenty squadrons and ninety-four cannon, successfully fight the Second Japanese Army numbering 42,000 men, nineteen squadrons and 200 cannon.

After several small skirmishes with the heads of the advance guards of the Second Japanese Army, the Russian cavalry came into conflict with the Japanese squadrons at Vafangow.

General Samsonoff, with thirteen squadrons, one mounted infantry detachment and a Cossack battery, repulsed the First Japanese Cavalry Brigade consisting of eight squadrons. In this fight of cavalry against cavalry, the Cossack lance played an important part. After this success, Samsonoff was obliged to retire before two battalions of Japanese infantry supported by six or eight machine guns.

After a second fight on the 4th of June, the heads of the Japanese advance guards were forced to the south of Vafantien, where Stackleberg's advance guard arrived on June 11th, while the main body of his troops remained six kilometers to the south of Vafangou.

Before continuing these general descriptions of the operations as a whole, it appears to be useful to study the successive details of it:

1st. The rôle of Mitshenko's brigade from the 18th to the 28th of May.

2d. The operations of Rennenkampf's Cossack division from the first of May to the 2d of June.

The Rôle of Mitshenko's Brigade From the 18th to the 28th of May, 1904.

We have said above that General Mitshenko had to insure the service of reconnoissance between the Hai-cheng–Siu-yen road and the Liao-yang–Feng-wang-cheng road.

This was a heavy task considering that Mitshenko had at his disposal at that time only the Trans-Baikal Cossack Brigade (the First Verkhneoudine and the First Tchita regiments). Nevertheless, by May 28th Mitshenko had accomplished this mission, thanks to the information that he had been able to gain by causing incessant reconnoissances to be made for six consecutive days.

In order to obtain this information, Mitshenko sent a large number of small patrols and eight officers' patrols from forty to sixty kilometers in advance of the main body of his brigade. The officers' patrols had orders to penetrate the Japanese lines, to endeavor to see what was taking place at

the enemy's rear, and to keep in touch with General Rennenkampf's Cossack division on the left, that is to say, to the east of Mitshenko's brigade. Besides, there were cases when this general sent entire sotnias, and even his whole brigade on reconnoissance.

Here we will quote Captain Olginski, the military correspondent of the *Nova Vremya*, who was attached to the staff of the Manchurian armies:

"At the outset I consider it my duty to say a few words regarding the eight officers who penetrated the Japanese lines with the mission of endeavoring to push forward to the following localities: Sélioutkjan, Feng-wang-cheng, Piamyne and Tonsantchentse.

"These brave men were: Second Captain Potatski, Cornet Tokmatov, First Lieutenants Sierikov and Saraev, Lieutenant Sviatopolsk-Mirski, Second Captains Braunschwig and Ijevski, of the cavalry, and Cornet Fitschev. The first two of these officers, accompanied by eighteen Cossacks, succeeded in gaining Piamyne, penetrating a continuous line of guards and sentinels. Sierkov, Saraev and Mirski sent back their Cossacks and horses and then continued on foot. Sierkov was able to get within three kilometers of Feng-wang-cheng. Saraev and Mirski were not able to penetrate the third line of Japanese outposts, and were obliged to turn back, bringing back more or less important information, nevertheless. They were constantly exposed to danger, and had to proceed through the mountains without food and without shelter.

"These officers' patrols were sent out to the front on May 18th, while General Mitshenko's brigade was bivouacked near the village of Pouatzihe. The general situation on this day was as follows: The Third Sotnia of the Tchita Regiment was charged with the mobile telegraph station between the passes at Daline and Padzahe; the Second and Sixth Sotnias of the Verkhneoudine Regiment were 100 kilometers away, at the village of Sandaoline, marching to join the detachment; the Second Sotnia of the Tchita Regiment had been pushed forward in reconnoissance toward Khabaline; the Fourth Sotnia had been sent for the like purpose toward

Selizai; the Sixth Sotnia was advanced to Aoutchitan to reconnoiter the Selizai-Fengwangcheng road; the Third Sotnia of the Verkhneoudine Regiment had been sent in the direction of Laounmaio, Handouhan and Dagouchan.

"General Mitshenko had directly under his command only the First and Fifth Sotnias of the Tchita Regiment. The patrols of the Second Sotnia of the Tchita Regiment (at Khabaline) reported that the pass at Khouantchi (two kilometers from Khabaline) was occupied by the Japanese infantry and by one squadron. This sotnia was located in the Hot Springs Valley, and had to reconnoiter the Pynouza road on the 19th; at this time the Fourth Sotnia of the same regiment was occupying the village of Selizai.

"Early on the morning of the 19th, the First and Fifth Sotnias of the Tchita Regiment left under command of Colonel Pavlov to support the Second Sotnia just at the time when the latter, without waiting for reinforcements, was setting out; it encountered a reconnoitering party consisting of about fifty Japanese cavalrymen at about two or three kilometers from the village of Pynouza. The Japanese halted for the purpose of utilizing the cover offered by the terrain, which was mountainous and badly cut up, but as soon as they saw that two platoons of the Cossacks were turning their left flank, they turned and rode back at a gallop. Being excited by the pursuit, the Cossacks did not notice that the Japanese cavalry, by falling back, were drawing them upon the infantry which was in ambush on the wooded slopes and the irregularities of the mountains. A volley of musketry obliged the Cossacks to halt and withdraw a ways. To dismount and take cover behind the rocks on the opposite mountain was but the matter of a moment, and three platoons of the Cossacks opened fire upon the Japanese. Seeing that night was approaching, the sotnia ceased firing and commenced to withdraw upon Dzioudianouzou. In this skirmish we had two killed and one wounded. The Japanese lost nine killed and one wounded.

"They had just driven their picket pins where their tired horses could graze, the bivouac fires of dry kaoling were crackling, and the Cossacks were squatting around getting

ready to make tea, when the vedettes at the rear reported that three Japanese squadrons were advancing on the village of Dzioudianouzou. Again they had to mount their horses. Just at this moment the Sixth Sotnia of the Tchita Regiment dashed out of the Hot Springs valley in the direction of the firing. Covering themselves by patrols, the two sotnias advanced on Toinzou, where, on the following morning they joined Colonel Pavlov, who had traversed the Todagoou and Toukhogoou valleys.

"At 5 o'clock in the evening, upon the order of General Mitshenko, who wished to concentrate upon our left a force strong enough to suddenly envelop the enemy's flank, the Sixth Sotnia of the Tchita Regiment joined Colonel Pavlov. Between 4 and 5 o'clock in the evening, the commander of the Fourth Sotnia reported that a Japanese squadron, supported by infantry, was approaching him from the direction of Khabaline toward Selizai.

"Late events had indicated sufficiently well that there was bivouacked in the vicinity of Khabaline-Khouantchi the entire infantry division of the Guard (with a regiment of cavalry, likewise of the Guard), which had left the Feng-wang-cheng road with the probable purpose of reorganizing itself after the battle of May 1st, and at the same time of covering the train (the Chinese estimated that this division had been reduced in action from 12,000 to 9,000). General Mitshenko therefore resolved to reinforce the Fourth Sotnia by sending to it the First and Fifth Sotnias of the Verkhneoudine Regiment under the command of Colonel Matsievski. Having on his left flank the four sotnias of Colonel Pavlov's regiment and with himself the Second and Sixth Sotnias of the Verkhneoudine Regiment, the General determined to accept the fight, reckoning on pulverizing and dispersing the enemy by suddenly hurling Pavlov's sotnias upon his flank.

"In accordance with this decision, the Third Sotnia, of the Verkhneoudine Regiment, received orders to start immediately for Padzihe. Closely pressed by the Japanese infantry, and also fearing for its left flank, the Fourth Sotnia began to retire under the heavy but badly aimed fire of the

Japanese, but was joined by Colonel Matsievski, who had bivouacked during the night near the village of Maouhe, in the immediate vicinity of the enemy. While pushing forward on Selizai, the Japanese were at the same time marching through the mountains in such a way as to outflank the left of Colonel Matsievski, who, for this reason also, had fears for this flank. In reality, this turning movement was most desirable, for the Japanese were exposing their flank to Colonel Pavlov; this was all that General Mitshenko asked.

"It was learned late at night that the Third Sotnia of the Verkheoudine Regiment had received orders to join the detachment; the commander of this sotnia had resolved while en route to reconnoiter Dagouchan and the Siu-yen road. It must have been that the commander of this sotnia did not reckon on an encounter with a detachment of more than seventy men, based upon information given by the Chinese. But this was just at the time of the debarkation at Dagouchan when the infantry and cavalry were camped in the woods and villages a short distance from Senkhoutchenzy. About 9 o'clock in the evening, when it was already almost black dark, this sotnia was marching along the road near this village observing every requirement of the service of security, that is to say, it had an advance guard, covering patrols and flankers. On account of the darkness it did not observe a Japanese sentinel who was hidden in the underbrush. The sotnia quietly continued its march with its two officers at the head of the column. Suddenly, in the midst of the profound stillness of the night there resounded the rifle shot of a sentinel at the rear of the column. There was a moment of hesitation, then came a point blank volley from fifty paces in front of the sotnia.

"Without losing his presence of mind, the commander of the sotnia commanded: 'Draw saber! Charge!' and then led the charge, followed by his Cossacks. * * * But those faithful companions of the Cossacks, the small Trans-Baikal horses, found themselves in a marshy rice paddy, stumbling, falling on their knees and rolling on the ground. * * * Another volley resounded; then from three sides there

crackled a rolling fire of musketry. One of the first volleys mortally wounded Second Captain Beklemishev, the commander of the sotnia. In falling, this officer gathered all his strength and shouted to his men, 'Brothers, push forward on the right.' On account of the obstacle that had thrown their ranks into disorder, the Cossacks dispersed. Some succeeded in getting through the enemy in spite of their murderous fire. The Japanese were so stunned by this rash and audacious charge that, in their confusion, they fired into one another.

"The courage of the Cossacks in this moment of danger was demonstrated by the following particular: Although receiving shots from nearly all directions, the Cossacks made three attempts to reach the spot where Beklemishev's body lay, but being received each time with a murderous fire, they were forced to retrace their steps. Nevertheless, the greater part of the Cossacks were able to get past the Japanese and gain the mountain, where they assembled in small groups and rejoined the regiment. Many of them who had lost their horses returned on foot, without maps, across rocky mountains that were devoid of roads. They did not know the language of the country and had no guides to lead them through a region where Japanese patrols were traveling in all directions, and they were consequently obliged to be hiding in holes and ravines. Some of them, betrayed by the Chinese, held out in short struggles against the Japanese patrols. They were famished and exhaused, but in this condition they managed to make over 70 kilometers; not a single man abandoned his carbine or saber. Many of them still found means to gather quite valuable information concerning the enemy.

"The sotnia lost twenty-six men (seven killed and nineteen wounded) and its three officers (one killed and two wounded). The others rejoined the regiment.

"The news of the repulse of the Third Sotnia arrived at a late hour at night. At dawn, the General ordered one-half of a sotnia forward on the Senkhoutchenzy road to protect the Cossacks who were seeking to rejoin the regiment. But just at this time the Japanese made an energetic attack after

deploying a heavy line of skirmishers. It was then 6:30 o'clock A. M.

"One patrol, commanded by First Lieutenant Tcheslavski, disclosed a movement of the Japanese. This officer had six wounded in an encounter with a battalion of Japanese infantry. The losses of the Japanese were not known. Colonel Matsievski's sotnias commenced to withdraw slowly without replying to the volley firing and the murderous rapid fire of the Japanese skirmishers. Colonel Matsievski followed the valley of the Daniho River, which is nothing but the dry bed of a small tortuous water course with very wide and gently sloping sandy banks, until he came in sight of the village of Paoutzihe, about 8 o'clock in the morning. Instead of advancing on Talenkhou, according to the General's previous instructions, Colonel Pavlov received orders to wait at the village of Paoutzihe. And, in order to cover him as he would debouch from the valley, a half sotnia was immediately deployed on foot along the Daniho River.

"Toward 11 o'clock the heights east of Paoutzihe, on the left bank of the water course, were occupied by the Japanese, who at once opened fire with well directed volleys.

"After having sent the pack animals and the sick and wounded forward on the Siu-yen road, General Mitshenko ordered Colonel Matsievski's sotnias, which were in reserve in rear of the village, to also move forward on this road. They were followed by Colonel Pavlov, who was somewhat delayed while the Fifth Sotnia was assembling its patrols. In order to cover this movement the Second Sotnia of the Verkheoudine Regiment was deployed along the stream. This was a little past 2 o'clock. * * * The Second Sotnia of the Tchita Regiment arrived at the trot, dismounted and took position on our left flank.

"The Japanese made a feeble attempt to cross to the right bank with a patrol of cavalry and a platoon of infantry. But being received by a heavy fire these units had to withdraw with considerable loss. Their attempt to turn our left flank was consequently not crowned with success. Acting under the order of the chief of the detachment, a half sotnia of the Tchita Regiment make a skillful attack upon the infantry which was hidden in the woods on our left flank, and, having dispersed it, obliged it to withdraw to the right bank. The detachment having crossed and having had time to withdraw on the Siu-yen road, the Cossacks of the Second Sotnia commenced to withdraw slowly, leaving posts of observation on the crests of the mountains. About 10 o'clock in the evening they joined the detachment which bivouacked near the village of Sendzian.

"This affair, although insignificant in itself, still made it necessary for the enemy to deploy two battalions and confirmed the supposition that units of the Japanese Guard were on the line Khabaline–Khouantchi–Selizai.

"Unfortunately, the plan elaborated by the chief of the detachment, a simple but very ingenious and audacious plan, which, in case of success, might have wholly defeated the enemy, could not be carried out, due to the reasons given above.

"The next day, after having sent patrols to the southeast of Siu-yen, the detachment commander decided to allow a day of rest, and to take advantage of it to send all of the wounded and the men and the horses that were tired out through the Dialine Pass. Late in the afternoon information began to come in concerning the enemy. In spite of the General's great desire to allow his horses to rest it was dangerous to keep the men at Sendzian, because this village is situated in a wide but short ravine, enclosed on all sides by mountains and having only two passes as means of egress; one, on the Sedschohe side, that is to say, at the rear of the detachment, where patrols of the enemy had already been seen (in the village of Paoutzihe, which was occupied by us the evening before), and the other toward Siu-yen.

"If this defile had been occupied by only a small body of the enemy, the detachment would have been able to get out of this sack only by the perilous and difficult mountain trails. Consequently the prudent commander decided to advance in the direction of Siu-yen and bivouac on the Daline road on the other side of the first pass leading out of Siu yen. No more favorable spot could have been selected; for from there the detachment could easily reconnoiter the two roads

by means of patrols, the Selizai road and the Dagouchan road. In case it became necessary he could leave with all of his brigade or only a part of it.

"The detachment set out at a late hour in the evening and maintained the greatest silence in order that its movements might not be betrayed. A half sotnia of the Verkhneoudine Regiment had to act as a flank guard; the detachment followed a trail to the right of the main road. The rear guard was composed of the Second and Sixth Sotnias of the Verkhneoudine Regiment. The route was very difficult. The trails were almost perpendicular where they passed over abutting rocks. In places, the route was enclosed on two sides by abrupt precipices. * * *

"It was far past midnight when the rear of the column began to arrive in bivouac. Fires were at once lighted and the men, tired and numbed by the dampness of the night, hastened to make the tea which a Trans-Balkan Cossack cannot do without, and which, for him, takes the place of dinner and supper. The horses were picketed, but there was no forage for them, as it was impossible to find it in the darkness of the night. Generally speaking, the question of forage and of provisions is a very grave one here; it is complicated by the fact that the Tifangouan of Siu-yen is very hostile to the Russians and has closed all the store houses of the town and forbidden anything being sold to us whatever. The General, who is very patient and humane, did not wish to use force in this matter; but when the Tifangouan began to incite the population against us the General was obliged to have him arrested and sent to Liao Yang. It is said that the Tifangouan was greatly frightened by the Japanese, who had already ordered him to prepare a certain amount of forage and provisions.

"Another reason is that on account of the continual movements of the column the intendancy is not able to supply forage and provisions, so that one is obliged to have recourse to requisitions. Now this method of re-supply presents difficulties, although the detachment pays a good price for everything that it requisitions. The inhabitants sell us their provisions quite against their will, because they have very little

and will end by having nothing for their own use. While operating in mountainous regions the situation is still more difficult, for the inhabitants themselves have nothing to eat.

"The patrols sent toward Oulaasou (on the Dagouchan road) having reported the presence of the enemy's patrols near that village, General Mitshenko resolved to make a reconnoissance with his entire brigade as far as Oulaasou with a view of gaining immediate contact with the enemy. On the 11/24 of May the brigade was set in march, leaving at the bivouac the sick, the non-effectives and three sotnias to cover its rear.

"A long halt was made at the village of Schitosan, where seven officers' patrols were sent out to the right and left. We started at 5 o'clock on the morning of the 16th. Upon arriving at the village of Oulaasou the column halted, and just at this moment a Cossack came in at a gallop and reported that one of our patrols had been fired upon. The Cossacks advanced at a trot in the direction of the firing and a half hour later they came to a narrow gorge, at the other end of which two ravines debouched at right angles. At the intersection of the two ravines and on the bank of a stream was a large inn, which was occupied by the Japanese and from which they maintained a well-directed fire on the first ravine. In spite of this fusillade, the Cossacks of the Sixth Sotnia of the Verkhneoudine Regiment pushed to the front under the command of their audacious chief, Second Captain Semenov. After approaching quite closely the Sixth Sotnia dismounted two platoons and opened a well directed volley fire at 2000 paces. After the first volley there was great confusion in the ranks of the Japanese squadron, which ceased firing and fled in the greatest disorder. It was dangerous to pursue; for in half an hour a line of Japanese skirmishers appeared in the direction in which the Japanese had fled. After resting for a short time, and gaining some very valuable information from the inhabitants, the brave Sixth Sotnia returned through the pass and joined the brigade at 3 P. M. At 4 P. M. the brigade returned to its bivouac. The brigade marched through the town of Siu-yen to the music of the band of the Tchita Regiment.

"On the 27th, the troops rested in honor of the anniversary of the coronation of the Czar."

The Operations of Rennenkampf's Cossack Division From the 1st of May to the 2d of June.

The rôle played by General Rennenkampf's division from May 1st to June 2d, was a very important one, and cannot be passed over in silence. Captain Eletse, attached to the General Staff, sent the *Nova Vremya* a detailed account of this part of the operations, which we reproduce here in full:

"After General Kuroki's army had crossed the Yalu it was natural to ask what it was going to do. * * *

"It was evident that the problem of discovering the plans of the enemy, while at the same time hiding our own, could be solved only by the cavalry. The commander of our army intrusted this very important and very difficult mission to General Rennenkampf, who had three regiments at his disposal. The complement of officers in these regiments was filled by volunteers from the cavalry regiments of the Guard. * * * As for the Cossack officers of these regiments, they left nothing to be desired in whatever concerns professional knowledge and devotion to duty. They had General Rennenkampf at their head. He had showed his capacity in the late campaign in China; he knew the country as well as the Japanese did, and combined exceptional bravery with coolness in fighting.

"The men composing these regiments were good; many of them had already been under fire, and, if they were not as well disciplined as their comrades in the other Cossack regiments, it was due to their different manner of life. However, one could feel assured that by appealing to their hearts, one might confront any enemy whatever with them.

"The horses left much to be desired; they were small, poorly bred Siberian horses, many of which had just been taken from the plow, and they did not promise much in the way of endurance.

"Just before the departure of the regiments which were concentrating at Liao-Yang, the skirmishes and engagements began with the Japanese in Korea and on the Yalu. Our heavy losses in officers proved to us that the Japanese were good marksmen and that their best shots had orders to shoot exclusively at those whom they recognized at a distance as officers by their uniforms. Consequently in the Trans-Baikal Cossack Division the shoulder belts and cartridge boxes were abandoned. They were good looking, but they were too unsubstantial for field service. The varnished leather belts were replaced by others of fair leather, and the officers, as well as the Cossacks, were reuniformed with gray blouses, which were less visible than the light colored ones.

"Equipage was reduced to the barest necessities. General Rennenkampf forbade his officers their field cots, and they had to get along with the *bourka* (the Cossack cloak).

"At early dawn of May 1st (new style) the regiments started out singing. They had the honor of being escorted by the commander of the army, accompanied by his staff, who wished General Rennenkampf and his command success in their operations.

"The column first followed the Feng-wang-cheng road and, having arrived at Lanshaigouan, it changed its direction for Sai-ma-tse, where it arrived on May 5th.

"This locality was chosen as a base of operations; for, being midway between the Liao-yang–Feng-wang-cheng road and the Mukden–Feng-wang-cheng road, the column could observe both routes simultaneously.

"The detachment remained at Sai-ma-tse until May 10th. General Rennenkampf made a reconnoissance in force along an extended front. By this reconnoissance, General Rennenkampf ascertained that the main body of the Japanese forces were concentrating at Feng-wang-cheng, where they were busily throwing up works with the probable intention of making that locality the principal point of support for its intermediate base, which appeared to be the Yalu.

"After convincing himself that this was the state of things, General Rennenkampf resolved to go to Kouandensian, with the purpose of gaining the enemy's right flank or the rear if this locality were not occupied by him.

"According to information given by the Chinese, Kouandensian was occupied by the Japanese.

