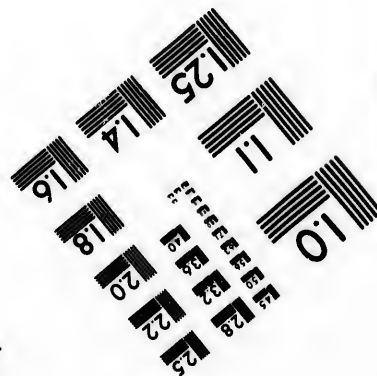
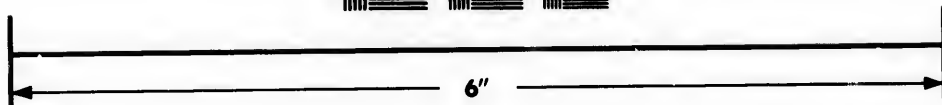
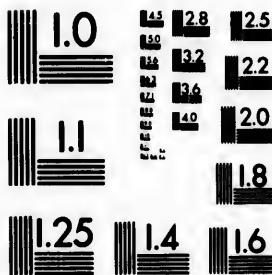


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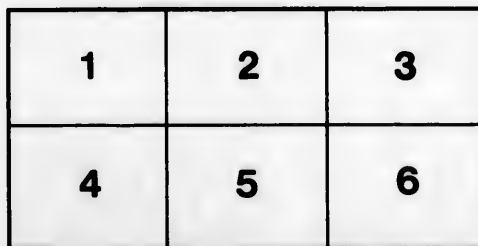
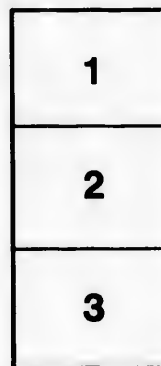
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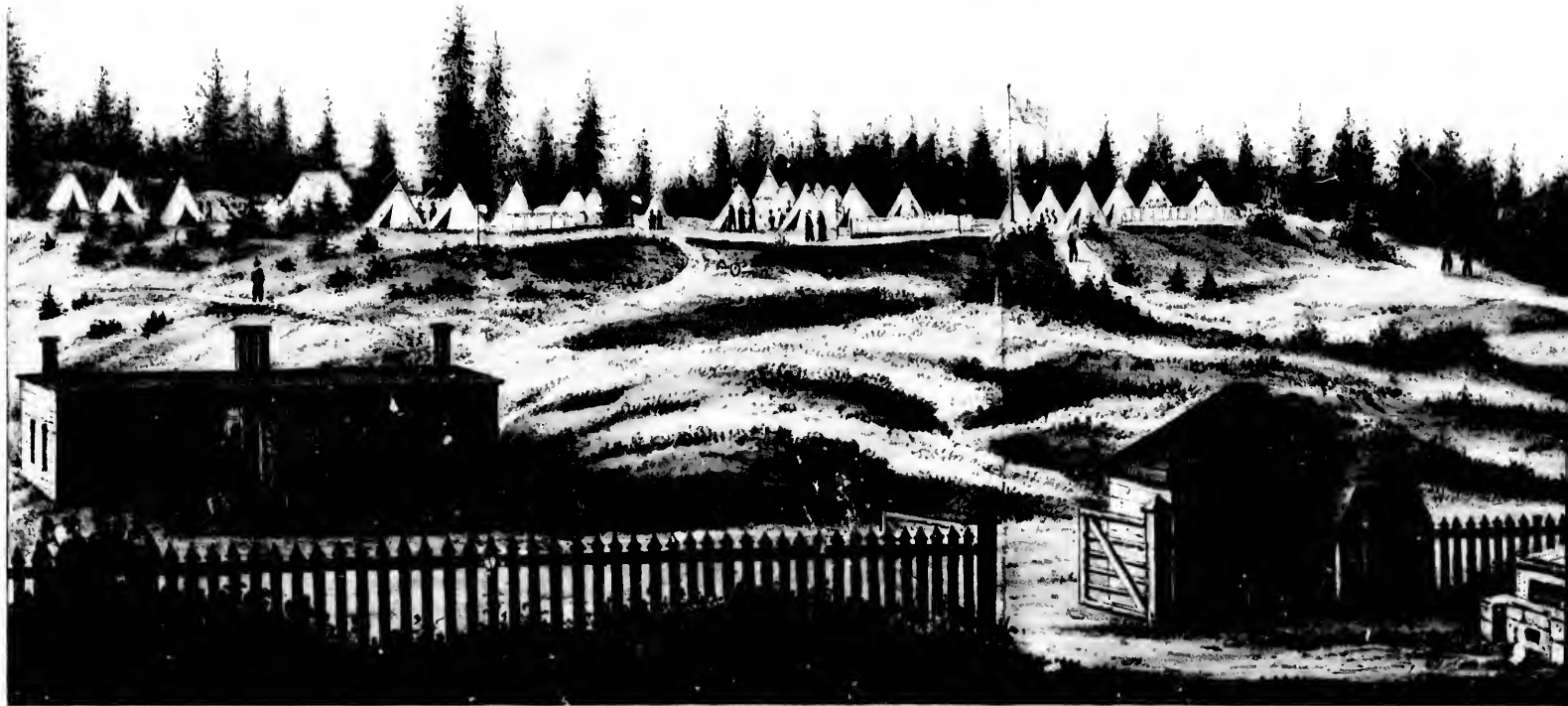
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CAMPS OF THE 76TH AND ARTILLERY AT MT PLEASANT