"Cornet Baron Vrangel, of the Argoun Cossack Regiment, received orders to reconnoiter Kouandensian. This officer penetrated the town and ascertained that, until then, no important forces had been there, except a few exploring patrols. Baron Vrangel came and reported this information to General Rennenkampf, who had reached Sydzoumine Pass with his division, by passing through Ayan-yamine. From there the General detached five sotnias, which advanced toward Kouandensian with an advance guard of two sotnias of the Argoun Regiment and one of the Nertchine Regiment, under the command of Captain Prince Karageorgevitch (brother of the king of Servia). This detachment left on May 11th, at 5 o'clock A. M., and arrived at Kouandensian about 1 o'clock in the afternoon. Upon entering this town they learned from the inhabitants that a Cossack of the Argoun Regiment had been killed by a Japanese patrol and buried near the city wall.

"The corpse was exhumed in order that it might be interred according to the orthodox ceremonial. Upon examining the body, the surgeons ascertained that the wounds that covered it had been made after death.

"The obsequies were fixed for 4 o'clock in the afternoon in order that the General, who arrived in the afternoon, might assist in them. But the funeral services had hardly begun than they were interrupted by volleys fired from outside the town. It was necessary to abandon the unfortunate Cossack, mount and gallop away.

"The Cossack vedettes returned at a gallop and reported the approach of Japanese foot soldiers and cavalrymen, who seemed desirous of enveloping our right flank.

"There were about one battalion and one-half a squadron of the enemy.

"One sotnia of the Argoun Regiment was immediately dismounted and deployed as skirmishers. Another sotnia remained mounted and was ordered to ford the Daopou River and take position beyond some hills which rose two versts west of the town.

"The remainder of the detachment advanced in the same direction in order to draw the Japanese their way. But the latter halted at Kouandensian and did not go any further.

"Our detachment concentrated at Ayan-yamine. We had only one Cossack wounded and two horses killed in this affair. The Japanese losses were likewise insignificant, although somewhat higher than our own.

"General Rennenkampf having learned what he wanted to know, that the disposition of the enemy's forces also included Kouandensian, left Ayan-yamine and returned to Sai-ma-tse, where he remained until May 24th.

"On May 12th, three sotnias of the Oussouri and Argoun Regiments were sent under command of Colonel Kartsev into the Tsao-ho valley where they passed the night five versts beyond a mill. Having learned from the Chinese of the presence of large forces of the Japanese, Colonel Kartsev returned to Sai-ma-tse where he left the Cossacks of the Argoun Regiment and started with the Oussouri Cossacks for Lanshaigouan to assure himself that the enemy was not making any demonstration at the rear of our detachment. On May 14th the Argoun Regiment was sent southward into the valley of the Tsao-ho. On May 16th, General Rennenkampf started southward, through the Badao-ho valley, with the other regiments. He sent two sotnias of the Nertchine Regiment into the Ai ho valley. In this way General Rennenkampf began to keep in touch with the enemy in the direction of Feng-wang cheng.

"The two sotnias of the Nertchine Regiment traversed the Ai-ho valley without incident and joined the detachment five versts north of Vendziatoun. Upon arriving near this place, our cavalry were received by shots fired from behind the walls of the town. One sotnia of the Nertchine Regiment (Captain Melikov), one sotnia of the Argoun Regiment (Captain Vlasov), and another of the same regiment (Captain Pieskov) quickly dismounted. These three sotnias advanced to the attack under the command of Prince Karageorgevitch. The Japanese were driven from Vendziatoun and withdrew two versts to the southward. Our battery did not fire upon them.

"The enemy took up another position and again opened fire. The Third and Fourth Sotnias of the Argoun Regiment immediately dismounted, while the Fifth Sotnia of the same regiment set out on horseback to turn the left flank of the Japanese.

"The fight was of short duration. The Japanese again withdrew. We had nine Cossacks killed.

"But our cavalry soon had to beat a retreat in its turn, for the enemy was reinforced by a battalion and a battery, and at once took up a strong position. Rennenkampf's division returned to Sai-ma-tse where it remained till May 18th to allow the horses to rest. It may be stated that the latter did not have enough forage; they had nothing to eat but the kaoling (straw) with which the houses in the Chinese villages are thatched.

"In spite of the difficulties they had in feeding the horses, General Rennenkampf retained possession of Sai-ma-tse because that town, as I mentioned at the commencement of this article, was a very important strategical point for us.

"Five sotnias commanded by General Lioubavine were once again sent in the direction of Daoziandtse and Shiaoutchen via Ayan-yamine. Their mission was to see if the enemy had changed his dispositions. This column was covered by a sotnia of the Argoun Regiment commanded by First Lieutenant Prina-Magalov. When this sotnia arrived at the above mentioned village at 6 o'clock in the evening a wood fire and a signal station were seen upon a hill near by. A platoon of Cossacks was immediately sent to the summit of this hill. Upon closely examining the imprints left in the sand by the shoes the chief of the platoon became convinced that the Japanese had just recently left the place, and that there must have been about a dozen of them. Two sotnias of the Argoun Regiment, under command of Lieutenant Colonel Khroulev, were sent toward Shidziapoutsa, and Cornet Baron Vrangel went forward to the Ai-ho.

"A Chinaman was sent to Shitaoutchen and he returned with the news that this village was occupied by only a mounted patrol of thirty men. Baron Vrangel likewise ascertained that the village of Dalou (Darou) was occupied by one battalion and one battery, that two companies were posted in a pass, and confirmed the information brought by the Chinaman concerning the presence of a mounted patrol at Shitaoutchen. Besides, he discovered that the Japanese were intending to advance that same day upon Shitaouchen. Baron Vrangel carried all this information to the village of Shidziapoutsa, where General Rennenkampf had already arrived. Upon learning this news, the latter started for Shitaoutchen, while Colonel Kartsev started with two sotnias to turn the Japanese. Unfortunately, this officer arrived too late and thus permitted the latter to withdraw toward Darou.

"Our cavalry, which followed the Japanese, were fired upon by volleys from the village of Shidziapoutsa; First Lieutenant Oulagoi was grievously wounded in the breast, as well as two Cossacks, one of whom died shortly afterwards.

"The fight at Shidziapoutsa lasted about three hours, and then, as the Japanese were reinforced by two and one-half battalions, our troops were obliged to withdraw. The division passed the night near Laoubayangoou.

"The next day the division made a forced march of thirteen hours, through the rain, in order that it might gain the right flank of the Japanese, at Shaogoou (not far from Kouandenzian); men and horses were excessively fatigued. A half sotnia of the Argoun Regiment was fired upon while on the way to relieve an outpost. Cornet Barbash was wounded.

"The rifle shots made a garland of fire against the dark background, and the mountains reverberated the noise of the fusillade.

"General Rennenkampf led the attack at the head of a platoon, and taking a Cossack's carbine, fired sixty shots with it. The sotnias galloped up in succession to their places in the fight and deployed as skirmishers. The fire became very strong; it seemed as though an elf had suddenly prepared an illumination amidst the mysterious valleys. This fusillade lasted for three quarters of an hour; then it came time to load the pack animals. The sotnias began to withdraw under a hailstorm of bullets, while the trumpets sounded and

all the Cossacks sang *Boje Tsaria khrania* (God shield the Czar).

"Our losses were as follows: Cornet Barbash and two Cossacks wounded; two horses wounded. In addition, five other horses fell from exhaustion.

"May 23d, Rennenkampf's division entered Ayan-yamine and remained there the 24th.

"On the 25th, the outposts signaled the approach of the Japanese. Six platoons of the Argoun Regiment deployed as skirmishers and opened fire upon the assailants. Captain Shoundiev, who commanded these six platoons, was wounded almost at once in the leg and was relieved by Second Captain Gregory.

"First Lieutenant Toulzakov was seriously wounded in the abdomen.

"Baron Vrangel, who had been sent to the right to avoid a turning movement by the enemy, surprised a mounted Japanese patrol and placed several of their men *hors de combat*, while the rest fled at a gallop. The Japanese infantry immediately began firing volleys at 2000 yards.

"Our sotnia then began to withdraw under the protection of the half sotnia commanded by Baron Vrangel, who dismounted his men.

"We had two Cossacks killed and eleven wounded.

"Having returned to Sai-ma tse, General Rennenkampf remained there three days; lack of forage obliged him to withdraw to Tsiantchan (sixty kilometers north of Sai-ma-tse), where he found everything he needed for his men and horses. But the Cossacks had hardly prepared a bivouac that they might take a well earned rest after a month of marching and skirmishing, than General Shiekhert arrived at dawn of the 31st of May with orders from the Commandmanding General to drive out of Sai-ma-tse the 3000 Japanese that were understood to be assembling there.

"General Count Keller, commanding the Column of the East, was also ordered to advance upon the Sai-ma-tse, setting out from Liaushai-Gouan with strong forces of infantry.

"The flank guard under Colonel Kartsev, mentioned above, was placed under the orders of General Rennenkampf,

who immediately left for the purpose of personally taking command. The General rode 138 kilometers in twenty-four hours, going by the way of Siaosyr.

"The regiments under the command of General Lioubavine advanced from Tsaishan toward Sai-ma-tse. Having arrived at the Fenshouiline Pass, the Cossacks halted and bivouacked beneath the crest, which was occupied by one sotnia.

"On June 1st General Lioubavine's column advanced through this unlucky pass toward Sai-ma-tse. The advance guard, commanded by Colonel Baron Dellingshausen, of the Guards Dragoons, comprised two sotnias of the Nertchine Regiment and one of the Argoun Regiment. This commanding officer was so prudent that he detached dismounted scouts on the flanks, who followed the summits of the mountains. When the scouts became tired they were relieved by others.

"In this part of southern Manchuria where one meets with nothing but mountains, ravines and passes, and where it may be said, there are no roads, the cavalry were only able to march in column of files. Furthermore, during the third and even the greater part of the way, they had to lead their horses by the bridle up and down the slopes.

"It was impossible to procure rations for the men and forage for the horses at any price whatever. The officers lived largely on rice cakes and took their tea without sugar. The Cossacks subsisted upon roots and upon grain which they crushed with stones, and instead of tea they drank hot water.

"Before me I have a letter that I received an hour ago from Siaosyr; I will cite a few extracts from it which depict clearly all the difficulties in the cavalry service:

"'I write you from the most picturesque spot that exists between Liao-yang and Sai-ma-tse, not far from the Sagoouline Pass.

"'Rocks heaved up in the greatest variety of forms, some rose colored, some green, and accessible only to the eagles, border a narrow ravine through which runs a noisy mountain

torrent. The flora presents every possible variety; Chinese lilies, vine clad oaks, orchids, acacias and jasmines.

"'Before me is a small pass at the top of which is posted a sentinel with his carbine. In the pass winds a road shaded by birch, poplars, lilacs and hawthornes. The evening atmosphere is impregnated with perfumes that lull one like opium. It is fresh during the day in spite of the heat. The horses are resting in the shade of the trees and the Cossacks, who have been on outpost or patrolling duty during the night, are stretched out upon the ground. * * *

"'I will now describe to you the typical young Cossack officer, waging war in the midst of the Manchurian deserts; he wears the fur cap or the helmet, according to circumstances, but not according to the seasons; a blouse that is rather new; trousers of some dark color; fair leather boots; neither shoulder belt nor cartridge box; a fair leather strap serves for a belt, and to it are hung the meal bag, the tobacco pouch and the field glasses. In the rear hangs the revolver in its dirty holster. The pipe is thrust into a boot leg. Finally, a tattered map is carried in the blouse over the breast.

"'Add to this the *nagaika* (a small Cossack whip) and torn gloves that have more holes than fingers, and you have the portrait of an officer serving at the front in our army.'

"Such are the conditions under which General Rennenkampf's division is operating; the General sets an example to his officers in everything; he rises at 5 o'clock in the morning, is always on the firing line during the fighting, and is accompanied by a flag that draws upon him the whole fire of the enemy.

"In studying the operations of Rennenkampf's division, it must be remembered that it has wholly accomplished its mission; it did not permit a single Japanese patrol to approach Liao-yang, and it hid the disposition and concentration of our forces from the enemy. At the same time, Rennenkampf's division was able to report that the Japanese had no intention of advancing upon Mukden and Liao-yang with any important forces, which was the important thing for us to know."

From June 12th to July 16th.

On June 12th General Oku's army left Port Arthur for Port Adams in three columns, advancing northward. Although Samsonov's cavalry brigade reconnoitered on Stackelberg's right wing, this general was not informed of the vast turning movement that the left Japanese column was executing to the westward.

On June 13th Oku deployed his center and right columns against Stackelberg's advance guard at Vafangou, but without attacking, his purpose being to give his left column time to execute its turning movement.

On June 14th Stackelberg's advance guard finding itself in the presence of numerically superior forces, withdrew on the main body; there was an engagement between Oku's center and right columns and Stackelberg's left wing and center, the Russians maintaining their positions.

On June 15th Stackelberg's left wing attacked Oku's right wing. The Japanese general having refused this right wing, the attack of the Russians, instead of being a flank attack as they had expected, was in reality but a frontal attack. Stackelberg ordered an infantry brigade to execute a wide turning movement so as to outflank the Japanese right, but this brigade was stopped by the fire of the First Japanese Cavalry Brigade, which had dismounted. This Japanese cavalry brigade was, it is true, immediately obliged to withdraw, but it had nevertheless accomplished its mission, for it had discovered the movement of the Russians and had been able to check it for awhile by its fire.

The Russian cavalry, although numerically superior to the Japanese cavalry, did not take part in this struggle. It is possible that Samsonov's sotnias, which were on the Russian right, might have been prevented from entering the struggle on account of the obstacles of the terrain. But then the Russian cavalry ought to have been on the left wing where it would have been able to act against the First Japanese Cavalry Brigade which had been weakened by the engagements of May 30th and June 5th. The Russian cavalry must also be reproached for not noticing the turning movement executed by the left column of the Japanese.

The unexpected arrival of this column upon the battlefield and the superiority of the Japanese artillery obliged Stackelberg's troops to withdraw in spite of their bravery. This general was able to beat a retreat without being harassed by the Japanese, and he rejoined the main body of the Russian forces.

During these events, the Fourth Japanese Army, which was concentrating around Siu-yen, was placed in march on June 16th, toward the Haicheng-Tashitchao line. It was divided into four columns directed respectively on the Daline, the Fenshouiline, the Tchipanline and the Vatseline Passes. These passes were occupied by troops belonging to the Second and Fourth Siberian Armies and by General Mitshenko's Cossack brigade.

On June 25th the First Japanese Army (Kuroki) began to advance in three columns with the following objectives: The right upon Fenshouiline Pass; the center upon the Modouline Pass; the left upon Haicheng.

The Russian detachment, commanded by General Keller, and the fractions of General Rennenkamp's Cossack division, occupied the Fenshouiline and the Modouline Passes; while at the extreme left, the main body of Rennenkampf's division, reinforced by infantry, guarded the Anping–Sai-ma-tse road, the Anping-Mukden road and the Kiantchang–Sai-ma-tse road.

The Second Japanese Army (Oku), which had slowly followed Stackelberg's forces, had these troops in front of it at Tashitcho, where they had joined the main body of the Russian forces, as was stated above. Kuropatkin being really disturbed by Stackelberg's retreat, had advanced the troops which remained at his disposal from the region north of Liao-Yang southward to the neighborhood of Antchantchouan. We pass over in silence the series of combats which ended with the Japanese holding all the passes on July 1st which were previously occupied by the Russians.

As we have said above, Samsonov's cavalry brigade, Simonov's Siberian Cossack Division, and the Orenburg Cossack Division, which had recently arrived on the theater

of operations, were on the Russian right wing. These last two cavalry divisions performed nothing striking, although the terrain gave them the opportunity to act more efficaciously than they did against the Second Japanese Army (Oku). As for Samsonov's brigade, it was with Stackelberg's corps.

Mitshenko's Cossack brigade, which was in the Russian center, maneuvered very well; in spite of the mountainous region that it occupied, it often stopped the Japanese and inflicted serious losses upon them by its fire.

Rennenkampf's Cossack division was, as our readers know, on the Russian left wing. This division numbered twenty four sotnias, but General Rennenkampf had only six or eight of them directly under his orders; all the others were scattered and employed on reconnoissances. Under such conditions this general could not undertake any serious operations. He had received strict orders to not advance in any case beyond Sai-ma-tse, which was only about thirty kilometers from General Keller's main position.

As for the reconnoissance service performed by the Cossacks in the mountainous regions occupied by General Keller, it was absolutely without results. General Keller, on account of faulty information, entered into several useless and murderous combats, like that of July 13th, in which the sotnias under Rennenkampf's orders took part, and in which General Rennenkampf was seriously wounded, and like that of July 16th.

From July 16th to August 24th, 1904.

During the second half of July, the three Japanese armies, then under command of Marshal Oyama, continued their offensive concentric march against the advanced detachments of the Manchurian Army, the main forces of which were south of Liao-Yang.

In the fights which took place during the second half of July, the advanced detachments just mentioned covered the retreat of the main body of the Russian forces and of the administrative, sanitary and other services, upon Liao-Yang. In

spite of the few partial successes to the credit of the Russians, the Japanese did not continue their offensive march any less methodically. The heads of the advance guards of the three Japanese armies were already enveloping the detachments of Russian cavalry charged with the service of security, and the Japanese front was reduced from 200 to 100 kilometers. This contraction of the Japanese front prevented Kuropatkin from successfully taking the offensive against one of Oyama's corps. Bensihou, a point of crossing of the Tai-tse-ho, situated fifty kilometers east of Liao-Yang, was already occupied by a mixed Japanese detachment, including a large number of cavalry. The Russian line of retreat on Mukden was menaced, but Rennenkampf's Cossack division could do nothing about it; its commander was wounded, and its few sotnias which still remained together were withdrawn to the west after the evacuation of Fenshouiline Pass by General Keller.

Kuropatkin, fearing that he would have his left wing turned, reinforced the eastern line of his outposts. Then followed the important actions of July 31st, and August 1st, respectively, in the Yanseline and Yanshouline Passes, situated about forty kilometers east of Liao-Yang.

On account of the unfavorable nature of the terrain, the Russian cavalry again found that there was no possibility of taking part in those fights.

The Japanese contented themselves with slowly following their retreating adversary to the Lan-ho.

On the south front, the outposts of the two sides were in such close proximity after the middle of July that the Russian cavalry was withdrawn behind the right wing. Although the Russian cavalry was in great numerical superiority, it was not able to profit by the favorable field of action offered it by the Liao-ho valley. The reconnoissance service was performed by detachments of mounted infantry.

On July 25th, the First Japanese Cavalry Brigade occupied Inkou, where at the end of the same month, the transports debarked troops and supplies. The numerous Russian cavalry did nothing to prevent the landing of these troops.

The Fourth Japanese Army still continued its offensive

march in order that the First Army, that is to say, the right wing, might be permitted to turn the Russian left and cut their main line of retreat on Mukden. Until August 24th, Marshal Oyama was solely occupied with preparing the continuation of the concentric march of his forces upon Liao-Yang.

The principal Russian outposts were, on the southern front, at Anchantjouan; in the center, at Tangoyen; and, on the eastern front, at Anping behind the Lan-ho.

Kuropatkin's main forces were bivouacked, with the greatest portion of the cavalry, at and to the south of Liao-Yang.

Kuropatkin had been able to concentrate 180,000 men for the battle of Liao-Yang, including the Fifth Siberian Corps, which arrived at Mukden a short time before the beginning of the battle, and which was sent toward the Yentai mines to protect the left flank. The Seventeenth Corps and the main body of the cavalry had been kept at Liao-Yang, north of the Tai-tse-ho, to apparently also protect this flank.

Kuropatkin wished to await the Japanese at his strongly intrenched positions, and he hoped to then pass to the offensive.

Marshal Oyama did not resume his march against these positions until August 25th.

The Russian cavalry should have been able to profit by these three weeks check of the Japanese armies to carry on reconnoissances, or to undertake enterprises against their flanks and their rear, or to annoy their reserves. It did nothing of the kind.

During the Battle of Liao-Yang (from August 24th to September 7th, 1904).

When the Japanese resumed their offensive march on August 24th, with the intention of enveloping the two wings of their adversary, the Russian outposts were driven in only on the east front. On the 26th, the Japanese advanced along the entire front and the Russian outposts withdrew during the night of the 26th and 27th to the principal en-

trenched position; numerous fights with the rear guard took place. This time, the Japanese kept in touch everywhere with the retreating Russians.

On the evening of August 27th the Japanese troops, whose mission was to turn the Russian right, reached the Sha-ho and bivouacked in the valley of this stream. General Samsonov's Siberian Cossack division, which was on this wing, was, unfortunately, too weak (nineteen sotnias and six cannon). It is true that it informed the commanding general in opportune time of the approach of the Japanese columns charged with the turning movement, but it could not prevent the latter crossing the Sha-ho. On the 29th, this same division of Samsonov's considerably retarded the advance of the Japanese column just mentioned, and obtained also this result, at least, that the appearance of the said column was not a surprise to the Russian staff.

It is evident that a considerable body of cavalry, supplied with sufficient artillery and machine guns, ought to have been able to have supported the right wing. But the Oussouri Cossack Brigade, commanded by General Grekov (fourteen sotnias and six pieces), was on the north bank of Tai tse-ho; it consequently could not join Samsonov's division and take part in the struggle.

During the day of August 29th the Japanese made their last dispositions for the great struggle; they began to envelop the Russian left wing at the same time that they were maneuvering to turn the right, as we have mentioned above.

We are obliged to state that the Russian cavalry did not notice any of these movements.

On August 30th the Japanese infantry made a general attack along the entire front. This general attack was prepared by the artillery. The Japanese were repulsed, and the Russian center even took the offensive. The Russian right wing, which was vigorously attacked by the turning column of the Japanese, was able to resist only when strongly reinforced from the general reserve, which was held at Liao-Yang. As for the Russian cavalry it did not even intervene.

During these events, a considerable part of the First Japanese Army had crossed the Tai-tse-ho at Sakan and at

Kvantoun. The Trans-Baikal Cossack Division (Rennenkampf's, who was in an ambulance), which was about fifteen kilometers from the point of crossing, did nothing to prevent it. This division reported the crossing of the Tai-tse-ho by the enemy only when his columns were not more than seven kilometers from the Russian reserves. Note that the first information regarding the crossing of the Tai-tse-ho by Kuroki at Sakan and Kvantoun arrived at headquarters only on the 31st.

On the 31st the tactical situation was almost similar to that of the 30th, and the large masses of Russian cavalry still remained inactive.

Kuropatkin, upon receiving the information mentioned above, realized the danger which menaced his left wing and his line of retreat on Mukden; he consequently gave the order on the night of August 31st–September 1st to those troops which were, until then, successfully defending themselves, to evacuate their positions and withdraw upon the permanent works of the Liao-Yang defenses.

These works had to be protected in a passive manner by the Second and Fourth Siberian Corps against the Second and Third Japanese Armies; while the units available from the First and Third Siberian Corps, as well as those from the Tenth and the Fifth Siberian Corps, which had recently arrived upon the theater of operations, had to cross the Tai-tse-ho upstream and hold themselves in readiness, under Kuropatkin's directions, to take the offensive against Kuroki. The Seventeenth Corps was charged with covering these concerted movements with the Trans-Baikal Cossack Division.

General Orloff advanced toward the Yentai mines with an infantry division to outflank Kuroki's extreme right and compel him to halt.

On September 1st the Russians evacuated the above mentioned positions without molestation. There was no heavy fighting except by the rear guard of the right wing, around Maietoun. This time again the Russian cavalry, although finding itself in a level country, did nothing to facilitate the retreat of the infantry withdrawn under Kuropatkin's orders. The Russians, in order to excuse the inaction of their cav-

alry at this time, said that this arm was hindered in its movements by the fields of kaoling which covered the plain.

During these events, General Kuroki advanced in a menacing manner on the north bank of the Tai-tse-ho, repulsed the troops of the Seventeenth Corps, and then occupied the heights of the Yentai mines by echeloning his reserves behind the extreme right.

On September 2d, the Russians again attempted to repulse Kuroki; it was then that Orloff's division was dispersed, as one knows, causing Kuropatkin's plans to miscarry. This division was collected by Samsonov's Cossack division (nineteen sotnias and six guns), which, having taken position on the heights, retarded the march of the Japanese by its musketry and artillery fire.

The defeat suffered by Orloff's division determined General Kuropatkin to order the retreat on Mukden on September 2d.

General Mitshenko's Cossack brigade was established on a very good position and maintained communications between the Second and Fourth Siberian Corps and the Seventeenth Corps, and for two days it prevented the Japanese from breaking through this part of the Russian line, which was but feebly occupied. This brigade withdrew only when it received the formal order to do so.

Rennenkampf's division, which was in position north of the Yentai mines, checked the Japanese with the fire of its artillery and its cavalry, which had dismounted, and thus permitted the Russian right wing to withdraw to the north.

Kuropatkin ordered Liao-Yang to be abandoned on the night of September 3–4. After those supplies which could not be carried away had been burned, the rear guard left the town at 9 A. M. without being disturbed by the Japanese. It is evident that if the masses of cavalry on the right wing had acted vigorously, the victory of the Japanese would have been turned into a defeat.

On the evening of September 7th, the main body of the Russian army was concentrated south of Mukden. As for the rear guard, it remained south of Hun-ho and occupied one of the rear banks of the Sha-ho.

The Russian cavalry again formed a wide net in front of the army; the Oussouri Brigade guarded the Mukden–Liao-Yang road; Mitshenko's brigade the Mukden-Yentai road; Samsonov's division the Mukden-Pianioupoutsa road; and Rennenkampf's division the Fouchon-Pianioupoutsa road. The main body of the cavalry remained in rear of the front. Some very strong infantry detachments and groups of mounted infantry acted as supports to the cavalry.

From September 7th to October 2d, 1904.

From September 2d to October 5th, the date upon which the Russian army took the offensive, there was an almost complete calm which the two sides took advantage of to reorganize themselves. This calm was broken only by a reconnoissance in force carried out by Samsonov's and Rennenkampf's Cossack divisions. This reconnoissance was met near Pianioupoutsa by strong Japanese forces and had to withdraw to the north.

During this month the Russian cavalry made no attempt to act against the rear of the Japanese armies and destroy their lines of communication.

The Russian cavalry was reinforced by the Cossack Division of the Don "of the second tour" (quotation marks supplied by the translator; meaning not clear. H. T.) and by two horse batteries, which brought the number of General Kuropatkin's sotnias and squadrons up to 207.

During the Battle of the Sha-ho (October 10th to 18th, 1904).

On October 2d the Russian Commander-in-Chief published his famous order of the day announcing to the troops that they were going to take the offensive, but it was only on October 6th that the heads of the western Russian columns pushed the Japanese outposts back upon their main bodies.

As the attitude of the Chinese was rather dubious, the extreme Russian right was covered by a detachment sent to

the Liao-ho Valley toward Sinmintine. Another detachment advanced upon Tchantan on the right bank of the Hun-ho.

The principal Russian forces were divided into four groups:

1st. The west group (General Bilderling) comprising three-fourths of the Tenth and Seventeenth Army Corps and one division of cavalry composed of twenty-two sotnias or squadrons, were to march along the railroad and the Mandarin road.

2d. The central group, comprising General Maou's detachment, units of the Thirty-first Division of Infantry and a brigade of cavalry, consisting of sixteen squadrons or sotnias, were to advance on the Yentai mines, marching east of the Mandarin road, and insuring communications between the west group and the east group, acting in concert with Mitshenko's Cossack brigade, which covered the front.

3d. The east group (General Stackelberg), comprising the First and Third Corps and fractions of the Second, Fourth and Fifth Siberian Corps, plus one brigade of cavalry fifteen squadrons strong, as well as Generals Samsonov's and Rennenkampf's divisions, were to outflank the Japanese right, which was supposed to be between the Mandarin road and the Mukden-Pianioupoutsa road.

4th. The reserve (under the cavalry General Myendorf), comprising units from the Second and Fifth Corps, three-fourths of the Fourth and Sixth Siberian Corps and the remainder of the cavalry (thirty-eight squadrons or sotnias), were to follow the groups of the first line between the Mandarin road and the Mukden-Pianioupoutsa road.

The extreme Russian left was covered by detachments sent in the direction of Kiautshang and Sinkine.

When it was learned that Kuropatkin was taking the offensive, it was generally thought that his cavalry, numerically superior to that of the Japanese, was finally going to play an important part, all the more so as the plain upon which the right Russian wing maneuvered offered a vast field of operations for this arm. This hope was again shattered.

The breaking up and scattering of the Russian cavalry prevented it from profiting by its numerical superiority. Without considering the independent cavalry under command of Generals Mitshenko and Rennenkampf, 143 squadrons or sotnias remained available to Kuropatkin as a strong reserve. But out of these 143 squadrons, ninety-one had been distributed among the different groups, and the fifty-two others had been assigned to the army corps (at least seven to each corps). Now these fifty-two squadrons were not available for fighting, as they furnished platoons as escorts to the staff, were used as mounted orderlies, etc. * * *

No better explanation for the inactivity of the cavalry can be given, considering that the army corps had groups of mounted infantry at their disposal.

In spite of a four weeks' calm, the Russian cavalry had not succeeded in furnishing the commander-in-chief with any exact information concerning the disposition of the principal Japanese forces. All information having any value was received by Kuropatkin from emissaries; this was so far the case that, upon the morning of the day upon which he commenced his offensive march, he learned of the disposition of the principal forces, intelligence which upset all the plans he had made.

Marshal Oyama had very ably concentrated his three armies on the Tschantaitse-Yentai Mines-Bensihou-Pianioupoutsa line. His flanks were protected by the troops of the transportation and of the supply departments.*

The Three Russian groups marching on a front of sixty kilometers, opened up three fights, which lasted several days.

On the 8th and 9th of October, the cavalry of the west group drove back Oku's outposts. But this cavalry, not being followed up by the main body, was in its turn repulsed on the 12th by Oku, who had taken the offensive.

On October 11th, and during the night of October 11th and 12th, the west group repulsed Oku's stubborn attacks. But on the morning of the 12th, Bilderling asked for immediate reinforcements. In this case again a large body of

*As given by the translator.—[EDITOR.]

cavalry would have been very useful. In spite of the arrival of the Sixth Army Corps from the reserve, Bilderling's right wing had to withdraw. In the evening this general's center and his left wing were obliged to conform to this retreating movement.

Bilderling's defeat on the 12th made it necessary for Kuropatkin, on the one hand, to withdraw the center group and the east group, which was already pushed well to the south, and, on the other hand, to charge Bilderling with defending as energetically as possible the line of the Sha-ho, so that these groups could evacuate the mountains and assemble in rear of it. Bilderling carried out his mission; he remained south of the Sha-ho on the 12th, and on the 13th he vigorously cannonaded Oku, who was advancing.

On the 14th, Bilderling lost twenty-four cannon, and Shahopou, the center of his position, was taken by the Japanese. The efforts of the Japanese to obtain full possession of the right bank of the Sha-ho were finally shattered by the Russians, but without their cavalry being brought into the action, as it should have been.

On Bilderling's right wing the Japanese were likewise driven back. However, they remained masters of Linshinpou, situated on the north bank of the Sha-ho.

On the night of the 14th and 15th, Kuropatkin caused the village of Shahopou, retaken by the Russians, to be evacuated; he was satisfied to hold the part of the south bank east of this village, leaving troops on what is called Lone Tree Hill.

Kuropatkin had also reinforced the center group by adding to it three-fourths of the Fourth Siberian Corps and had placed it under the command of General Zaroubaeff.

On October 10th, this group had reached the heights that rose to the east of Panlisantse. Mitsenko's Cossack Brigade had to maintain communications with Stackelberg and cover Zaroubaeff's left flank.

On October 11th Zaroubaeff was attacked in front and menaced on his right wing by the Japanese forces under Nodzu and Kuroki. General Zaroubaeff was obliged to withdraw during the night of the 11th and 12th to the

heights rising to the north of the Shili-ho, while Mitshenko's cavalry division was continuing to perform its mission. This cavalry struggled with Kuroki's troops on the 12th of October and succeeded in preventing them from carrying out their turning movement against Zaroubaeff's left wing.

Although Zaroubaeff was attacked in front on the 12th by numerically superior forces and had his two wings menaced, he nevertheless succeeded in holding the entire line.

On the evening of the 12th, Zaroubaeff received the news of Bilderling's repulse and of Kuropatkin's order to withdraw to a position situated further north.

On the evening of the 13th, as we mentioned above, the center group having been reinforced, took position to the rear, on a line with Bilderling, and repulsed the attack of the Japanese on the 14th. During the day of the 13th, Mitshenko's cavalry, which had dismounted, likewise checked the Japanese.

On October 14th, Stackelberg's principal forces reëstablished their communications with the other forces. In this east group the First Siberian Corps was advanced from Fouline, situated eight kilometers east of Mukden, toward the south, on Pianioupoutsa; the Third Siberian Corps and fractions of the Second, Fourth and Fifth Siberian Corps were directed from Fouchoun toward the Houaline Pass via the Gaoukouline Pass. Samsonov's Cossack division was northwest of Pianioupoutsa and Rennenkampf's division was at the Vanfouline Pass.

Rennenkampf received orders to cross the Tai-tse-ho above Bensihou and to attempt to cut the communications in Kuroki's rear, between this locality and the southern region. At the same time Rennenkampf's mission was to coöperate directly in the attack carried out by Stackelberg against the east wing of the Japanese.

To this end, there was sent him a detachment composed of troops of the Second, Fourth and Fifth Siberian Corps. This detachment had, until then, remained at the Daline Pass.

General Rennenkampf executed his task remarkably well. On October 9th, he had already crossed the Tai-tse-ho

with his cavalry and his horse artillery and had effectually cut the communications in rear of Kuroki for several days; his Cossack division was advanced along the south bank of the Tai-tse-ho to Bensihou, but it was not able to force the passage of this water course in the presence of large numbers of Japanese infantry. As for Rennenkampf's infantry, it was advanced along the north bank of the Tai-tse-ho and likewise won a few victories.

Let us now see what Stackelberg's troops had been doing. The Third Siberian Corps had arrived at Kaoutaitse on October 8th and had deployed in front of Houaline Pass, while the First Siberian Corps arrived at Pianioupoutsa only on the 9th and deployed in front of Tschansaline Pass.

On October 10th the Russians were not able to win any success against the Japanese positions. The attack executed by Rennenkampf's detachment against Bensihou was likewise unfruitful and a new attack which was attempted on the south bank of the water course by his Cossack division was repulsed.

On October 11th Stackelberg continued his attacks. Rennenkampf had some success with his detachment, which had been again reinforced by a division of the Third Siberian Corps. The day of the 12th passed under nearly the same conditions as the 11th; Rennenkampf's infantry made an unsuccessful attempt to gain the north bank of the Tai-tse-ho.

Stackelberg's intention was to renew his attacks along the front during the night of the 12th–13th; but on the evening of the 12th he received Kuropatkin's order to withdraw his left wing to the rear. This measure was made necessary by the retrograde movement that the center force had to make following Bilderling's defeat.

Stackelberg was forced to arrest his offensive movement and, on Kuropatkin's new order, he withdrew to the north with the main body of his forces. We have stated above that this withdrawal reëstablished communications with the other groups on the evening of the 14th.

Rennenkampf's Cossack division had likewise been obliged

to withdraw, under orders from higher authority, toward the northeast, and halted in front of Kiautschang.

The Japanese, being exhausted, did not pursue; they were satisfied to occupy Pianioupoutsa.

The great battles that took place between the 15th and 18th of October were purely frontal, and the cavalry took no part in them notwithstanding the plains upon which the troops of the Russian right wing were acting ought to have allowed this arm to operate successfully.

Unfortunately, Rennenkampf and Samsonov, two of the most energetic cavalry chiefs, were in the mountains with their divisions, and Mitshenko had been withdrawn in rear of the front on the 14th.

After the battle of the Sha-ho on the 18th of October, the two sides remained in complete inactivity for a long period.

The Inkou Raid (January 8th to 18th, 1905.)

The retaking of the offensive by the Russians was marked by a cavalry raid by General Mitshenko upon the left flank and the rear of the Japanese forces in the region between the railroad and the Liao-ho River. The objective of the raid was Inkou, where the Japanese had established important supply depots.

The troops placed at Mitshenko's disposal comprised about seventy sotnias and squadrons, twenty-two pieces of horse artillery, two sections of machine guns and four detachments of mounted infantry, in all about 10,000 mounted men.

The regular cavalry was represented by fifteen squadrons of dragoons. We will add that this imposing mass of cavalry was unfortunately encumbered with a convoy of 1500 pack animals.

This raid gave no results worth mentioning. The columns (three), weighed down by the convoy, marched exceedingly slow. It is true that the Russians destroyed the railroad and the telegraph line at several places, even put to flight several Japanese convoys and came into contact with their screening forces, but nothing more.

In general, the Russian cavalry did not, except on January 10th, encounter any serious obstacle; they traversed Niou-Chouang without striking a blow, and arrived within sight of the railway station at Inkou on the evening of January 12th.

After a cannonade of short duration, the result of which was to set fire to a few supply depots, several sotnias were dismounted to assault the railway station, but they had to withdraw under the order of General Mitshenko, who was informed of the approach of important reinforcements for the enemy.

The three columns beat a retreat to join the main body of the Russian army.

During this retreat they were surprised and attacked on the 14th by a Japanese detachment composed of all three arms, but they succeeded in continuing their retreat without further obstacle and reëntered the Russian lines on January 18th.

This raid cost the Russians seven officers killed and thirty-two wounded; seventy-one cavalrymen killed and 257 wounded.

Among the officers killed was Lieutenant Burtin, a Frenchman, who had entered the service in a Cossack regiment.

Such was the substance of the Inkou raid.

While General Mitshenko was making this raid, General Rennenkampf's cavalry was resting on the Russian left flank in the mountains. Small detachments of Cossacks patrolled northern Korea on the east coast, but obtained no appreciable results.

We will mention the battle of Sandepou (January 25th to 29th), in which General Grippenberg sacrificed a part of his cavalry in order to avoid a disaster. On January 27th and 28th the Russian cavalry made a successful charge upon the Japanese north of Landoungo.

We will pass over in silence the rôle of the Russian cavalry during the battle of Mukden (February 19th to March 14th, 1905), which was a negative one, and we will terminate this study by the brief recital of a new raid carried out by General Mitshenko in May, 1905.

General Mitshenko's Raid (May 17th to 24th, 1905).

After the battle of Mukden, the only military event in Manchuria worthy of notice was the second raid carried out by General Mitshenko.

On May 17th General Mitshenko's cavalry detachment was placed in march; it comprised the Ural and Transbaikal Cossack Division, and the mixed Caucasus Division, with six field pieces.

The Japanese outposts were driven southward and an advance was made on the village of Sin-loun-tchjouan, situated about twenty-five kilometers north of Tchan-tou-fou. While one part of the detachment made a demonstration before Sin-loun-tchjouan, the other part turned the Japanese positions on their left flank and continued its raid toward the south.

On the 18th the sotnias of the advance guard of the detachment succeeded in destroying quite a long stretch of the enemy's telegraph line and burned a depot of supplies. On the same day the other sotnias fought and dispersed several strong bands composed of Khounkhounzes and Japanese, who attempted to surround Mitshenko's detachment.

Continuing his turning movement on the 19th of May, the detachment took the road leading from Fakoumye to Shi-fou-tse, a village situated on the left bank of the Liao-ho, on the Fakoumyne-Mukden road, at about forty-five kilometers northeast of Sinmintine. On the heights which rose south of Fakoumyne the Japanese had posted a detachment, and, along the Shi-fou-tse road they had established strong outposts furnished with machine guns.

General Mitshenko, after having cannonaded the strongly intrenched position, assaulted it. The Japanese withdrew in disorder without having made much resistance.

Two Japanese companies were sabered, and a third were all made prisoners. In one of the points evacuated by the enemy more than one hundred Japanese corpses were found. Marching in trace of the assailing units, several sotnias of the Tchita Regiment succeeded in gaining the road which leads to Sinmintine, skirting the right bank of the Liao-ho.

While one portion of the sotnias made a reconnoissance in the direction of Sinmintine and destroyed the telegraph line, another portion pursued and destroyed a strong Japanese supply convoy seven kilometers long, not far from Shi-fou-tse. On this occasion the Cossacks took several prisoners and captured a hundred horses.

Upon its return, General Mitshenko's detachment again dispersed several bands composed of Khounkhounzes and Japanese, and returned to its old position on the 24th of May, bringing with it 234 Japanese prisoners, of which number five were officers, several machine guns and quite a number of horses.

This raid cost the Russians three officers killed and ten wounded; thirty-five Cossacks killed and 141 wounded. From this time until the end of hostilities nothing occurred but a few skirmishes which were of too little importance to be mentioned.

In closing this study, we believe it our duty to say that if the Russian cavalry had to fight in a European war where it would not encounter the same difficulties of terrain as in Manchuria, it is certain that when commanded by such energetic chiefs as Rennenkampf, Mitshenko and Samsonov, it would be able to cover itself with glory and render valuable services to the commander-in-chief.

(Signed.) CAPTAIN SERGE NIDOINE.

* * *

Translator's Comments.

It appears from Captain Serge Nidoine's articles that the Japanese found it advantageous to employ strong infantry patrols in coöperation with the supports and contact troops of their cavalry screen.

MODERN CAVALRY.*

BY GENERAL JAMES H. WILSON.

GENERAL VON BERNHARDI'S "Cavalry in Future Wars," translated by Charles Sidney Goldman, with an introduction by Lieutenant-General Sir John French, and published by E. P. Dutton & Co., New York, is a most interesting and useful book. While it is written from the German point of view, it is thoroughly up to date, and might well be used as the basis for a more practical treatise giving our own experience and pointing out our needs. It is all the more valuable because the author is a practical soldier, who is not only a good cavalryman himself, but an organizer and strategist as well. He appears to have the gift of close and searching analysis, and presents his views in a simple and practical form. He makes it clear that the greatest use for cavalry can be had only when that arm is properly organized and technically perfected in its details. He also makes it clear that mounted troops devoid of real cavalry training are lamentably expensive and inefficient.

While his views on the uses of cavalry are generally sound, they are not infallible. There is much talk in this book about the "cavalry spirit," by which is understood a survival of the view held by cavalry officers in the past that the right use of that arm is with the troopers mounted and charging the enemy with sword or lance. This was the theory of Murat and his admirers down to the beginning of the war between the States, but the experience of modern warfare seems to be decidedly against it. General von Bernhardi is sagacious enough to see that the old ideas must be discarded and that cavalry, using the term in its broadest sense, must be made to fight on foot as well as to charge in mounted masses.