MT PLEASANT, HALIFAX, NOVA SCOTIA, AUGUST 11TH 1855.



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ST 11TH 1855.

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HINTS ON
BIVOUAC & CAMP LIFE !

ISSUED BY THE AUTHORITY OF

His Excellency Major General Sir Gaspard Le Marchant,
FOR THE GUIDANCE OF YOUNG OFFICERS IN THE HALIFAX
GARRISON

WHILE UNDER CANVAS FOR THE SUMMER MONTHS,

AT THE

NORTH WEST ARM,
POINT PLEASANT.

" En retranchant le superflue,"

" On apprend mieux le necessaire."

MONTECUCULI.

BY CAPTAIN WILFORD BRETT, 76th Regt.,
AIDE-DE-CAMP.

HALIFAX, N. S.

PRINTED BY RICHARD NUGENT,
(Arcade Building), Hollis Street.

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INTRODUCTION.

These few pages were prepared for the use of young Infantry Officers of the Garrison of Halifax while encamped at "Point Pleasant." The work has been compiled from well known authors, and lays no claim to originality. The aim has been to condense information into a form, where it would be more easily got at, and understood, than where found scattered through volumes of science, and more immediately addressed to the other branches of the service.

On Major General Sir Gaspard LeMarchant, assuming the command of the Forces in the Lower Provinces, he ordered a Camp of Instruction to be formed at Halifax for the troops quartered there.

He adopted the principle which he strictly enforced, that the crude material being afforded to them, the men should be taught to depend entirely upon themselves for the preparation of those supplies which were daily required, that they should bake their own bread, kill their own meat, and throughout be altogether unassisted by "Contractors," or any class of citizens whatever.

INTRODUCTION.

After several attempts a "Field Oven" was contrived, of very simple construction, yet so satisfactory in its results, that bread of excellent quality was baked and supplied daily to the troops throughout the period of their Encampment. In this, as well as in the formation of kitchens, and other works of the same class no materials were permitted beyond the rough stones picked up in the vicinity of the camp, cemented with clay and earth.

The course of instruction carried out under the direction of the Major General included,—in addition to Military Drill, Evolutions, and Out-post Duties,—the making Fascines and Gabions, Cutting Brushwood, the construction of Field Works, throwing up Parallels, approaches and batteries, in fact, in all those operations of a Siege in which Infantry are likely to be engaged whether as assailants or defenders.

The Officers were separately taught in the first instance a plan that much facilitated the after instruction of the men, which was thus conducted under their own Officers.

Much attention was given to the striking and pitching of the tents. This took place daily, as also whenever the Major General unexpectedly visiting the Camp might order it to be done. Towards the close of the course of instruction the time occupied in this operation, rarely varied from $3\frac{1}{2}$ minutes for the formation of

INTRODUCTION.

the Camp, and $2\frac{1}{2}$ minutes for striking it. This, of course, included the packing or unpacking, and removal of the tents.

No great attention has been given to the arrangement of this work ; for, as the daily course of instruction pursued, suggested the subject, so the most practical explanation was sought for, and in that order have they been inserted.