*By the courtesy of *The New York Sun*. Published in *The Sun* February 24, 1907.

I.

The experience of both the Federal and Confederate authorities during the war between the States contains many lessons learned by Von Bernhardi, but also some important ones which he seems to have overlooked. The first great lesson is that cavalry cannot be made in a day, but requires long and patient training, not only for the men, but specially and particularly for the horses. Young, green and inexperienced horses from the farm cannot do the work of active campaigning. The loss of horses not inured to constant work is so great as not only to overtax the resources of the country but to keep the command to which they belong constantly inefficient. The great consideration, therefore, in organizing cavalry troops is to provide for a constant supply of remounts and to see that they are properly trained before issue and properly hardened before entering into a campaign, and that they are used with care until they are required to strike an effective blow. In the earlier days of the war between the States both sides were slow in organizing cavalry, and the Union side particularly so. Both sides were also extravagant and wasteful in the use of cavalry. Infantry picket lines were generally guarded by cavalry pickets still further out. Every division of infantry and every army corps had detachments of cavalry, and each headquarters had a cavalry escort and a large number of couriers. The consequence was that the cavalry was badly scattered, overworked and undertrained, and when the time came for action was generally worn out and inefficient. It lacked coherence and knowledge of its real purposes. As the war progressed the evils growing out of this system were gradually ameliorated, but the need and consumption of horses was always far in excess of the efficient supply. The Confederate cavalry was finally pretty well used up before the end of the war by overwork and lack of horses, while the Federal cavalry became more and more efficient in organization and equipment as well as in respect to remounts. The reason for this is found, first, in the development of sounder ideas in regard to the use of cavalry, and secondly, in the

measures taken by the Cavalry Bureau to procure better and stronger horses. It is worthy of note, however, that no effective system of breaking horses in and preparing them for field service was ever adopted by either side. Horses, when bought, were sent at once to the field, green and untrained, from the farm and unaccustomed to hard work. The consequence was that they were used up pretty nearly as fast as they could be supplied, and neither side ever had an adequate supply. At first neither used mares, but finally both sides came to use them, and found that they were quite as efficient as geldings.

General von Bernhardi lays down the rule that the first duty of cavalry is to dispose of the opposing cavalry. This conclusion may well be questioned. It is evident that if this rule could be applied always it would be advantageous, as it would leave the victorious cavalry free to operate on the flanks and rear of the enemy's lines.

The author calls attention to the fact that war has undergone a momentous change, that arms of precision have reached such a degree of perfection that the direct frontal attack of intrenched positions can rarely ever be expected to succeed, that it has ceased to be possible to ride straight at the front of an unshaken enemy, and that cavalry is therefore compelled to work around the enemy's flanks, and thus exercise pressure upon his communications. He concludes rightly enough that all these conditions taken together must of necessity increase the importance of strategy in the wars of the future, and especially in the use of cavalry, which alone remains a specialized service. He recognizes the fact that even in the older countries and larger armies of Europe cavalry can scarcely count "on having the wastage of war made good by equally well trained men and horses." He points out that the proportion cavalry bears in Europe to the ever increasing numerical proportion of the other arms has steadily receded, until cavalry in a mobilized army is numerically an almost insignificant factor. He recognizes the great results achieved by the mounted troops alternately on both sides during the American Civil War, but seems to

think that such opportunities can no longer be anticipated. In this he is evidently wrong.

While he holds that the cavalry should be increased proportionately rather than decreased, he does not seem to grasp the fact that the nation which first increases its mounted troops to a great preponderance over those of its enemy, puts them into effective condition and uses them in accordance with the true principles of strategy on the flanks and rear of its enemy, is sure to gain great victory. While he strongly favors such use of cavalry, he fails to point out that in modern times no country has any special advantage in arms, equipment, organization or mobility; that infantry on the average will march about as fast in one army as in another; that the small arms and field artillery have about the same range, and that the only factor which is capable of great variation in movements is the cavalry, and that therefore this is the arm in which each should strive to have the preponderance in numbers and efficiency. Good cavalry will march from forty to fifty miles a day for eight or ten days, enabling it in a country fairly furnished with forage, to strike where it pleases.

Von Bernhardi seems to still hold to the idea that the lance in the hands of cavalry is an efficient weapon, either in pursuit or in actual fight itself. This, according to experience in this country as well as in Europe, is an exploded idea, as the lance merely increases the cavalryman's load without increasing his efficiency.

II.

The author's ideas of the use of cavalry in campaign are generally sound, and what he says on this subject might be very readily converted into a handbook for the use of cavalry officers, and especially cavalry generals. In this portion of his work he insists that the "chief task of cavalry consists in obtaining a victory over the enemy's cavalry," which is a generalization not sustained by experience. He emphasizes with far greater soundness that it is in the

strategical handling of cavalry that by far the greatest possibilities lie. His chapter on the distribution of this arm is in the main sound, for it lays down the sound principle that as much cavalry as possible should be held for strategical independence, while as little as is expedient should be retained for close operations with infantry. He fails to point out, however, the great mistakes made by Grant in dividing his cavalry and causing it to operate on eccentric lines while his army was in front of Petersburg. He thinks that a full use should be made of the bicycle for conveying orders and intelligence, but fails to recognize the fact that in such a country as ours the bicycle would be of but little value. He justly lays great emphasis on the fact that as little cavalry as possible should be used in the duties of security, while the use of infantry in that direction should be increased as much as possible. This is manifestly for the purpose of minimizing the useless and unnecessary work of the most expensive arm. He seems, however, not to have grasped the fact that the difficulty of feeding large numbers of cavalry in actual operations is not so great as it was formerly supposed to be. He speaks of the ease with which 5000 or more men were kept in full mobility during the Civil War, but omits to notice that masses of as many as 15,000 subsisted themselves for sixty days in the enemy's country.

He admits that Europe has outgrown the general conception that the cavalry should make use of the carbine for defense only, and that its employment in the attack must be now recognized as of the utmost importance. He gives special praise to Sheridan's cavalry for its operations against Lee's lines of communication and for its influence in bringing about the capitulation at Appomattox, but he fails to dwell upon the fact that the cavalry was quite as efficient in the capture of the fortifications at Five Forks as the infantry, and that without the coöperation of that arm at Winchester, first in taking possession of the ground on which the battle was fought, and secondly in turning the enemy's flank, Sheridan would not have gained that important victory. He might have strengthened his argument by pointing out the important part played by the cavalry in turning Hood's flank

and attacking his line in the rear at Nashville, in capturing the fortified position of Selma, and in many other independent operations in which the true use of cavalry was signally exemplified.

It is curious to note, however, that this astute officer has discovered that there are decidedly fewer skulkers in the mounted arms than with the others. He attributes this fact to their longer period of service and the closer supervision of the officers, aided by the desire of the soldier not to become separated from his horse. While this is all true, he seems to overlook the more important fact that the more rapid operations of cavalry not only stimulate the trooper to individual activity but make him afraid of being left behind and captured. It is interesting also to note his belief that the German cavalry can safely engage the best existing Continental infantry with reasonable prospects of success, and against inferior foot soldiers may always preserve its sense of superiority. This was the experience of our cavalry in the closing days of the war, for it will be remembered that they did not fail to attack intrenchments successfully, as at Five Forks and Nashville, and even fortifications of the strongest character, as at Selma and Columbus, after they had been armed with the Spencer magazine carbine.

In considering the place of the cavalry leader, Von Bernhardi lays down the proposition that the chief commander should never personally take part in the charge until he puts in his last reserve, and even then only when he is clear of all responsibility or finds it necessary to set a personal example to his wavering troops. He might have added that this duty becomes imperative when he must win or lose all.

He enters a particular protest against the opinion that the place of every cavalry leader in the charge is always in front of his command, and points out that a position on the flank or rear is frequently much better than one in front.

We note also that he insists upon restricting the bugle call as much as possible, but a closer study on his part of our official records would have shown that occasionally all the bugles of a division should sound the charge, as for instance, at the capture of Front Royal in the early dawn of a foggy

morning. Rightly enough he points out that the true time for cavalry action is when the infantry, exhausted by hours of fighting and heavy losses, bivouacs on the victorious battlefield as the day is drawing to its close and the enemy is in full retreat. This is the time for the real work of the cavalry to begin. The correctness of this principle was shown by the Federal cavalry in pursuit of Hood by night after the battle of Nashville.

The duties of cavalry in dismounted action, the position of led horses and of the mounted reserves, the attack and defense of villages and the tactical use of artillery in connection with cavalry are all discussed with admirable clearness and good judgment, but it is interesting to note that the author does not seem to have grasped the importance of night marches and especially of night attacks by cavalry forces. In this respect he would have found notable examples in the operations of the Federal cavalry through Alabama and Georgia in the closing campaign of the late war. He lays special stress upon the importance of the cavalry leader keeping himself constantly informed as to the general situation of the units under his control, and of the equal importance that those units should be kept informed as to what is happening to each other. He emphasizes the importance of every cavalry leader's being inspired by the determination to keep the initiative under all circumstances, but while he seems to have studied the American campaigns to good advantage, he fails to recall the fact that the greatest of the Confederate leaders, Forrest, laid special stress upon the application of this principle. It will be recalled that that enterprising leader laid down the fundamental principle of his own practice when he declared that he made it a rule "to get there first with the most men, and that he would give more for fifteen minutes of bulge on the enemy than for three days of tactics." To the clear-headed cavalryman this sententious declaration of principles will need no elaboration.

III.

The work under consideration contains a most important section devoted to the organization and training of cavalry, but the space at our disposal will not admit of a comprehensive resumé of its substance. It touches upon cavalry experience, conditions of mobility, difficulties of caring for supply trains, emergency horse rations, pioneer detachments, long range weapons, consumption of ammunition and the new German ideals. It is distinctly against Anglomania in cavalry. It dwells upon the necessity of careful and long continued training of masses, and upon the all important duty of the commander, whether in peace or war, "to keep his horses fresh on their legs and ready to turn out in good condition at whatever hour the call may sound." Indeed, it touches upon all branches of the cavalry service, both mounted and dismounted, upon the necessity for the higher education of the officers and for excellence in horsemanship, both for officers and men. The work ends with a chapter giving the conclusions of the author, which may be briefly summarized as follows:

1. That the importance of cavalry in relation to the other arms has risen materially as a consequence of the changes introduced by modern war. This has not been generally recognized by other writers.

2. That mounted and dismounted action have now become functions of equal importance.

3. That the changing conditions of war demand increased mobility and increased efficiency, organic, strategic and tactical.

4. That the difficulties of cavalry leadership have increased materially.

5. That cavalry has remained in the European armies relatively behind the other arms in every respect.

6. That Germany stands face to face with a long list of new requirements, of which the following are the most important:

Increase in numerical strength.

Rearmament with a six millimeter carbine.

Increase in the amount of ammunition carried both in peace and war.

Improvement in the whole equipment of man and horse.

Formation of horse batteries, limited to four guns, with an increasing number of batteries for cavalry masses, as was done in the Western cavalry toward the end of our war.

Supply of rapid-fire guns to the cavalry.

Improvement in the method of training horses and men.

Complete reform in the employment of masses to meet new strategic requirements.

Increase in the price to be paid for remounts.

Simplification in many details of the regulations.

And finally, a practical, more systematic and better general education for cavalry officers.

From the foregoing brief statement it will be seen that the work under consideration is the latest word from Europe on the subject of cavalry. It might well be made a guide for a board of American officers in laying down a system of organization, armament and equipment of cavalry, for a specific plan for mounting and remounting the same, and for a set of rules for the general administration and use of that arm both in times of peace and in times of war.

We commend the book unreservedly to the attention of American officers.

PRIZE PROBLEMS.

U. S. STAFF COLLEGE,
FORT LEAVENWORTH, KANSAS,
March 23, 1907.

Editor Cavalry Journal:

SIR: We have the honor to inform you that of the solutions of Prize Problem No. 2, submitted for our examination, the one signed "Dragoon" is deserving of the prize offered.

Very respectfully,

D. H. BOUGHTON,
Major Eleventh Cavalry.
M. F. STEELE,
Captain Sixth Cavalry.
CHAS. CRAWFORD,
Captain Twentieth Infantry.
JOHN P. RYAN,
Captain Sixth Cavalry.
E. E. BOOTH,
Captain Seventh Cavalry.

* * *

Prize awarded in accordance with above recommendation to First Lieutenant Samuel R. Gleaves, First Cavalry.

* * *

It is the intention of the JOURNAL to publish the solutions, but heretofore they have been, in the main, too long for publication. For this reason directions were given in the last issue to limit the solutions to 2000 words. For directions regarding solutions see April 1906 issue, page 702, and January 1907 issue, pages 521-522.

No problem appears in this issue, as the new map could not be prepared in time. The JOURNAL has gone to considerable expense in getting the map that is to be used in connection with our next problems. This map is the new one made under the direction of the Military Art Department of the Infantry and Cavalry School, and will be a very useful map for the readers of the JOURNAL. It is the map that will be used extensively at the Infantry and Cavalry School during the coming year. Due to its cost it will appear in the JOURNAL but once, in the July 1907 issue, and competitors should keep this map for use with the three succeeding problems. Should any competitor desire, an extra map will be furnished by the JOURNAL on request.

It will be impossible to secure these maps from the Secretary of the Infantry and Cavalry School, as the funds of the institution do not warrant supplying the army with them. They can be obtained from the publishers, the Franklin Hudson Company, Kansas City, Mo., but the price has not yet been determined.

SUCCESSFUL COMPETITORS.

Problem No. 1. First Lieutenant Andrew J. Dougherty, Twenty-eighth Infantry.

Problem No. 2. First Lieutenant Samuel R. Gleaves, First Cavalry.

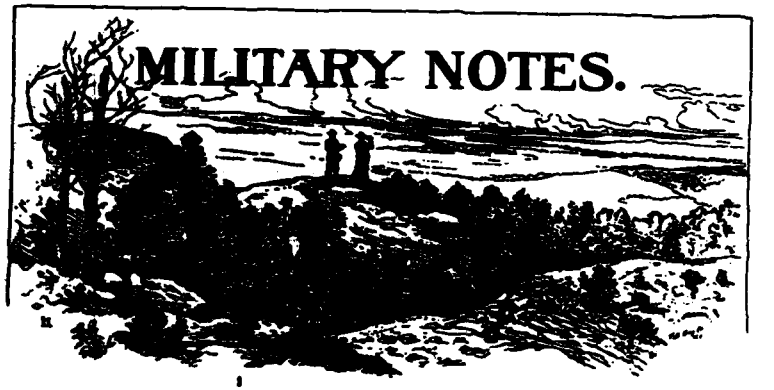
RUN WITHOUT RECORDS.*

She did not look a hunter, nor would one have thought her clever,
As she stood there in the paddock with the clean-cut thoroughbreds;
She was too low and stocky, and the jockeys said they never
Could take a hurdle on her without landing on their heads.
Her forehead was too narrow, and her eyes too closely stationed—
She had a way of rolling these and showing just the whites;
She looked as if on mesquit beans and sage-brush she'd been rationed,
And her off ear was severed—a Comanche's by all rights.
Her head set like a hammer on a neck that seemed to quarrel
With her withers for pre-eminence in ugliness of mold;
She was scarred and blotched and branded, her colors white and sorrel;
That she was outright bronco it were needless to be told.
Her owner, a big fellow in broad, light felt sombrero,
Had booked her for the steeple chase and backed her 'gainst the field;
But no jockey could he purchase, no boy nor bold vaquero
Would list to his assurances though nobly he appealed.
When a slender man, past thirty, with scars that spoke of battle,
Limped up to the big fellow and said: "I'll see you through;
I don't go in for pigskins and kimmel's on such cattle,
A Whitman tree and snaffle seems to me had ought to do."
This greatly pleased the jockeys and the sports, who showed their pleasure
By giving voice to epithets and slurs quite hard to bear;
But the owner grasped the stranger as though a priceless treasure,
And led him to the pool room for a secret session there.
Then when the bell was ringing, and they lined up for the starting,
The pinto took to bucking, and the vast crowd guyed the mount;
He sat her like a Gaucho, though with every fiber smarting
He showed no outward evidence he took the least account.
'Twas a thrilling sight to see them, the banner-shirted riders,
And the graceful, high-strung action of the noble beasts they crossed;
But by far the chief attraction to the jubilant outsiders
Was the "duffer" whom they fancied by the pinto would be tossed.
Just as the "Go" was given, and the jockeys bent in order,
The pinto had a bucking fit before the filled grandstand;
'Twas the same old buck-jump business so common on the border,
But ridiculously foreign to the hurdles close at hand.

*These verses were written by E. L. Keyes, a former cavalry officer. They appeared in a Western magazine several years ago. They are deemed clever enough to warrant re-publication in the JOURNAL.

Then, scarce an instant later, a war-whoop fierce and trembly,
(Were you ever chased upon the plains by Kiowas or Sioux?)
Rang out 'bove shouts and cat-calls of the badly mixed assembly,
And straight as poisoned arrow down the course the pinto flew.
'Twas the tonic that she needed, recalling days of freedom,
Of Llano Estacado, of brush and chaparral;
Her Canaan lay before her, forgotten was her Edom;
Her rider knew the magic of the whoop that wrought the spell.
They sailed above the hurdles like larks o'er fields of clover,
Unheeding crippled thoroughbreds and jockeys left behind;
And as they reached the barriers they gracefully went over,
Creating great confusion in each sportsman's book and mind.
Now an obstacle confronts them, six bars with barbed wire trimming,
And a watered ditch beyond it—a teaser without doubt;
In default of whip and spur, he resolved upon unlimbing,
And quickly from his blouse's sleeve his patent arm jerks out.
The thousands of spectators beheld this act with wonder,
With amazement, consternation, and perchance no little awe;
That a tender-footed jockey should his left arm tear asunder,
And therewith urge his racer is outside the common law.
But he did it! The excitement this marvel had arrested
Broke into deafening chorus as the novel whip he raised,
And whispered in the severed ear: "The Brazos you have breasted,
Was ever pinto bronco by a common saky* phased?"
The arch they made was perfect, like the silver moon in Maytime,
Or the rainbow o'er the valley when from mountain top 'tis seen;
Not a semblance of exertion, far more like merry play time,
Was the crossing of that Rubicon which left the track serene.
"By George, it is some Centaur!" "'Tis Tancred on his filly!"
"'Tis the ghost of 'Derby' Archer!" "'Tis Harry of Navarre!"
Comparisons so flattering, though pardonably silly,
Arose from stand and benches amid maddening hurrah.
Not a follower behind them as pinto and her rider
Swept down the home-stretch freely and as winners past the stand;
Then rushed the frantic multitude to gain a place beside her,
And grasped her peerless rider by his one remaining hand.
They bore him on their shoulders to the judge's lofty station
'Mid cheers that still are ringing in the ears of all who heard;
But those who deemed him Archer desired some explanation,
Till from pinto's modest rider they at last wrung forth this word:—
"I came upon this race-course without any show or bluster;
I have no jockey record, tho' at times I've ridden hard;
I was bugler in the Seventh, and orderly for Custer,
That day on Little Big Horn when our track with Sioux was barred."

*Acequia.



CHIEF OF CAVALRY.

Organization and Efficiency vs. Disorganization and Inefficiency.

WERE it suggested that we abolish the positions of regimental and squadron commanders, leaving each one of our troop commanders to follow his own inclinations in executing the orders of higher authority, with no other guarantee for uniformity of instruction and for a high standard of efficiency than might be secured by hasty inspections from time to time, could any one be found to advocate such an absurd proposition? Or, in other words, if our one hundred and eighty troops were not organized into squadrons and regiments, can it be conceived that we would drift along from day to day and tolerate the continuance of such a state of disorganization? And yet the same elementary principle of organization that combines men into troops, troops into squadrons, and squadrons into regiments, if pursued to its logical end, demands that our fifteen regiments be combined under a chief.

This entire matter of a chief of cavalry may be reduced to the proposition of organization and efficiency *versus* disorganization and inefficiency. Organization and progress go hand in hand. Can any one compare the past five years' brilliant record of peace-time achievements of our artillery with the lethargy that pervaded that arm of the service before its energy was aroused by a chief, and honestly recommend a return to the old order of things? What the artillery corps has accomplished with a chief at its head to coördinate the efforts of its officers, likewise can be accomplished in the cavalry and infantry under a similar organization. We are not familiar with the wants and shortcomings peculiar to our infantry service, but we do know that there is just as great necessity to-day for injecting new life into our cavalry as there was five years ago for infusing new spirit into the artillery. This is said without criticism of individuals and without undervaluing the present efficiency of the cavalry service; but that efficiency has been obtained in spite of, and not because of our present headless system.

In so far as the broad principle of organization is concerned, the fundamental reasons why a chief of coast artillery is essential to the efficiency of that branch of the service apply with equal force to the proposition that a chief of cavalry is necessary for the highest development of efficiency in the cavalry. More than this, passing beyond the mere argument of the principle involved, great and powerful as it may be, there appears to be no good reason for the existence of the first mentioned chief that is not equally as good an argument for the creation of the second. In making this statement we do not lose sight of the very complex technical character of the artillery service, nor, on the other hand, do we forget that artillery officers are no doubt as well trained individually in the technique of their arm of the service as are cavalry officers in the duties of the mounted service. The first, in the particular sphere of work for which they are trained, are confronted with no greater obstacles to the most efficient development of the coast artillery than are those that meet the second in a similar development of the cavalry. The truth is, no branch of the service, however great the efforts and abilities of its officers, can hope to reach the highest plane of efficiency as a unit, unless the energy of

those officers is coördinated and directed along systematic lines. As well expect a rudderless ship to reach port because of some whim of the elements.

It is team work that we want—team work in peace; for how can we hope to have team work in war if the team be not trained in time of peace? Team work means organization, and above all, an organization with a head; it means a perfect and uniform system of training; it means that our whole force shall be applied in the same direction; that essentials in the soldier's education shall be separated from non-essentials, and the former not neglected because of time wasted on the latter; that all members of the team (the regiments) must be trained under the same coach (the chief); that all plays shall be studied and only those that promise victory be learned; that the opinion of every man, be he 'varsity or scrub, not only is listened to, but is invited, and is given the consideration it deserves.

The captain's influence is felt strongest in his own troop; in it you will find uniformity of instruction—it may be uniformly good and it may be uniformly bad. Similarly, but to a less degree, the major stamps his personality on the squadron; in training it, his own experience and observation are reënforced by what he finds good in that of his troop commanders. The colonel, if he is so fortunate as to have his entire regiment with him, adds to the teachings of a still riper experience what he finds of value in his observation of three squadron and twelve troop commanders. But here the interchanging of ideas practically ceases; above and beyond the colonel there is no one person who feels the full weight of responsibility for the efficiency of the personnel and matériel of the fifteen regiments of cavalry; no one to cull from the experience and observation of the entire cavalry that which is bad, and discover that which is good; no one to place within reach of the worst troop in the service the experience of the best. This work and responsibility properly pertain to the office of the chief of cavalry.

Great as would be the beneficial results to the cavalry springing from such an economical and organized employment of the abilities of its officers, yet it is along other and more important lines that the chief would find his broadest field for improving the efficiency of the cavalry. It is not our intention at this time to enter upon a discussion of the duties of a chief of cavalry; suffice it to say, that so long as we are willing to admit that we have not reached that pinnacle of perfection from whence all paths lead backward, just so long will there be an abundance of work for a chief of cavalry.

X.

* * *

Wanted: A Head to the Cavalry Service.

"The Lord helps them that help themselves," and our arm will be left without a chief just so long as we continue to trust in divine aid without striking a lick to help ourselves.

There is little, if any, difference of opinion in the cavalry service as to the desirability of a chief for our arm. The trouble with us is that we don't vote our opinions in the ballot box of the CAVALRY JOURNAL. Our case is very much like that of our persistent presidential candidate, who was informed from the peanut gallery, in a lull between cheers, "They all holler like —— for you, Bill, but they don't vote for you." There is every reason to believe that by an earnest and sustained effort we can so state our case as to obtain relief.

The detail of a good, live colonel necessitates no legislation, and would prove the opening wedge. Properly supported, as he would be, his success would be certain and so manifest as to furnish to Congress practical demonstration, if such be necessary, that the cavalry service needs a chief as much as does the artillery; it follows, as a matter of course, that he should be given rank commensurate with the responsibility and importance of his office.

The necessity for this office is so evident that argument seems almost superfluous; team work, the fundamental principle of organization, is so plainly involved that we of the cavalry see it without straining our eyes. Nor will the powers that be need their telescopes to see our need if we

will forcefully point out to them the location of that need; it is there and in considerable size.

"Silence gives consent," and we can expect nothing unless we ask for it.

Y.

* * *

One Reason Why We Should Have a Chief of Cavalry.

If there is any one thing fully impressed upon the mind of the military student, it is the bare fact that the first duty of cavalry, during a war of any magnitude, would be to screen the mobilization and forward marches of our own forces and to gain information of the enemy and prevent his concentration if possible. To accomplish these tasks it is also unanimously agreed that all cavalry must be carefully trained, in time of peace, to perform these duties.

Then, to solve the problems that will surely fall to the lot of our cavalry forces, all cavalrymen must be familiarized with the details of their important duties; they must be able to scout, to rapidly orient themselves, to map roads and country covered, to carefully observe and intelligently report all that is seen, being able to segregate non-important from important military information. In addition to the foregoing, they must, of course, be able to ride and shoot and take care of themselves and horses.

From the youngest shave-tail to the oldest colonel the foregoing is generally accepted as being the result that all cavalrymen hope to attain.

We have lectures, theses, talks by commanding officers and others and the instructors at all service schools reiterate interminably how necessary these attainments are. We solve map and kriegspiel problems where our cavalry is handled pursuant to the instruction as outlined above. But here it ends, and how many troops in our army are really proficient in this duty. If we set the standard at a high degree of excellence very few would be found.

Year in and year out troops are drearily marched to the drill ground and conscientiously maneuver in close and extended order, the organization commanders paying careful

attention to distances and intervals, wheels and turns, with now and then an occasional charge. They take the practice marches, sometimes placing an advance guard the prescribed number of yards in advance on the same road, all other roads being neglected. During maneuver periods there is very little opportunity to instruct in the details, but the lack of this instruction is woefully apparent. At one of the Eastern maneuver camps last year, a screening problem for cavalry was arranged and carried out, and many of the grey haired officers who participated remarked that this was the first opportunity they had ever had of observing or participating in such a movement.

At one large cavalry post, during the whole year of instruction, carefully mapped out, but one problem in screening was given, and that of only four hours duration. In addition to this about five problems in scouting, restricted to very limited terrain, and one lecture on scouting, constituted the year's practical work in cavalry's most important duties. The balance of the year was devoted to an endless chain of drills, principally fours right and left, with occasional charges, and arm combat maneuvers.

If all officers of experience and learning are right in theoretically outlining the work of cavalry, why should present conditions exist?

The answer appears simple: Lack of a uniform system of instruction in scouting and screening for the cavalry prescribed by authorities competent to see that it is followed.

At present the course of instruction followed is practically that prescribed by the various commanding officers, and is regulated by their interest in the work or lack of it, and generally follows along lines conforming to their particular ideas or hobbies. It is quite true that, here and there, energetic organization commanders attempt to perfect their organizations along the lines here proposed, but the results are anything but satisfactory for many reasons, which are obvious.

Screening and scouting work of any importance during actual warfare will always be carried on in countries more or less populated and covered with roads. Cavalry, in nearly

all cases, must confine their work to the roads, and there is absolutely no reason why at least fifty days of each year should not be devoted to work of the nature here explained, by troops stationed at the various posts. There is no end to the variety and extent to which such problems could extend. Particular attention could be paid to concentrating the forces at given points and to the conduct of contact patrols, which should be handled by commissioned officers, whose duty should be to instruct the men under their command in the numerous important duties connected therewith. Reports and maps should be carefully scrutinized and reviewed by officers competent to do so. Actual instruction in the care of man and beast could be carried along with this work; men to prepare their own meals; horses' shoes replaced, etc., etc.

No matter how small the reservation, the real work of cavalry need not be hampered. Numerous problems, nearly approaching reality, that is as far as cavalry is concerned, can be prepared and the cavalry kept constantly at work such as will accustom the men to the duties actual warfare will demand, by operating on the country roads in the vicinity of their stations.

An energetic chief of cavalry would at once set to work to remedy present conditions, and would work out the details of a system of instruction, which, while not hampering commanding officers with too many details, would provide that the greater part of the open season be devoted to the work cavalry is really expected to do. Z.

THE CAVALRY PACK.

By Captain ALONZO GRAY, Fourteenth Cavalry.

IT is my understanding that troops must use during the coming spring and summer the pack provided for by the Military Secretary's Office, February 23, 1907, amending paragraphs 287–9 Cavalry Drill Regulations.

The following is the distribution of weights required.

LEFT SIDE	LBS.	OZ.
Lariat and pin	3	6
Curry comb		10
Horse brush		11
Two horseshoes	1	14
Rifle	9	6
Rifle scabbard	2	8
Watering bridle	1	6
Total	19	13
	13	10
Preponderance on left side	6	3

RIGHT SIDE.	LBS.	OZ.
Tin cup		8
Nose bag (canvas)		13
Canteen, filled	3	7
Knife, fork and spoon		6
Meat can (tin)		15
Tent poles		12
Saber, knot and straps	4	1
Two emergency iron rations	2	12
Total	13	10

If the canteen is not filled and the emergency rations not carried, then the preponderance is much greater. This arrangement of load can not do otherwise than make sore backs.

It is a fact that saddle sores, after being healed, reoccur. So that when a lot of horses have been given saddle sores, no care on the part of the troop commander can prevent his horses' backs going sore.

In the shifting of horses to different organizations, officers will be unjustly blamed for what was the fault of their predecessors, or probably the fault of the recent order which will compel us to put sore backs on our horses.

I am in hopes the matter may be modified to some extent. After the mischief is done, no amount of care will ever restore our horses' backs. Again, everybody should protest at once against carrying the cup in the nose bag.

The nose bag is always covered with slobber and mucous from the horse's nose, and often infected with glanders.

No tin cup can be safely used after being in the nose bag, without having been first boiled in water, and even then the idea is disgusting to the average man.

I have experimented all winter with a pack which has proven very satisfactory.

It is as follows:

Blanket.—Fold bed blanket once lengthwise and roll in shelter tent as usual. This makes a roll thirty-six inches long.

Nose Bag.—Nose bag buckled over roll as usual, except that it is on off side. Break roll well in middle and strap down so that ends of roll lie close to horse, center of roll strapped well up.

Poles.—Short poles in nose bag, long poles strapped across roll in rear.

Canteen—Canteen as usual.

Cup.—Place cup in bottom of near saddle pocket well down. Put meat can in after cup.

Lariat.—Lariat as usual.

Extra horseshoes, ammunition, emergency rations in off saddle pocket to counter-balance weight of rifle.

Blanket roll is known as Vidmer roll, and straps of nose bag are lengthened about a foot.

The distribution of weight is as follows:

LEFT SIDE.	LBS.	OZ.
Rifle scabbard	2	8
Rifle	9	6
Lariat and pin	3	6
Meat can (tin)		15
Cup (tin)		8
Knife, fork and spoon		6
Total	17	1
	16	6
Preponderance		11

RIGHT SIDE.	LBS.	OZ.
Saber, knot and strap	4	1
Watering bridle	1	6
Curry comb and brush	1	5
Nose bag (canvas bottom)		13
Canteen filled	3	7
Tent poles (3 pieces)		12
Horseshoes	1	14
Two emergency iron rations	2	12
Total	16	6

Leather bottom nose bag adds seven ounces, leaving preponderance four ounces.

This pack varies slightly from that formerly prescribed by Cavalry Drill Regulations.

The roll is broken and made three feet long, nose bag strap lengthened and nose bag changed to off side. Tin cup put in saddle pocket with meat can, where it does not shine or rattle. Roll is not long enough to flop when horse trots.

The slapping of the rifle butt against the horse's neck may be stopped by a strap, made up like a link strap about thirty or thirty-one inches long, attached to the off spider ring. A small ring is attached to the lower end of the rifle scabbard and the strap snapped in after saddling the horse.

The advantages claimed for this arrangement are: A snug pack lying close in to the horse; weights equally distributed; no glitter, rattle or flop.

CANTEENS AS LIFE-PRESERVERS.

By Trumpeter LEONARD F. MATLACK, Troop H, Eighth Cavalry.

THE following test I have found to be very useful, especially to a soldier, both as a life bouy and as a help in learning to swim. The accompanying photos show the position of the canteen as it should be used. Cut No. 1 should be used as an instructor or in crossing streams without equipment. The canteen strap is snapped in the belt buckle and placed on the breast, then held in place by a string or handkerchief which is fastened in the side rings and passed around the neck, thus preventing the device from shifting. To obtain the best results this should be up as close to the chin as possible, but not interfering with the free movement of the neck. No. 2 is an excellent support to any one with equipment and is used very much as No. 1; the canteen straps are snapped in the belt buckle and then fastened together by the inside side rings to hold them close together, then pass a string or handkerchief around the neck and make fast to the inside side rings. If used in a swift current these should be fastened by passing a cord around the body just below the arm pits and fastening it in the outside

side rings; this keeps the buoy in place, and if put on properly cannot give to either side, nor up or down. This appeals so strongly to me, because every soldier in any branch of the service has everything right at hand and requires no extra

attachment. The canteen is one of the last things that a soldier would throw away even if pressed severely, and at all times if not supplied with a handkerchief he could use a hat-cord, leggin-string, shoe-string or anything that would answer the purpose.

Another thing I have found very useful is a barge or float, which is very easily and quickly put together, which absolutely assures the crossing of streams in safety, and which can be used for many different things—for moving

wounded men, transporting ammunition or canned rations, or in fact anything that a man swimming would be likely to lose. Four shelter-tent poles are joined and laid on the ground in a square, the ends lapping about two inches. Lash the ends securely with the shelter-tent ropes; the

shelter-tent is made fast to this frame, then take the company or troop canteens and put an equal number at each corner so the pull will be equal on all sides. You now have your barge, which is very effective though not very large, being about three feet six inches square. This will not keep its burden out of the water and dry, but will land its contents on the other side if handled with any consideration. A man wounded, but able to sit up or hold his head up, can cross in safety, although he will be partly submerged. This can be pulled over by ropes or by good swimmers. One canteen has a buoyancy of five and one-half pounds, and as many can be used as the cargo requires.

NOTE.—Captain G. E. Stockle, Eighth Cavalry, informs the JOURNAL that Trumpeter Matlack's ideas have been submitted to the Cavalry Board.

ROYAL EQUINE SOCIETY OF BELGIUM.

ARMY HORSE INTERNATIONAL CHAMPIONSHIP, TO BE CONTESTED FOR AT THE HORSE SHOW IN BRUSSELS, BELGIUM, MAY, 1907.

TRANSLATED BY H. E. FLEISCHNER, M. I. D.

PROGRAM AND REGULATIONS.

THE purpose of this horse show is to encourage the rational training of war horses and the true principles of equitation, without requiring exceptional qualities on the part of the horses that will be presented there which would be of such a nature as to bar horses furnished by government remounting services or to diminish their chances of success.

With this in view, the show will consist of a series of trials of different sorts, designed to show off the condition of the horse, his willingness and the finish of his training.

GENERAL CONDITIONS.

The horses must belong to the regiments or officers of different armies; in the latter case there must be a certificate signed by the colonel of the regiment, to the effect that the horse is regularly mounted in the riding school or in evolutions, and that he is the bona fide property of the officer who enters him.

All the contests of the military will be judged by an international jury composed of delegates of the powers represented. This jury will settle all unforseen litigious questions; its decisions will be without appeal.

Each horseman shall mount but one horse and must pilot him in all the contests.

Only officers in the active army will be allowed to engage or mount in the contests of the military.

Officers are invited to present themselves for the different contests under the stipulated conditions. All the equipment must be absolutely regulation, including the packing.

Officers carrying side-arms may dispense with wearing them.

The horses of foreign officers taking part in the International Military will be quartered and fed free in the stables of the Cinquantenaire Market.

N. B.—Fifty per cent. reductions will be asked for the transportation of the horses on the principal railway lines.

FIRST CONTEST.

Undress. English saddle and bridle. Minimum weight, 80 kilos (176.35 lbs.).

(*a*) *Test of Endurance* (*morning*).

Course of fifty kilometers (31.06 miles) to be covered by each competitor within four (4) hours. No account will be taken of the greatest speed; the competitors consuming the longest periods will lose a certain number of points. This course will be partly along roads and partly across country.

After this test the horses will be examined at a trot by the entire jury, which will limit itself to eliminating the lame or those found to be unable to take part in

(*b*). *Steeple Chase, 4000 Meters (4374.4 Yards).*

Same dress, same weight.

This contest will take place on a race course near Brussels. The terminal point of the endurance test will coincide with the race course. The competitors will have two hours rest between the endurance test and the steeple chase.

There will be individual courses; the minimum speed must be equivalent to a gallop of 550 meters (590.46 yards) a minute; no account will be taken of the greatest speeds, but speeds not reaching 550 meters will be penalized.

This test is designed to show the intrepid and vigorous outdoor horsemanship of the riders.

Only gross faults will be noticed by the jury; falls, refusals, and attempts by the horse to slip from under his rider. The standing will be reckoned according to the time limits exceeded and the mistakes made.

SECOND CONTEST.

Marching order with arms and packing of equipment. Minimum weight, 80 kilos; 32 kilometer course (18.64+ miles) to be covered in 1 hour 40 minutes.

No account will be taken of speeds greater than those corresponding to those above mentioned; but on the other hand, the competitors employing longer periods will lose a certain number of points.

Each competitor will cover the course by himself; during this there will be

Campaign Course in the Cinquantenaire Market.

This must be accomplished within a time limit announced at the time of the race and equivalent to a speed of 400 meters (437.44 yards) per minute.

In this contest the obstacles met will be as nearly as possible like those met in the field; they will be nearly stationary and will be about 1 m. 10 high (3 feet 10 inches). Only tumbling on the forequarters, refusals, falls and attempts to slip from under the rider, will count as faults.

THIRD CONTEST.

Undress. English saddle and bridle. Minimum weight, 80 kilos. Contest in jumping obstacles.

This test is designed to show whether the horses entered have the facility of action indispensable to an army horse. With this in view, the course will present certain difficulties; the obligation of jumping between two (2) flags very near together or at different points, according to whether the same obstacle is passed for the first, second or third time, sudden stops, half turns, etc.

To a certain extent, account will be taken of the speed.

The maximum dimensions of obstacles will be 1 m. 15 (45 27+ in.)

Grazing will not count; the only things counted as faults will be mistakes in the course, exceeding the time limits, stumbling on the fore or hind quarters, falls and attempts to slip from under the rider.

Besides these three (3) tests the jury will institute certain others to determine

TRAINING PROPERLY SO-CALLED.

Undress. English saddle. Any weight.

Each rider regulates his own individual task, knowing that less account will be taken of the diversity or difficulty of the movements than of the finish of the work. Complete agreement between rider and mount, finesse of aids and equestrian tact must be translated into an easy bearing pleasant to look upon. No account will be taken of artificial gaits such as the "passage" (a sort of trot well marked and well cadenced), the "piaffer" (in which the diagonal bipals are alternately raised and lowered without advancing or backing), the Spanish walk, etc., but change of the leading foot in galloping will be required.

POINTS IN THE DIFFERENT CONTESTS IN THE MILITARY.

First contest	30 per cent.
Second contest	25 per cent.
Third contest	30 per cent.
Training properly so-called	15 per cent.
Total	100 per cent.

N. B.—The order of the contest may be changed according to need.

NOTE.—Competitors will receive when entering their names general instructions regarding the different penalties connected with faults committed, exceeding time limits, etc.

FIFTEEN THOUSAND FRANCS IN PRIZES ($3000).

First Prize.—Object of art, value 5000 francs ($1000) and a gold medal offered by His Majesty, the King of Belgium.

Second Prize.—Object of art, value 3000 francs ($600).

Third Prize.—Object of art, value 1500 francs ($300).

Fourth Prize.—Object of art, value 1250 francs ($250).

Fifth Prize.—Object of art, value 800 francs ($160).

Sixth Prize.—Object of art, value 600 francs ($120).

Seventh Prize.—Object of art, value 500 francs ($100).

Ten prizes valued at 250 francs each ($50) will be given by the jury to the next ten (10) contestants qualified.

* * *

For all information address, Monsieur A. Dupuich, Secretary of the Royal Belgian Equine Society, 33 rue des Deux-Églises, Brussels, Belgium.

The general program of the horse show for 1907 will appear at the end of March.

REUNION DINNER OF WEST POINT GRADUATES, MARCH 16, 1907.

THE nineteenth annual reunion dinner in Chicago of West Point graduates, was held at the Grand Pacific Hotel on the evening of March 16th, in honor of the 105th birthday of the U. S. Military Academy at West Point. There were twenty-eight graduates present. The senior graduate present, who presided at the table, was C. E. L. B. Davis, of the class of '66, colonel U. S. Engineer Corps. The meeting was purely social, and the only speeches made were of the five-minute variety. General Charles King acted as toastmaster, and short addresses were made by General Carter, Colonel Robinson, Colonel Blunt, commanding the Arsenal at Rock Island, and General Young, of Chicago; the latter, being in the midst of a political campaign, had to leave early; the meeting forestalled the action of the voters of Chicago by unanimously electing him treasurer of the city. General Young was of the class of '87, and is a brigadier general in the Illinois National Guard.

A resolution was passed permitting ex-West Pointers who had been at the Academy not less than one year, to participate in future meetings, on nomination by a graduate and approval by the committee of arrangements.

Several graduates who were expected had to send regrets on account of pressing engagements elsewhere, among them being General Smith, of Chicago, class of '53; Generals Horace Porter and James H. Wilson, class of '60; Senator Dupont of Maryland, '61; General F.V. Greene of '70; Senator-elect F. O. Briggs, of New Jersey, class of '72. Gov. Upham, '66, of Wisconsin, who always attends these meetings, was seriously ill at his home in Marshfield. Telegrams of greeting were sent to a similar meeting of graduates held at the University Club in Boston at the same hour, and to the superintendent of the Military Academy.

The following were present:

Davis, C. E. L. B., '66.	Liggett, Hunter, '79.
Herr, H. B. '66.	Burt, C. S., '80.
King, Charles, '66.	Morgan, G. H., '80.
Hills, F. L., '66.	Fish, Williston, '81.
Bacon, G. R., '69.	Johnson, F. O., '81.
Robinson, W. W., '69.	Weigel, Wm., '87.
Blunt, S. E., '72.	Young, E. C., '87.
Abbott, Wm., '72.	Adams, H. R., '87.
Hall, Joseph, '72.	Harrison, Ralph, '89.
Bixby, W. H., '73.	Jarvis, M. S., '91.
Carter W. H., '73.	Grote, W. F., '91.
Otis, H. G., '74.	Nesbit, W. F., '98.
Paddock, J. V. S., '77.	Jones, J. S., '03.
Greene, L. D., '78.	Niles, E. W., '05.

PROGRAM FOR TESTS OF REVOLVERS.

1. Examination of revolver, as to design, appearance, balance, etc.

2. Special examination will be made as to safety features.

3. Dismounting and assembling. The times required to totally dismount and assemble, except removal of the barrel.

4. The number of—

(*a*) Pins and screws.

(*b*) Small springs.

(*c*) Other parts.

5. The number and kind of tools required to dismount and assemble.

6. Twenty rounds (10 single and 10 double action) to be fired into butt to observe working of revolver.

The above tests will be made with the revolver in the hands of and operated by the inventor or his representative if present.

7. Velocity at 37.5 feet, mean of 5 shots.

8. Accuracy and penetration at 75 feet; 10 shots.

9. Rapidity with accuracy; target 6x2 feet, range 100 feet. The number of shots fired to be 18. Revolver fired from hand. Time and number of hits to be noted in each case.

To be conducted by representative of the inventor, if present. Firing to begin with chamber and cylinder empty, and cartridges arranged as desired by the firer.

10. Rapidity at will. Same as preceding test, except that the revolver will be fired without aim into a butt at short range, and hits will not be considered.

11. Endurance. Revolver will then be fired deliberately 500 rounds, cooling after each 50 shots.

12. Velocity. Same as paragraph 7, above.

13. Excessive charges. Revolver to be fired five times with cartridges in which the charge of powder is increased to produce a pressure in the chamber 25 per cent. greater than the regular pressure.

14. Pierced primers. Revolver will be fired once with a cartridge in which the primer has been thinned so as to insure piercing. Two rounds will then be fired to observe action.

15. Dust. Both ends of barrel will be tightly corked and the revolver will be exposed, in a box prepared for that purpose, to a blast of fine sand for one minute. The surplus sand may then be removed by blowing thereon, jarring of the piece, or wiping with the bare hand only.

The cylinder should be—

(*a*) Empty when exposed to dust.

(*b*) Loaded when exposed to dust

In "b" the cartridges may be removed and wiped, then reloaded.

16. Rust. The mechanism will be thoroughly cleaned of grease, by boiling in a solution of soda, both ends of the barrel tightly corked; the revolver then placed in a saturate solution of sal-ammoniac for five minutes, After exposure to the open air for twenty-four hours, five shots will be fired into a sand butt.

17. Supplementary tests. Any piece which successfully passes the foregoing tests may be subjected to such supple-

mentary tests, or repetitions of previous ones, to further determine its endurance or other qualities, as may be prescribed by the Chief of Ordnance or by the Board.

General Remarks.—During the above tests the revolver will be entirely in the hands of the Board, except when specially stated otherwise, and no alterations or repairs other than those possible on the ground will be allowed, except by special permission of the Board. If the revolver fails in any test the remainder of the program may be discontinued in the discretion of the Board.

In case of misfires, cartridges will be opened to determine the cause, and if due to ammunition, the test will be repeated.

SPRINGFIELD ARMORY, January 15, 1907.
Board convened by S. O. 305, W. D., December 28, 1906.

PROGRAM OF TESTS OF AUTOMATIC PISTOLS.

1. Examination of pistol as to design, appearance, balance, suitability for mounted troops, etc.
2. Special examination will be made as to safety features.
3. Dismounting and assembling. The time required for each of the following operations:
   - (*a*) To dismount the breech and magazine mechanism with the exception of the magazine catch.
   - (*b*) To complete dismounting.
   - (*c*) To assemble, except the breech and magazine mechanism.
   - (*d*) To complete assembling.
4. The number of—
   - (*a*) Pins and screw.
   - (*b*) Small springs.
   - (*c*) Other parts.
5. The number and kind of tools required to dismount and assemble.

6. Twenty rounds to be fired into butt to observe working of pistol.

The above tests will be made with the pistol in the hands of and operated by the inventor or his representative, if present.

7. Velocity at 37.5 feet, mean of 5 shots.
8. Accuracy and penetration at 75 feet; 10 shots.
9. Rapidity with accuracy; target 6x2 feet, range 100 feet. Number of shots fired to be three times the capacity of clip. Pistol fired from hand. Time and number of hits to be noted in each case. To be conducted by representative of company, if present. Firing to begin with chamber and magazine empty, and clips or holders arranged as desired by firer.
10. Rapidity at will. Same as preceding test, except that the pistol will be fired without aim into a butt at short range, and hits will not be considered.
11. Endurance. Pistol will then be fired deliberately 500 rounds as a self loader, cooling after each 50 rounds.
12. Velocity. Same as Paragraph 7, above.
13. Mounted test. Pistol will be fired by a mounted man such number of times as may seem necessary to determine its ease of loading, manipulation and safety.
14. Decreased charges. Pistol to be fired 12 rounds as a self-loader with cartridges in which the powder charge has been decreased so that the first four will give pressure of 25 per cent. less, the second four 15 per cent. less, and the last four 10 per cent. less than the service pressure.
15. Excessive charges. Pistol to be fired five times as a single loader, with cartridges in which the charge of powder is increased to produce a pressure in the chamber 25 per cent. greater than the regular pressure.
16. Pierced primers. Pistol will be fired once with a cartridge in which the primer has been thinned so as to insure piercing. Two rounds will then be fired to observe action.
17. Dust. With the mechanism closed and both ends of the barrel tightly corked, pistol will be exposed, in a box prepared for that purpose, to a blast of fine sand for one minute. The surplus sand may then be removed by blowing

thereon, jarring of the piece, or wiping with the bare hand only. The magazine should be —

(*a*) Empty when exposed to dust.

(*b*) Loaded when exposed to dust.

In both cases pistol should be used as a self-loader, and in the second the cartridges may be removed and wiped, then reloaded. In case of self-loading failures to work in either case the piece will be tried by operating by hand.

18. Rust. The mechanism will be thoroughly cleansed of grease, by boiling in a solution of soda, the ends of the barrel tightly corked, and the pistol then placed in a saturated solution of sal-ammoniac for five minutes. After the exposure to the open air for twenty-four hours, five shots will be fired into a sand butt, using pistol as a self-loader. In case the self-loading mechanism fails to work, the pistol will then be tried by operating by hand.

19. Supplementary tests. Any piece which successfully passes the foregoing tests may be subjected to such supplementary tests, or repetitions of previous ones, to further determine its endurance or other qualities as may be prescribed by the Chief of Ordnance or by the Board.

General Remarks.— During the above tests the pistol will be entirely in the hands of the Board, except when specifically stated otherwise, and no alterations or repairs other than those possible on the ground will be allowed, except by special permission of the Board. If the pistol fails in any test the remainder of the program may be discontinued in the discretion of the Board.

In case of misfires the cartridges will be opened to determine cause, and if due to the ammunition, the test will be repeated.

SPRINGFIELD ARMORY, January 15, 1907.
Board convened by S. O. 305, W. D., December 28, 1906.

Editor's Table.

THE PISTOL VOTE.

For the first time in the history of the American cavalry we are to find out what the cavalry wants as to the pistol equipment. We have individual views from "the time whereof the memory of man runneth not to the contrary," but what the service desired has never been known. And we are not cognizant that any determined attempt has ever been made to ascertain the composite view of the service.

It has been the fashion heretofore when an important subject arose to refer the matter to a board. Sometimes this worked well, especially when the board was composed of "safe and sane" men. But frequently our boards have been composed partly of men with no more than ordinary interest in the subject referred, and the other part of cranks on the subject. We are conversant with the saying that a crank is the only one in the world that makes improvements. This is true when we get the right crank. But for every crank that is right there are thousands, if not millions, that are the flattest of failures. But of these thousands and millions we never hear. We sometimes have to suffer from their effects, however, for witness our struggling along during the past years with the present abomination of the service bit and also the .38 caliber pistol.

The danger of special board recommendations* must be

*It is of course understood that in these remarks we are not referring to the permanent organization known as the Cavalry Board. The work done by this board is of too great a value to even be questioned. Quietly but with considerable acumen this board has made its recommendation and we are glad

obvious to any serious thinker. We get one or two cranks on the board, and the rest of the board is composed of officers whose inclinations and special study have been along lines other than those referred to the board. These latter, having no expert knowledge or even little careful detailed knowledge of the subject, are apt to be led by the cranks who profess to know more about the matter than any one else in the army, and the result—well, you get what you get.

At the time of the change from the old large caliber pistol to the present .38 there were signals of warning and cries of distress offered by the service individually, but all to no avail. We direct the reader's attention to an article by First Lieutenant Eben Swift, published at that time in the CAVALRY JOURNAL against the proposed change. (See the March issue, 1893.) The only trouble was that this was an individual protest. Had this protest been at the rate of 413 to 8 from the entire service the change would probably have never been made. Individual opinions, however good, however correct, will not carry the weight of the concentrated opinion of the entire cavalry service.

In order to obtain the ideas of the service upon the subject of the pistol the JOURNAL some two months ago sent out return postals to every active officer in the American cavalry. The following was the postal:

Do you advocate the retention of the present pistol? .....
Do you advocate the adoption of a larger caliber?.....
If so, which caliber do you desire, .45 or .50?.....
Do you advocate the adoption of an automatic pistol; if so, what caliber?...

---

to see that these recommendations are being followed. It must also be understood that in the above we wish no inferences drawn as to the present pistol board. We could hardly be so inconsiderate and impolite as to remark about the personnel of the present pistol board, sitting at the very time our remarks are being published. Our regard for the individual members of that board makes us of the opinion that their work will be well and faithfully done. And we wish the members of that board to feel that the above remarks apply to the action of many boards of the past, and of course cannot apply to the action of a board which has not yet become known.

The result is as follows:

Rank	Number Voting	Favoring Retention	For the .45	For the .50	AUTOMATIC		
					For	Against	Undecided
Colonels	8	1	5	2	3	5	.....
Lieut.-Cols.	9	.....	6	3	3	6	.....
Majors	32	.....	25	7	15	17	.....
Captains	144	4	123	17	47	91	6
First Lieuts.	121	.....	110	11	20	94	7
Second Lieuts.	107	3	92	12	16	90	1
Total	421	8	361	52	104	303	14

There are in the service 758 cavalry officers. When we have heard from the 200 in the Islands we shall have the vote of 625 officers out of the entire number. Of the other 133 possibly some never received the postals. Others are either too indifferent to the advancement of their profession or are too negligent to answer. Their ideas, consequently, at best would be of little value.

So we have from the table, which we hope to complete next issue on the arrival of the Island vote, an absolutely true index of what the cavalry wishes on the question of pistol caliber and a known proportion of the wishes for and against the adoption of an automatic.

We received three votes that were so unusual that we have not recorded them in the above table. One lieutenant-colonel advocates doing away with the pistol entirely, retaining only the saber and rifle. One second lieutenant of less than a year's service advocates the adoption of an automatic caliber .38. One first lieutenant of service since 1898 submits the following card:

Do you advocate the retention of the present pistol? Am not very decided.
Do you advocate the adoption of a larger caliber? Am not prepared to answer.
If so, which caliber do you desire, .45 or .50? Have not experimented to decide definitely.
Do you advocate the adoption of an automatic pistol; if so, what caliber? Not determined.

These were the only votes along these lines. The size of the automatic, as advocated, was about in the proportion of .45 to .50 as it appears in the table.

We call attention especially in the above table to the vote for a larger caliber and the retention of the present .38. It stands 413 to 8 in favor of a larger caliber. We had expected even a greater percentage than 98 in favor of the larger caliber. As for the comparison of the .45 and .50, 87 per cent. are for the .45 and 13 per cent. for the .50.

The percentage on the automatic is 72 against, 25 for, and 3 undetermined.

In view of the fact that the present pistol board has had the ammunition fixed, it may seem that the above vote as to the size of caliber is too late to be of any use. We are not aware that the matter of the caliber has been so definitely determined that it might not be changed. Of course in this we may be mistaken. But we are under the impression that had every officer voted in favor of the .50 caliber this vote would have had much to do with increasing the caliber above that referred to the board. We hope such would have been found to be the case, for we do not believe that the determination to have the one submitted to the board to be so strong that it could not under any possible circumstances be changed.

One other matter in regard to the ammunition for which he board was to select the proper firing weapon: Is it at all wise to have a jacketed bullet? Some time ago we received from the Ordnance Department a large blue print of the projectile adopted. It is caliber .45. But strange to say, it is jacketed with a cupro nickel jacket. Is this wise? To the JOURNAL'S idea it is folly, but we are not going to set up the individual opinion of the JOURNAL against the recommendation that selected the present projectile. But we did make an error in not submitting this proposition also to the cavalry officers in our postal vote. To tell the truth, the fact that the projectile was jacketed slipped our notice. The only excuse we can give for such negligent inspection of the blue print is that such a proposition was so absurd to our minds that it never entered our head at all in the inspection of the drawings. We herewith enter the protest of the THE CAVALRY JOURNAL against the adoption of a jacketed bullet.

Of course it is understood the above remarks as to the jacketed bullet do not apply to the ammunition for an automatic It seems to be a prevalent opinion that ammunition for an automatic must be jacketed.

THE PANAMA CANAL.

Some eighteen months ago THE JOURNAL hinted that if the question of the building and finishing of the canal ever really became serious, the one thing to do was to turn the entire matter over to the army. That the army must finally take hold of the canal has been patent for the last six months. But we wish to recall the remarks of THE JOURNAL of October, 1905, just after the Wallace defection:

"For there is this to remember, that even by the non-success of the present commission, the government has one department that can put a canal across the isthmus, through Nicaragua or anywhere else, once the word is given. We refer, of course, to the War Department, working through its corps of engineers. In all the vast work accomplished by the government through this corps, we believe there has been but one serious defection. And when we consider the number of years that this corps has been handling large government work, the vast sums of money disbursed, there is no reason to expect the failure of any canal once the army takes hold of it. It is somewhat historical how the country turns to the army in times of distress and need. Army officers are always the ones detailed to handle the distribution of money and supplies to stricken districts, like the sufferers of the Mississippi flooded lands. And in all those cases there has been one long unbroken record of ability and probity. Moreover, our engineers are not rich men, and their contact with the world has rarely been such as to make them covet wealth. Their lives are not given to making money, and their ambition in the past shows itself to have been one of duty well performed, and an honorable name in their pro-

fession, and not one of amassing fortunes. As Agassiz, who said, 'I have not time to make money.'"

It is plain to those who are familiar with army officers and with the spirit of the army that the matter of the Panama Canal is now but a question of a few years. Against the intelligent and unapproachable men now in charge, the machinations of the waterway enemies will be of no avail. And should the tools fall from the nerveless hands of those now in charge there are plenty of others in the army fully competent to take their places and carry on the work without interruption.

Here's to the present men in charge, and here's to the army, and here's to the canal, all subjects of equal congratulation, and we turn from the subject as from one where all is over but the shouting.

WANTED—AN ARMY.

The following is taken from the editorial pages of our esteemed contemporary, *The Infantry Journal*. We consider it one of the best articles we have ever read, and we republish it in full for the benefit of our readers who are not subscribers to *The Infantry Journal*, and also for those who are subscribers, as a re-reading will do one good:

"In a report of a special committee of the General Staff on the proper proportion of the artillery in our army, published in the *Journal* for July, 1905, there appears the following:

"'As a nucleus for our mobile army we should be able to place in the field at once at least a complete army corps. If our entire force of regular infantry were in the United States, twenty-seven regiments would give us the exact number required; but as we have already seen, ten of these regiments are in the Philippines and Alaska, are likely to remain there indefinitely, will not be available elsewhere in case of war, and must, accordingly, be left out of consideration. We

have, therefore, only twenty regiments of regular infantry available for general war service. Raising these regiments to their full war footing we should have 31,440 men. This with the other arms of the service would give us a good army corps and a cavalry division; but we should need to reinforce it at once by at least 45,000 militia. This number of organized militia will not be available in the United States after providing for the heavy demands upon the militia of our seaboard States for the land defenses of our seacoast. The situation deserves serious consideration. Our militia is avowedly for use as a second line. Our regular infantry is the only force of foot troops available for our first line, and it is 45,000 short of the requisite number.

* * * * * * *

"'It is perhaps idle to hope that we shall ever have a sufficient number of regular infantry for a satisfactory first line, but the committee deem it a matter of duty to state that whether we regard our regular infantry as the only troops available for the first line or as a nucleus for troops that take the field later, the national interest would at the outbreak of war be seriously jeopardized if we were unable to put into the field immediately at least one army corps of regular troops. To effect this, our existing infantry regiments, if increased to the full strength to which the President is empowered to raise them, would be barely sufficient. We have not a single infantryman to spare.

* * * * * * *

"'In view of the foregoing the committee recommends the following measures:

* * * * * * *

"'8. That the General Staff be directed to consider the means necessary for obtaining promptly a force of infantry sufficient in numbers and satisfactory in efficiency for our immediate needs in time of war.'

"The study of this committee was thorough; their report, within the limits of their problem, full; their recommendations conservative. Wherever they touched upon the subject of increase in any arm of the service it was not to show what increase was desirable, not even what from a military view-

point was necessary, but only what from any possible point was absolutely essential; and essential not to insure safety but to avoid disaster, not because academic discussion was desired, but because otherwise the problem was impossible of solution.

"Baldly stated, their problem was this: Without increase in total enlisted strength, what is the proper proportion of artillery in our army? The personnel of the committee was of the best; their ability, their honesty, their fairness of mind are unquestioned. Yet in any body whatsoever how could this be interpreted, provided any solution were to be attempted, except as a proposition to increase the artillery without increasing the army, or in other words, to increase the artillery by decreasing the other arms? In all fairness this was the question; and it is to the credit of the committee that, practically, they found an answer impossible. They found indeed that there is insufficient artillery, but they admitted that it was impossible to better conditions by adding to it at the expense of the other arms. But they found more than this. To one who follows this report carefully it is plain that whatever way they turned one thing was apparent, always and almost pathetically apparent. It was not that there is insufficient cavalry, but that there is insufficient infantry. It was not that increase is needed in the coast defenses to protect them from the sea, but that increase in the infantry is essential to protect those defenses from the land. More coast artillery was necessary indeed, but from where could it come? Not from the infantry, because infantry is more necessary even than artillerymen to defend coast works. Not from the cavalry, because, though the cavalry arm is already too small to serve the purposes of cavalry, it is always possible to use it as infantry to strengthen the arm which and everywhere is needed most. Try as the committee would, there was no escape from these facts. Try as we may—as anyone may, if only he tries honestly—there is no escape from them. What we need, what we are fatally deficient in—is not artillery; it is not cavalry; it is not ordnance officers nor surgeons, nor this nor that—it is simply and only an army.

"It is nearly two years since the report indicated and the recommendations accompanying it were submitted. What has happened? A law has been enacted increasing the Ordnance Department. A bill is now before the Congress for the increase of the artillery, another for the increase of the medical department. Under all of these the *Journal* has been silent. The necessity for each of them is recognized. But now come rumors of other bills, of hopes in other corps. Their needs are also recognized, but a greater need is known and no rumors come. The *Journal* would be untrue to the cause it represents if it did not speak now. It is not through envy or selfishness that it proposes to break the policy of silence which it has heretofore observed. It is, it honestly believes, through a higher principle and the only sound principle, a recognition of a greater need than that of any corps, or any arm of the service; the need of all the service, of all the country—an efficient army; an army not large, but large enough to serve as the first line at home or abroad, large enough not only to defend itself, but to save the coast defenses, and to save them not from the sea, from which they are safe, but from the land before which they lie absolutely helpless.

"The *Journal* does not expect to accomplish this alone, does not hope for great results immediately; but it does believe that it has put briefly a truth that not only every officer, regardless of his faith, but that every student of military history must in simple honesty recognize as absolute and fundamental. It believes, moreover, that sooner or later the country will be brought to a realization of the same truth, and it prays that this may come of broader knowledge rather than bitter experience. And it believes finally that this last condition will be the sooner achieved when the army itself presents a unity of purpose and a steadfastness of principle unclouded by selfishness of motive or the private interest of any part or arm.

"So far then as lies in its power the *Journal* will work to this end, but it will work honestly; it will work not to the injury of any, but to the good of all; not to the aggrandizement of part, but to the upbuilding of the whole; not alone

for the regular forces, but for the national army of which the regular forces can never be more than the first line; and not for army merely, but for country. Alone it can do little, united we may do much. The *Journal* asks then for the support not only of the Association and of the infantry, but of every association and of every arm, of every soldier and every guardsman, and of every loyal citizen."

BOOKS ON THE RUSSO-JAPANESE WAR.

We direct the attention of our readers to a late work on the recent conflict, "Port Arthur, the Siege and Capitulation," by Ellis Ashmead-Bartlett. This work may not contain much technical information for the cavalryman, but intelligent officers to-day of any branch of the service must be well versed in the details of their profession, whether in their own particular branch or not.

We are free to say that we are so impressed with this book that we unhesitatingly place it in our recommended list, and we give below the name of the publisher. When it was first brought to our attention we had some prejudice against it, as one of our military attachés, who was with the Japs at Port Arthur, on picking up this work remarked, "This won't amount to much." It seems he knew the author in the East. But the attaché after spending a day on the book completely changed his mind, and recommended it in strong terms.

From the minute we struck the first chapter our prejudice was overcome and we were convinced we were reading a book worth while. It is accompanied by two of the best maps we have yet seen of the Liaotong Peninsula and the environs of Port Arthur. The first gives the changing position of both Russians and Japanese from the battle at Nanshan and around Kinchau to the 31st of July, and the other is a map of Port Arthur, scale three inches to the mile, and gives in accuracy the positions of the forts and works of the fortress and represents the advancing saps and mines

and works of the Japanese from July 31st to the close of the siege.

There are also two fair plates giving the plan and two sections of each of the forts, North Keikwansan and Nirusan, (these forts being spelled in the orthography adopted by our War Department as follows: Tungchikuanshan and Erhlungshan). There is also a small sketch of Royusan, as the combined 203 and 210 Meter Peaks are called. This little sketch shows the advancing saps and the direction of the frontal attack from Akasakayama.

The style of the book is clear, forcible and interesting, and no one will have one dull page to get over in order to reach some interesting part of the siege. It seems the author enjoyed quite a little freedom during the siege, possibly not more than was enjoyed by any other of the correspondents, but he made good use of his opportunities when they came. We understand from those who were at Port Arthur during the siege with whom we have talked that this work bears the impress of truth and depicts matters as they appeared at the time. As the purpose of a carefully written book can be best determined from the preface, we quote from the introductory remarks:

"It has been my endeavor in the following pages to describe the siege of Port Arthur. I joined the Third Army at the commencement of August, 1904, just before the first assault, remained attached to General Nogi's headquarters until January 17, 1905, and entered the fortress with the victorious Japanese. An account written by an eye-witness who has not had access to official documents can hardly be considered complete or final. Whether these will ever be given to the world is a matter of great doubt, because the story of Port Arthur is such a tragedy to Japanese arms from beginning to end that the Headquarters Staff are not likely—at least, until the present generation has passed away—to admit the faulty tactics which an official history of the siege would disclose.

"With regard to the campaign in Manchuria, some time must necessarily elapse before an accurate history can be

written. The arena was so large and the events so complicated that they can hardly yet be viewed in the right perspective. Nor will it ever be possible for a spectator to give a satisfactory account of those great battles.

"The tactical intention and entire sequence of a sustained engagement depends on the orders issued by the Headquarters Staff to the army corps' commanders, and by the latter to the commanders of divisions and brigades. All such orders, and the reasons which dictated them, remain secrets in the archives of the War Office in Tokio. Until some impartial Japanese critic weighs the evidence and writes a true history of the campaign, the world is not likely to know the why and the wherefore of many decisions and events which are at present inexplicable.

"These objections, which apply so forcibly to an attempt to write a history of the campaign in Manchuria, only in a small measure exist when an eye-witness essays to write the story of the siege of Port Arthur. The work of the artillery and engineers, which played such an important part in the siege, could be easily watched; but beyond that, there was no opportunity for a display of grand strategy or the high art of war before the Russian stronghold. Both were limited to the placing of thousands of men in as close proximity as possible to the enemy's works, and at periodical intervals calling upon them to attack.

"The only mystery involved is the motive for the decision which caused the Japanese to make the immense sacrifice of life which was bound to result from frontal attacks on impregnable positions. Although we have no access to the correspondence which passed between Tokio, Manchuria and General Nogi's headquarters before the fortress, any one of average intelligence who takes the trouble to consider the strategical situation on land and sea might compose a fairly accurate *résumè* of the dispatches which guided the policy adopted.

"The great assaults on Port Arthur could not have been better witnessed had they been mounted at Drury Lane. The configuration of the ground on which the Russian works were constructed provided an ideal stage for the actors in the drama. The low Suishen Valley, at the foot of the chain of forts, enabled onlookers to gaze up, as it were, from the stalls to the footlights. It would have been impossible to occupy a position in close proximity to the scene of hostilities without some protection from rifle, machine-gun, and artillery. Shelter was provided by the network of trenches which, like the stalls in a theatre, allowed those present to choose their own distance from which to watch the combat.

"As we have probably witnessed old-fashioned assaults and close order formations for the last time, it has been one of my chief objects to place on record the obsolete method of fighting which characterized the siege. I have tried to present an accurate picture of how men meet in masses to settle the disputes of their governments with bayonet, clubbed rifle and hand grenade; their behavior in action and in the moments preceding an attack; the way in which they advance and retire, and are seized with sudden panics; what a modern bombardment means when 500 guns are engaged; the effect of an explosion of 2000 pounds of dynamite under a fort; and how famous generals, whose names are household words, act amid the scenes of their exploits."

A study of the work will make one feel quite well acquainted with the siege of Port Arthur. More information can be gathered from it than from any book we have yet discovered. We systematically approach from Kinchau with the Japanese army, clearly understanding the advance from the excellent map above referred to. We close in upon the fortress after some weeks and then settle down to the plain work of the siege in close touch with the intrepid besiegers. We are horrified at the massacres of August, October and November, and almost hear our own Banzais as 203 Meter Hill is carried at last.

Evidently the author is English. The chapter devoted to the Russian officer is scorching, and all we can say is that our personal experiences with the Russians a few years before gave us not such ideas as possessed by Mr. Bartlett. We are quite willing to agree with him that Stoessel might have held out longer, but we dare say it would simply have meant

the mere postponing of the action at Mukden. Still we should never forget the Wizard of the Rail, Prince Khilkoff, who was performing such wonders in rapidly throwing fresh men into the far East. A two months longer detaining of Nogi at Port Arthur should have given Kuropatkin quite a preponderance of force at Mukden.

Fortunes of war frequently depend upon such small matters that the one great lesson to learn from Port Arthur is Never Surrender. It should be remembered that when war is on, men were born to die, and a heavy death rate is no excuse for giving up any struggle. This is something we Americans should understand. The future American hero will be the one who is not afraid to sacrifice his men when it appears necessary to do so. True it is that the American people are not educated up to this point, and many a valuable general officer will go down to oblivion in our future wars simply on account of the howl of an uninstructed populace against what appears to the layman a needless loss. But the time will come when the people will realize this fact, as they did when Grant plunged on to Richmond regardless of the cost. In those final days 10,000 men were considered cheap even for nothing more than an advanced line of the enemy's intrenchments.

We publish in our review section a review of this work by Captain Stuart Heintzleman, Sixth Cavalry. Captain Heintzleman buys all works on this war as they appear, and we have had frequent cause to thank him for his kindness in giving the JOURNAL his ideas as to some of the books. As he has quoted at some length from the work we consider further notice here needless.

Considerable amount of comment has lately been taking place in our daily press as to the book of General Kuropatkin. We took it from what we gathered from the press that the General had brought out a book on the war. As it seemed impossible for us to procure a copy, or even find one person who had ever seen a copy, we wrote to one daily that had published editorials on the book asking if the paper could put us in the way of getting a copy, or, if not, would they lend us their copy until we could review it ourselves.

We received the reply that the editor had never seen a copy himself and that his editorials had been made up from Associated Press dispatches. So we are at present unable to give our readers any information on the subject of General Kuropatkin's book on the war. We have heard it rumored that the book was suppressed in Russia when it appeared, but we are unable to give that credence. One of our leading papers made the remark that "had the Russian generals displayed half as much avidity to attack the Japanese as they did to attack Kuropatkin the war might have had a different history."

We have been a friend of General Kuropatkin at all times, and even "The Battle of Mukden" by the German General Staff has not succeeded in crushing our admiration for the belabored general.

* * *

The JOURNAL's list of books and magazine articles upon the war now stands as follows:

On the causes:

The Russo-Japanese Conflict. (Asakawa.)

On the war:

From the Yalu to Port Arthur. (Wood.)

The War in the Far East. (The Military Correspondent of the *Times*.)

A Staff Officer's Scrap Book. (Hamilton.)

Lessons on the Russo Japanese War. (De Negriér.)

The Battle of Mukden. (The German General Staff.)

Port Arthur, the Siege and Capitulation. (Ashmead-Bartlett.

Articles in the *Outlook*. (Kennan.)

For Comparison:

The Chinese-Japanese War. (Vladimir.)

All of the above have been carefully reviewed in the JOURNAL.

The *Outlook* has not yet published Kennan's articles in book form.

Asakawa's book can be purchased from Houghton, Mifflin & Co. for $2.00; Wood's and Vladimir's from the Hudson Press, for $1.50 each; The War in the Far East, from E. P. Dutton & Co., $5.00; Hamilton's from Longman, Green & Co., New York, $4.50; De Negriér's from Hugh Rees, Lmtd. London, 62½c; The Battle of Mukden, from Hugh Rees, $1.50; Bartlett's Port Arthur, William Blackwood & Sons, London and Edinburgh, can be purchased through the Secretary of the Infantry and Cavalry School for $5.45.

SECRETARY'S ANNUAL REPORT, UNITED STATES CAVALRY ASSOCIATION, 1906.

FORT LEAVENWORTH, KAN., Jan. 21, 1907.

The United States Cavalry Association:

GENTLEMEN:—In accordance with the second clause of Article XI of the Constitution of the Association, I herewith submit to you, at this regular annual meeting, a report showing the financial condition of the Association.

Cash on hand Jan. 1, 1906 (see report 1905.)	$ 98 35	
Subscriptions and sale of JOURNALS, 1906	2,386 77	
Advertising, 1906	1,762 27	
Total		$4,247 39
Expenditures 1906 (tabulated below.)		3,757 41
Cash on hand Jan. 1, 1907		$ 489 98
Liabilities on Jan. 1, 1907		000 00
		$ 489 98
Liabilities Jan. 1, 1906	$ 135 61	
Cash on hand Jan. 1, 1906	98 35	
Liabilities exceeded cash		$ 37 26
Profits of the year 1906		$ 527 24

EXPENDITURES.

Ketcheson Printing Co	$2,014 66
Engraving Company	352 88
Editor and assistant	883 37
Postage	188 13
Post office box rent	3 00
Freight, express	6 70
Copyrights	7 00
Commissions on advertising	68 87
Duty on books for review	85
Telephone (tolls)	1 35
Typewriter	50 00
Printing cards, etc	4 00
Prize essays and problems	110 00
Check returned	4 00
Back numbers	20 00
Miscellaneous, paper, envelopes, telegrams, etc	42 60
Total	$3,757 41

It may be remembered that one year ago I expressed the opinion that the end of 1906 might find us with $1000 in the treasury. Had I kept the expenses down by furnishing less material for the issues, a smaller number of illustrations, and otherwise exercised the economy necessary and advisable when the Association was in debt, it is possible that the figure might have shown near that amount. But the JOURNAL has kept growing and has passed far beyond the JOURNAL of the past, so I found myself in the position where I could not stop its growth. I could not let go. But I am happy to state as my belief that the growth has been a healthy one. There is little reason for not believing that the past year is a good one to judge from as to the or linary profits of the JOURNAL. Five hundred dollars should be about what the JOURNAL makes above all running expenses, and even then we can include in these ordinary running expenses a large postage expense, such as is occasionally called for in return postals, when the wishes of the cavalry are necessary for some good reason.

I believe that at least half of this profit should be expended by paying for articles. I recommend that $250 be expended in July, 1907, by paying for articles that have appeared in the JOURNAL from July 1906 to July 1907.

This I stated one year ago would be done, but I ask the authority of the Executive Council, as it is considered better to have this authority in a departure so radical from the usage of the past.

The growth of the subscription list is shown as follows:

Loss by death, withdrawals, etc.	61
New subscriptions	269
Gain	208

Most of this increase is due to the club arrangements made with the *Infantry Journal*. We are now printing 2000 copies per issue, and the copies are being used.

Of the 758 cavalry officers in the service, 598 are members of the association, a per centage of seventy-six. This is about as great a percentage of the cavalry officers as we can expect to retain. When brigadier generals on the retired list, who gained their stars through their work in the cavalry ask to have their names stricken from the lists of members we can see that what was formerly known as the cavalry spirit exists in about twenty-five per cent. of the cavalry officers only for what can be personally gained out of such spirit and nothing else. It is pleasing to notice, however, that the remaining seventy-five per cent. remain the devoted champions of the cavalry service, ready to support their contentions in any way.

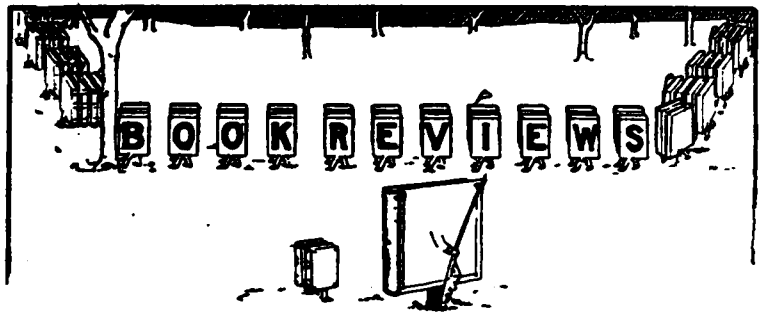
The editor of the JOURNAL has from time to time received letters from members asking for certain things, such as the abolition of the colored advertisement pages. The reply is simple; the JOURNAL is a business proposition and intends to furnish the best material for reading that can be done for our service. This means expense which must be met. When all cavalry officers are subscribers to the JOURNAL, pay their dues in advance, are willing to meet occasional calls besides the two dollar dues, then perhaps the business acumen of the editors and managers may be critised; but any criticism until this is accomplished will receive but scant consideration.

A more important criticism is the wish to return to an absolutely technical journal. As published to-day, the CAVALRY JOURNAL is practically a service journal. It has departed quite a considerable from a technical publication. But the JOURNAL to-day is what the officers make it. Good material is published as we receive it from time to time. If the members of the association desire to retain the technical features of the JOURNAL more technical matter must be submitted to the editor. It seems that the present trend of study among our cavalry officers is a reaching out and assimilating of the duties of other branches, and then a coördination of the whole. The JOURNAL, it is believed, has always reflected quite faithfully, the prevailing subjects of investigation and study in the cavalry at any one time. The editor is not unconscious of the statement that many officers would wish to see more "HORSE" in the CAVALRY JOURNAL. We should only be glad to respond to that idea if the wishes of the service were so strongly expressed that valuable material upon this subject was not so small in amount upon the editor's desk.

Some few matters of minor importance will be laid before the Executive Council for consideration.

Very respectfully,

HERBERT A. WHITE,
Captain Eleventh Cavalry,
Secretary and Treasurer.



Port Arthur: The Siege and Capitulation.*

In his preface Mr. Bartlett says: "I joined the Third Army at the commencement of August, 1904, just before the first assault, remained attached to General Nogi's headquarters until January, 17, 1905, and entered the fortress with the victorious Japanese." The book describes all the land operations of the Japanese against Port Arthur from the landing of General Oku's army to the departure of the Russian prisoners of war. This completeness, together with the two large maps, make it the best of the six books on Port Arthur that we have read. Those by James, Smith, Norregaard, Villiers and Barry, rank in the order named. Mr. Bartlett, while in general most enthusiastic over the Japanese, is not blind to their faults, as the following extracts bear evidence.

Pages 100-101: "Just at the critical moment when the Sixth Brigade were being driven back, the Eighth Regiment should have advanced to their support by attacking the New Banrhusan Fort. They were ordered to advance, but nothing

*"PORT ARTHUR: THE SIEGE AND CAPITULATION." By Ellis Ashmead-Bartlett. William Blackwood and Sons, London and Edinburgh, 1906. $6.50.

would induce them to leave the shelter of the trenches of Banrhusan West and the dead ground behind that work. In vain did the veterans of the Seventh and Thirty-fifth sacrifice their lives to stimulate the Eighth by their example. Staff officers came up and entreated the wavering Eighth to advance; but it was all in vain; nothing could induce the soldiers cowering behind their trenches to face the leaden storm on Bodai, and share the fate of their comrades. At this point some of the officers, seeing further coercion was useless, actually cut down their own men with their swords; but where inducement had failed, force failed also." (Description of assault night of 23d, 24th August, 1904.)

Page 106: "The head of the army hospitals told me that beri beri could be checked by mixing corn with the rice served out to the troops, and also by a supply of green vegetables. This was perfectly well known before the war, and the Medical Department, in anticipation of such an outbreak, endeavored to arrange with the Commissariat Department to supply the troops in the field with an equal quantity of rice and corn, for the express purpose of keeping beri beri under. The Commissariat Department could not be induced to consent to this arrangement, as rice is so much more portable in the field than corn, and the transport arrangements had been made accordingly. It was in July, after thousands of Japanese soldiers had been rendered *hors de combat* by the disease, that the Commissariat Department were induced, or ordered, to supply corn with the rice. The number of cases rapidly decreased after this change of diet."

Pages 133-134: "The Japanese are, as every one probably knows, very clean in their personal habits. In what other army do you find every soldier carrying a toothbrush with him on a campaign? But apparently their individual cleanliness does not extend to their camp organization, and it was a matter of great surprise to me to see in what a filthy state the ground round their camps was kept. They paid little attention to safeguarding the drinking-water; and I have over and over again seen soldiers washing themselves and also their canteens in dangerous proximity to it. While I was camping under Hoshsan in the hot weather, Japanese

regiments were constantly camped on the other side of the little stream which supplied us with drinking-water, and no effort was made to preserve this supply from pollution. A little spring had been found in the river bed, and this had been carefully dammed off from the main stream to serve exclusively as drinking-water. It was therefore very discouraging to find soldiers coming down to the stream and washing their canteens in our drinking-water; and finally we were obliged to apply to have a sentry put on guard over it. I am naming this particular instance, but there are many others which came under my notice while at the front. Fragments of food and rice were allowed to remain lying around in all directions; no arrangements were made for washing-places; in fact, I have never seen anything to equal the condition of the ground in the immediate vicinity of some of the camps. Any other army would have suffered from this neglect by having a terrible outbreak of enteric; but that complaint was rare amongst the Japanese, although the insanitary conditions prevailing were doubtless responsible to a certain extent for dysentery and beri beri."

Page 148: "The companies followed, not in long lines of straggling skirmishers, but each maintaining its close formation, two deep, bayonets at the charge, their captains with drawn sword a few yards in advance."

This is from an account of the attack made by the First Regiment on September 20, 1904, against Namakoyama.

Pages 295-296: "The Russians, when they discovered the Japanese had succeeded in obtaining a lodgment on the escarpment, disdained all further cover and stood up to meet their opponents with the bayonet. It was a splendid sight, and worthy of the best traditions of Russia, to see these bearded giants suddenly rise up on the skyline and confront the Mikado's soldiers, who looked like dwarfs beside the Siberian peasants. The fight immediately resolved itself into a series of individual combats between men, only separated from one another by rows of sand-bags. A small figure, singling out some Russian champion, would have at him with the bayonet, but generally with disastrous results

to himself, for it seemed to me the Russians were more than able to hold their own at such close quarters."

From an account of the assault made against the North Keikwansan Fort on November 26th.

The two most interesting chapters are entitled "Sapping and Mining," and "The Assault and Capture of 203 Metre Hill."

The first describes the underground fighting for the Moats of North Keikwansan, Nirusan (Erhlung) and Shojusan (Sungshuh) and, with the assistance of plans of the first two forts, the description is readily understood.

The second chapter tells the story of the capture of 203 Metre Hill. The account is thus prefaced:

Pages 307-308: "Marshal Oyama's chief of the staff, General Baron Kodama, and General Fukashima, had come down from Manchuria previous to the assault of November 26th to see for themselves the true state of affairs before the fortress. On the morning of November 27th General Nogi and these two officers realized that the assault on the eastern section of the fortifications was an utter failure. * * * After the heavy loss entailed, it must have required men of iron determination to turn from this scene of carnage in the east and on the very next day give orders which were to lead to a still worse scene of carnage in the west. The manner in which the Japanese looked immediately to another quarter of the field to retrieve their fortunes when the assault in the east had failed, must always command the admiration of critics. It proves how desperately in earnest they were, and the importance they attached to the destruction of the Russian squadron in the harbor. It seldom happens in warfare that a general is prepared to lose the lives of thousands of his soldiers for the mere purpose of capturing a single hill which is not 200 yards long on the top, but this was the issue that confronted the Japanese officers on November 27th. When the generals turned their faces to the west on the morning of November 27th, they realized that the result of the operations against 203 Metre Hill would be fraught with the most momentous consequences. If success crowned their efforts, and 203 Metre Hill was captured, the Russian fleet

would be immediately driven out of the harbor, or else sunk at its anchorage. If the attack was a failure, the siege would be brought to a standstill, and there would be no alternative but to sit down and starve the garrison out, a process which might take months, and which might allow the Baltic Squadron sufficient time to arrive on the scene of hostilities. General Nogi determined to throw every available man at his disposal into this attack, and, no matter at what cost, to capture 203 Metre Hill. The struggle which raged on the slopes of that hill for the next ten days will ever be regarded as one of the most memorable incidents of warfare. It was of such a Homeric character, that surely if it had taken place two thousand years ago, the traditions and legends attaching to the ground and to the combatants would have come down to us in verse and song."

In this connection the following paragraph on page 139 is of interest:

"Up to this time (September 19, 1904) the Japanese had not realized the peculiar value of 203 Metre Hill in the defense of Port Arthur. I do not think they were certain that it commanded such an extensive survey of the harbor, and in fact was the only position from which a view of the fleet could be obtained. They had not grasped the importance of capturing this hill at all costs, and sacrificing every other consideration to this dominating factor in the situation. As far as could be gathered, their main reason for attacking 203 Metre Hill in September was because its summit commanded a view of the railroad built by the Russians from Port Arthur to Laoteshan, along which, it was reported, the Russians could be seen daily conveying stores and munitions of war. It was generally thought that Stoessel, on account of his having said that he would die in the last ditch, would dig that last ditch somewhere on the slopes of mighty Laoteshan. The Japanese were particularly anxious to prevent him from carrying out this intention, and they felt that if they captured 203 Metre Hill they would be able by their artillery fire to prevent a concentration at Laoteshan."

In his conclusions Mr. Bartlett brings out the following point, which seems to be not only worth noting, but worth cultivating in our own service:

Page 487: "Cheerfulness is one of the most remarkable traits of the Japanese character, and is one of the greatest assets he possesses."

It is interesting to note that Mr. Bartlett is a member of Parliament and a brother-in-law of the late Baroness Burdette-Coutts. HEINTZLEMAN.

The Great Siege.*

Mr. Norregaard, as correspondent for the *London Daily Mail*, observed the operations from the first general assault in August until the capitulation. In one chapter a brief account is given of the Japanese advance "From Nanshan to Port Arthur." Once in front of the fortress the account of the siege is given in detail to the end. The book is interesting and well worth reading.

The following paragraphs indicate how the Japanese could dig once they had learned the necessity:

Pages 187-188: "We every now and again turn our glasses on to the two small clusters of men under the Erhlung trenches, but for some time we could see no change in the situation here. They remained in the same place. After a while, at moments when the cloud of smoke was less opaque, we thought that they had sat down, but on looking more intently the actual state of affairs suddenly dawned upon us. They were digging trenches. As we watched, the figures gradually grew smaller, and smaller, until presently we lost sight of them altogether; it was as if the earth had swallowed them up. But instead of the men, we now saw two parallel black lines leading transversely up towards the gray glacis. We understood it all now. The Russian trenches had been taken at the first assault, and the Japanese had at once set to work to connect them with their last parallel by a double line of approaches. Between eighty

*"THE GREAT SIEGE: THE INVESTMENT AND FALL OF PORT ARTHUR." By B W. Norregaard. Methuen & Company, London, 1906. $3.50.

and a hundred yards of saps were dug within less than an hour, and under the enemy's fire—a splendid piece of work."

Page 204: "The Russian 'assiduous obstructions' against the sapping operations toward North Kikuan Fort were of a more determined character than at any other place. The distance from the first parallel to the fort was some 800 yards, and to cover this distance approaches of more than 2000 yards in length, and leading in forty-six windings had to be dug, not counting the six parallels which they had had to construct in order to defend the advance. The Russian surprise parties and sorties, their continuous shelling and sniping, had been most harassing; the saps had to be made very strong and elaborate, and thus, though the soil was alluvial and easy to work, nearly two months elapsed before the Japanese had worked their way so near to the fort that they could build their last parallel—the sixth—at a distance of some forty yards from the counterscarp."

Perhaps the most interesting part of the book is the author's fair-minded discussion of the reasons for and against surrender. He concludes as follows:

Pages 290-292: "I think the verdict will come to be that the capitulation of Port Arthur on January 1st was not necessary and scarcely justifiable, but that General Stoessel's decision to a certain degree was excusable, because circumstances over which he had no control, and which it was impossible to foresee—for the weather was cold enough during the the whole month of December—made fatal a step that under ordinary circumstances could have in no degree influenced the strategical situation in Manchuria. But the real reason of surrender was neither lack of men, ammunition and provisions, nor the state of the hospitals, nor the difficulty of dealing with the civilian population. The more information I have been able to glean from all sources, especially from conversations with officers and men and civilians in Port Arthur, the more I feel convinced that the cause of the surrender is to be found in the deep discouragement which had taken hold of the garrison, especially the private soldiers, during the last few weeks of the siege. Still, even under the existing circumstances I do not think that the fortress would have surrendered if General Kondratienko had not been killed by an eleven-inch shell in North Kikuan Fort on December 15th. For the name that will go down to history coupled with the defense of Port Arthur will not be Stoessel's."

From the above it will be seen that the author considers General Stoessel's best excuse to be that he could not hold out into the spring, and until that time the severe winter weather ordinarily prevailing in Manchuria would prevent any active operations in which General Nogi's army could turn the balance against the Russians.

This is one more example of the well known fact that you cannot depend upon the weather.

However, from all accounts the winter was as severe as usual, and, notwithstanding its severity, the Russians undertook the offensive in January, and the Japanese in February, 1905.

The great objection to this book and most others on Port Arthur, is the lack of good maps. HEINTZLEMAN.

Officer's Manual.* We are glad to state for the benefit of our readers that Captain Moss's book has appeared from the press. We are only sorry it did not appear years ago, for its value is beyond all question. It is a source of regret that we did not have it on our introduction to the service. It truly fills a long felt want, and we wonder how we got along without it. We trust to be able to get along far better now that we have this handy little reminder at our elbow.

The author dedicates the book to the subalterns of the army, who will some day be our colonels and generals. And truly no subaltern can afford to be without it. There is now no use in a subaltern going to some older officer to learn how to do this and that. Let him read his Officer's Manual, and if not a dummy he can be sure of doing things as they should

*"OFFICER'S MANUAL." By Captain James A. Moss, Twenty-fourth Infantry. For sale by the West Point Exchange; price, $1.50.

be done. Its value to subalterns is so palpable that we shall add nothing further as to this feature. It is also valuable as a memory refresher to older officers. The little ticklers as the author styles them for troop commanders and for adjutants, are alone worth many times the value of the book.

Should we attempt, however, to give an account of all the valuable features of this work we should simply be reprinting the entire book. We give the titles of the chapters as an indication of what the book contains.

Chapter 1. Suggestions to Officers Just Appointed.
Chapter 2. How to Succeed in the Army. (Containing A Message to Garcia.)
Chapter 3. Remarks on the Organization of the Army.
Chapter 4. The Militia of the United States.
Chapter 5. Relation of the Military to the Civil.
Chapter 6. The Adjutant. (Containing all the blanks, how they should be made out, to whom sent or when submitted.)
Chapter 7. The Quartermaster.
Chapter 8. The Commissary.
Chapter 9. The Recruiting Officer.
Chapter 10. The Post Exchange Officer.
Chapter 11. The Prison Officer.
Chapter 12. The Ordnance Officer.
Chapter 13. The Engineer Officer.
Chapter 14. The Signal Officer.
Chapter 15. The Company.
Chapter 16. Discipline.
Chapter 17. Aids-de-Camp.
Chapter 18. Post Administration.
Chapter 19. Paper Work.
Chapter 20. Customs of the Service.
Chapter 21. Field Service.

In short the Manual contains in convenient handy form much information of worth knowing nature and many valuable suggestions about various matters. We wonder how officers get along without it.

As regards the mechanical features of the book neither labor nor expense were spared in the use of first-class material; a durable, attractive binding; an artistic, sensible typographical display that is most agreeable to the eye; a handy business-like visible double index possessed by no other book, all go to make the book an unqualified success as a mechanical production.

Windage and Elevation Charts and Score Book.*

This is a score book designed for use with the U. S. magazine rifle, cal. .30, model of 1903, with rear sight model of 1903, and ammunition of 2200 F. S. velocity. It is designed by Lieutenant W. D. Smith for the use of the Cadets at the Military Academy.

The first three pages are given to an illustration of the use of the charts, and one page is given to windage and elevation tables. There are seventy pages of charts, each page giving a chance for a record of thirty shots. The author states that this book is the only one on the market in which the positions of the horizontal lines on the targets have been accurately determined by ballistic tables. These positions have also been verified by actual firing on the range. The pages for plotting shots at rapid fire and skirmish show graphically the correction to be made in windage and elevation for the next score or run.

This book has been adopted for the use of the U. S. Military Academy cadets. The book can be purchased from the West Point Exchange at twenty-five cents per copy when ordered in lots of twenty-five or more. In lots of less the price is thirty cents.

Soldier's Score Book.†

Captain Stodter has presented a score book to the army that for simplicity is the best we have yet seen. On congratulating him on his having prepared a score sheet that could easily be understood by anyone, he remarked that he was

* By First Lieutenant W. D. Smith, Fourteenth Cavalry.

† "SOLDIER'S SCORE BOOK FOR U. S. MAGAZINE RIFLE, MODEL OF 1903, WITH 1905 SIGHT." By Captain Charles E. Stodter, Ninth Cavalry.

making a sheet for a colored trooper and wanted one that could be understood without the use of anything except ordinary brains. He certainly has accomplished his purpose.

We are glad to see the book bound in flexible paper so that it will conform to the blouse pocket. There will be nothing to prevent the enlisted man carrying this book with him during the entire target season. That each individual should keep a personal record of his firing and have this record with him to refer to at times when he wishes is now one of the acknowledged requisites of learning how to shoot. Individual interest is now assured, and the moderate price set by Captain Stodter places the individual records within the reach of every enlisted man in the army. But this is not our idea as to the furnishing the enlisted men with these cards. This should be done by the troop commander from the troop fund. The price of this book is ten cents, and with sixty-five men in a troop the output will be $6.50. This amount can be spent in no better way, and we dare say this expenditure will meet with the approval of inspecting officers.

The directions for use of the book occupy thirteen lines. Then comes a couple of clever suggestions and instruction as to shooting. We then find one page given to corrections corresponding to a change of one point of windage and twenty-five yards elevation; one page to decimal part of a point of windage necessary to counteract deviation of a one-mile wind, and one page to dimensions of targets.

Now come the record sheets. We find the plate of a target divided into squares, the target being drawn to scale. The vertical lines represent the change caused by moving the rear sight one or more points right or left from the proper position for the range. The horizontal lines represent the change caused by moving the sight up or down from the correct position. Then follows the table, and on the same page with a place for the number of the rifle, the ammunition, the range, the practice and the date. The table contains place for the record of ten shots, the score elevation, windage, wind direction, flags, light, and a column for remarks.

We believe that nothing more is needed for an individual record. But this much is needed, and good work can not be accomplished easily without this stimulus to individual interest. The book contains seventy-eight pages of records divided according to the ranges. We recommend the trial of this book to troop and company commanders for one season, the cost price to be defrayed out of the troop fund.

In fact, THE JOURNAL is so strongly impressed with the idea that the keeping of individual records is the surest way to secure good work in the army, that it has taken up the publication of Captain Stodter's book. No money will be made by THE JOURNAL in doing this, the scheme being one of improvement for the service. THE JOURNAL will send on copies on receipt of price, ten cents per copy, postage to be paid by purchaser.

The Battle of Westport.*

The story of the Western Gettysburg is very well told by Mr. Paul B. Jenkins in a little book of 190 pages. It is replete with good things for the military student and the interested reader of our Civil War will find a readable and accurate description of one phase of the conflict that is usually passed over by the historians. We quote as follows from the author's preface:

"The student of military and political history will readily note a marked resemblance between the engagements fought on July 1st to 3d, 1863, before Gettysburg, in the State of Pennsylvania, and that of October 21st to 23d, 1864, near Kansas City, in the State of Missouri. Barring only the numbers engaged and the corresponding losses, the battles of Gettysburg and of Westport had much in common. Each was the result of a campaign of invasion planned by the Confederate War Department for the purpose of severing the Union territory at the point of attack, the one in the East, the other in the West. Each such campaign was intended seriously to embarrass the Federal defense by necessitating

*From the Franklin Hudson Press, Kansas City, Mo. Price, $1.50.

the summoning of distant forces to resist the invasion, thus setting other Confederate forces free to conduct their own lines of action. Each seriously threatened the principal cities in the invaded territory, and in each case that territory was chosen for the reason that it contained such places of importance—Washington, Baltimore and Philadelphia in the Eastern campaign; St. Louis, Kansas City and the important military post of Fort Leavenworth in the Western. The engagement in which each campaign culminated occupied three days of incessant fighting, and the defeat to the Confederate arms with which each closed put an end forever to further attempts at carrying the war northward in their respective portions of the Union. Each such defeat established one of the two high-tide marks of the Confederacy, the one in the East, the other in the West. And, finally, each period of three days' conflict composed, in numbers and importance of results attained, the largest and most decisive land battle of the Civil War in its respective portion of the two great natural divisions of the United States, the territories lying respectively east and west of the Mississippi River.

"In spite, however, of the importance that may be thus justly claimed for the series of actions known as the Battle of Westport, those actions and their results have received but scant attention from the historians of the 'Great Conflict.'"

We have received new ideas of the times, men and manners of the closing days of the struggle in the West from this book. We are glad it has been written, and are glad it has been brought to our notice. It is worth the reading and owning.

Old Army Sketches.* It would be well if every regiment in the service could have a chronicler such as the Sixth Cavalry has had in General W. H. Carter. Some years ago he compiled a history of that regiment, carrying it from its organization to Santiago.

*"Old Army Sketches." By Brigadier General Wm. H. Carter, U. S. Army. From the Lord Baltimore Press, Baltimore, Md.

While the abolition of regimental promotion has possibly taken some of the esprit de regiment away from the army, yet there is an attachment still existing. Too much cannot be done to foster the pride in "our regiment," and we can only wish that regimental histories were more in number upon our library shelves.

In "Old Army Sketches" General Carter has collected the little tales of individual heroism of the Sixth Cavalry during the period after the Civil War. In his preface he speaks of how after every war the active presence of new leaders of heroic mold tend alike to mark a distinct line between the old and new armies. In those troublous days of 1798 when Washington, Knox and Hamilton met in Philadelphia to canvass the relative merits of the veterans of the Revolution for appointment in the new army authorized by Congress for the impending conflict with France, the difficulty of fusing the old and new was made clearly apparent. The War of 1812 hewed a sharp line of demarkation between the old Continentals and the new levies. Then, with the exception of a few officers and men, rare characters many of them, the army disappears for a time from view. A partial awakening comes in 1821, followed a few years later by the Black Hawk and Florida Wars, marking distinct changes in the personnel. Next follows the Mexican War, with a new generation, which, at the close of hostilities, has an official standing which leads to preferment when the dark and soul wrenching days of the Civil War period arrive.

Four years of conflict, the rise of new leaders and the breaking of old ideals mark a new era, and the "Old Army of Before the War" passes into history. Some of the older generations survive and tell in garrison clubs the tales of self-sacrifice, courage and character which leave an impress on the new generation, composed principally of young men, some mere boys, who had won preferment upon a score of the historic battlefields of the Civil War.

The close of the Civil War brings in a period of peace to the nation, but the army goes upon the frontier, carving out an empire from the Rockies and the Great American Desert. It is of this period that the little stories in "Old Army

Sketches" deal. And as stated by that readable historian, the author of "Five Years a Dragoon," the stories here told and incidents referred to will never be repeated. The great plains have been converted into cultivated fields producing food for millions and sending to the markets of the world the finest animals known to the meat consuming nations of the earth. The wild herds and savage men have all passed away, never to return. The frontier garrison has passed into history, but the men and women that enlivened the dreary plains of bygone days serve as beautiful examples of courage and duty to the New Khaki army of to-day. And these little heart touching anecdotes as told by General Carter keep alive the remembrance of beautiful examples of the past.

These stories are but chronicles of fact, and we see in our mind as we read the first story the quiet grace and gentlemanly dignity of that accomplished and polished officer, Captain L. A. Craig, now resting in Arlington after the work in the Philippines. "Our Bayard" was of course none other than Emmet Crawford, while in the "Force of Discipline" we can even now see Kromer taking his flying leap over the torn up bridge. "The Brand From the Burning" is founded upon an investigation conducted by the General himself some years ago. "The Old Dragoon" was a Sixth Cavalryman, but he had many counterparts. "Courage" is an absolutely true occurrence and the two principal characters are, we believe, still living. "A Cavalryman's Ride" of course refers to Mellen, who died recently on the retired list. This example of fortitude and heroism was a frequent story when we joined the Sixth Cavalry some years ago, and the stately figure of Mellen, even on his wooden legs, used to cause us to wonder if we had in our makeup the same strains of character that would make us as great heroes should the test ever come.

It would seem no Sixth Cavalryman should be without these little chronicles of the men of his regiment, and every cavalry officer in the service should own a copy for his own pleasure in reading and then in thinking over the deeds of "The Old Army." Of such little histories we cannot have too many, though we are aware it must be labor of love on the part of the chronicler, for the incidents related are of too narrow a sphere to be of more than passing interest to the civilian.

The Perfect Tribute.*

The publishers have done a great amount of good in putting this magazine story into book form. And army people especially will find this an agreeable means for preserving the great speech of Lincoln at Gettysburg. The settings of the story, all surrounding the speech, are most beautiful and told in language that seldom is equalled to-day. The authoress is to be congratulated in her success at handling a situation so full of pathos and sadness.

The dying Southern soldier, his young brother reading the great speech, and Lincoln listening with a waking sense of what the terrible stillness meant that followed the close of his words on the historic field, produce an impression that will fade only when the interest of people in the great American struggle becomes dim in a misty past.

Army people will soon have this book in their homes and turn to it frequently to renew their belief that in every crisis some mighty character will arise that, like Lincoln, will have the love of humanity breathing in his every utterance. The influence of men like Lincoln for good can never be estimated. But such a character shines before any people to show them the right in times of trial and to sweep away their discordant passions so that their actions shall be at such times governed by justice to all.

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* "The Perfect Tribute." By Mary Raymond Shipman Andrews. Charles Scribner's Sons, New York. Price 50 cents.

Winning His Way to West Point.* This is a capital story of a young soldier's experience during the campaign in the Philippines, from the outbreak of the insurrection to the complete overthrow of the Revolutionary government in 1900.

The story actually follows historic events and faithfully portrays the conditions which the American soldiers encountered in the great campaign against Aguinaldo.

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†"A PLEBE AT WEST POINT." By Captain Paul B. Malone, U. S. Army.

contests with Yale and Annapolis, in which he plays an important part, will appeal to every lover of the sport.

The plotting and treachery of a classmate, who is an old-time enemy from the ranks, lend an air of mystery and anxiety to the theme, hold the attention firmly, and keep the issue in doubt to the very last chapter.

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Each of the Malone books is profusely illustrated and handsomely bound. Cloth binding, $1.25. Sold by all dealers or sent prepaid to any address upon receipt of price. The Penn Publishing Co., 923 Arch St., Philadelphia.

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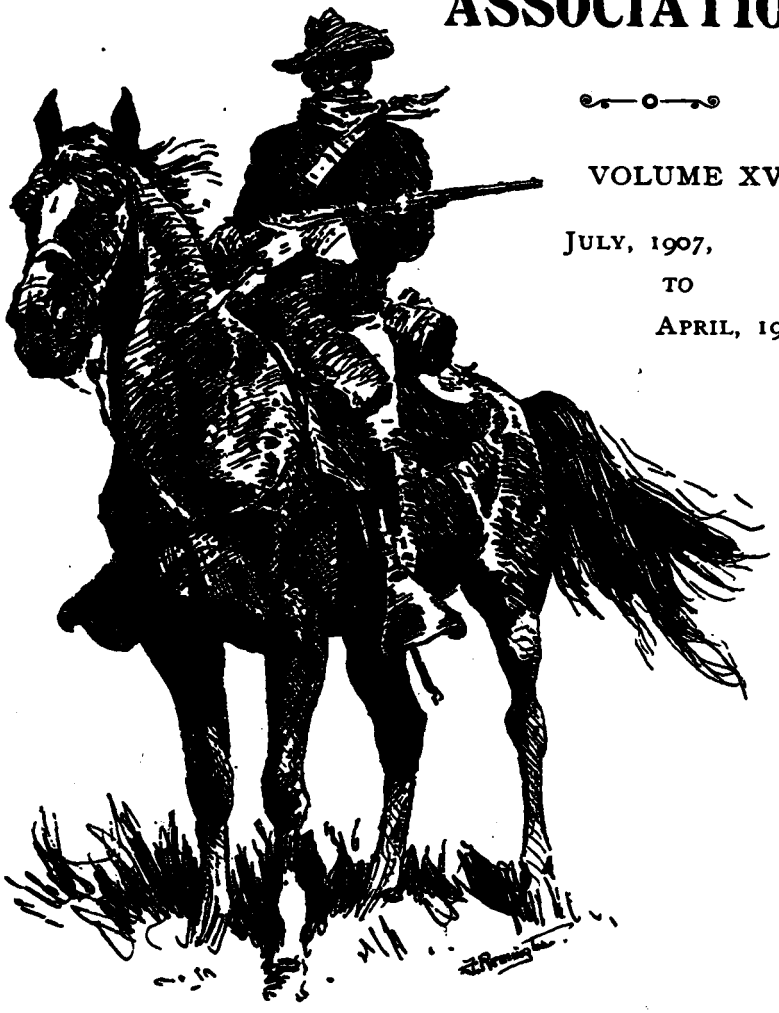

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