Many of the paragraphs, indeed, may appear abrupt and disconnected. The answer is, they are written for the use of the young Officer, and the Infantry Soldier, and not the Engineer ; and it is where the Infantry Soldier has failed to understand the plans of the latter that the offer of instruction is made.

Much difficulty was experienced in the first instance in imparting to the troops, the necessary knowledge for "Camp Life," from the want of information displayed by all ranks in the performance of the duties it entailed ; and but little assistance was to be obtained from Military works, in the first stages, from their failing to enter sufficiently into detail, and from the absence of diagrams to supply the required information. It was, therefore, that these few pages were compiled for the benefit of young Soldiers, in the hope that they may be instructive, and not without advantage.

WILFORD BRETT,

Capt. 76th Regt., & Aide-de-Camp.

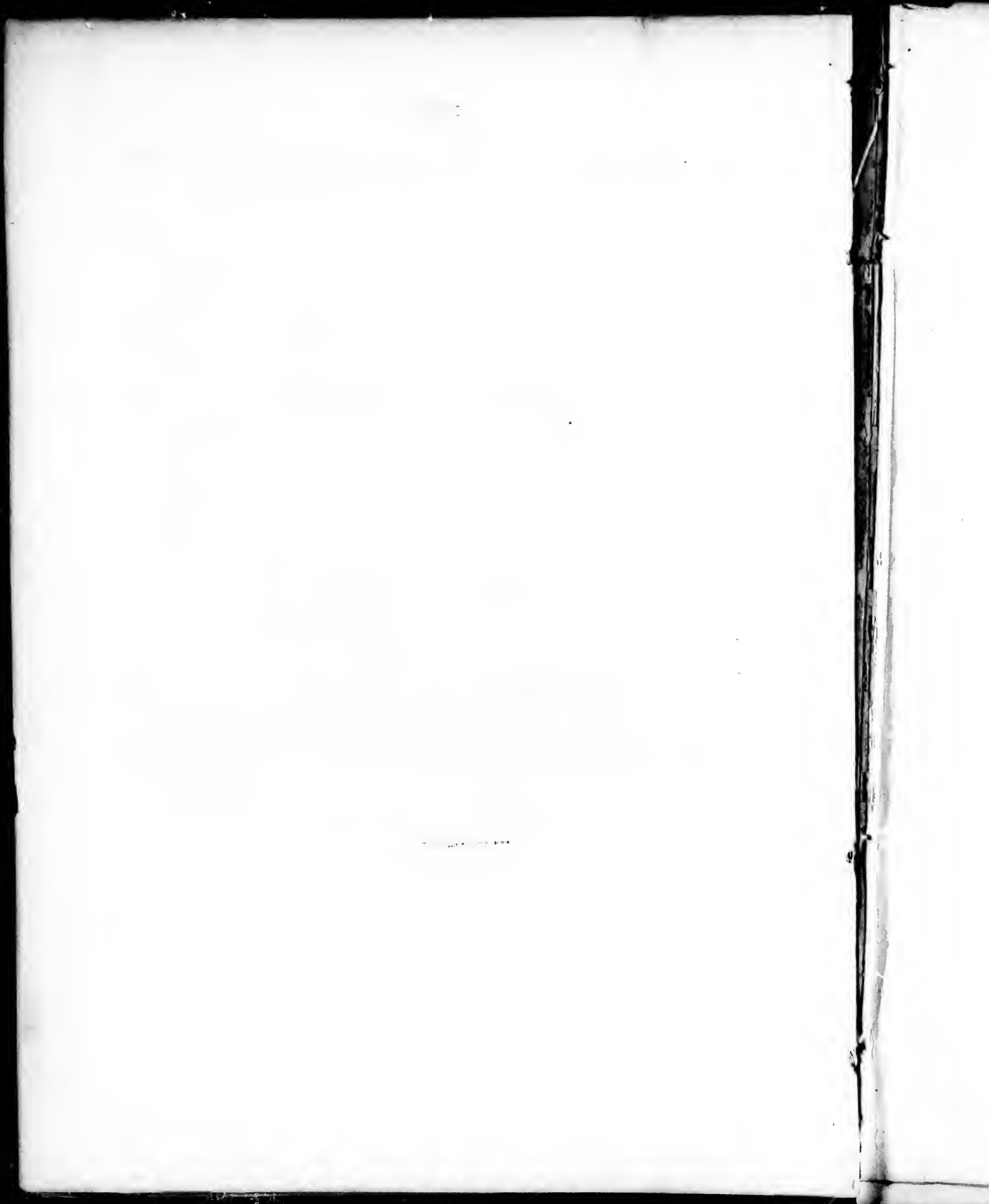
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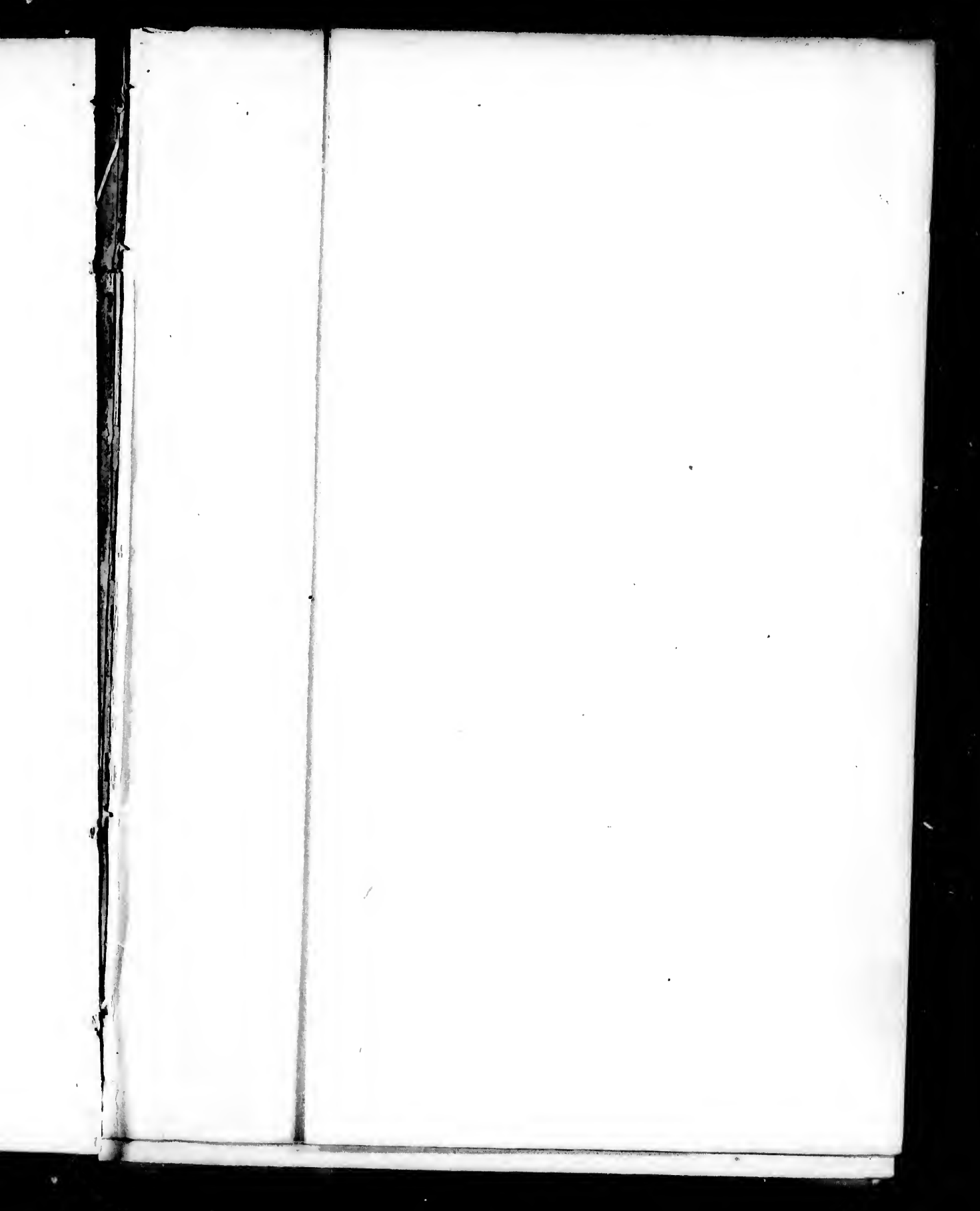
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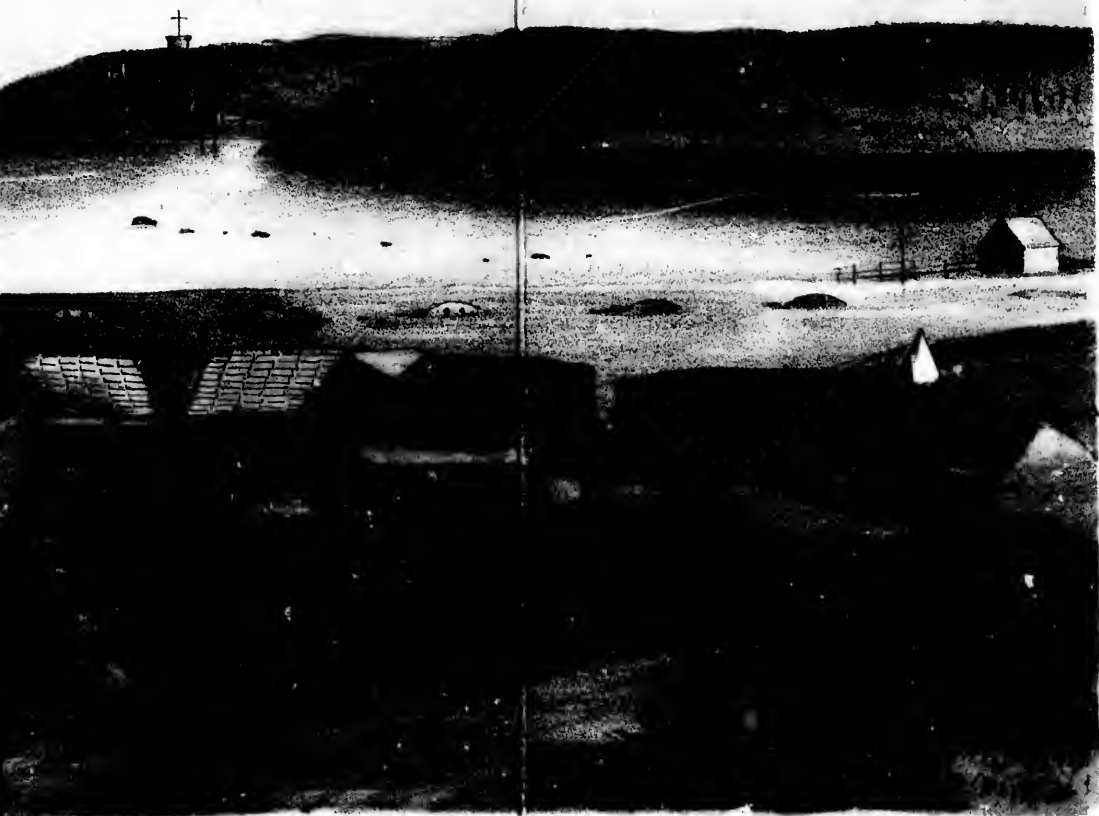
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BATTERY THROWN UP BY THE
 whilst in Camp at Point Pleasant
 UNDER THE SUPERINTENDANCE OF CAPTAIN

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Embrasure made of Gabions.	} Traverse made of Gabions.	} Embrasure made of Sand-bags.



Nº 2.

B.

Nº 3.

THROWN UP BY THE 76TH REGIMENT

Camp at Point Pleasant Halifax.

UNDER SUPERINTENDANCE OF CAPT WALKER, R. E.

	Nº 2.	B.	Nº 3.
made	Embrasure made	Traverse made	Embrasure made
of	of Sand-bags.	of Fascines.	of Fascines.



Nº 3.

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GENERAL ORDERS.

These General Orders are published as containing much that may be useful to Officers, although perhaps not in every case precisely applicable to the present time.

COIMBRA, 3rd May, 1809.

Upon all occasions when the army shall march, it will be in one or more columns, on one or different roads, with a view to take up a position, or by separate battalions, brigades, or larger divisions, with a view to occupy certain cantonments. In the first case, the reserve artillery and stores, drawn or carried by horses or mules, are to follow the troops; then the baggage of Regiments, and individuals of each column, is to follow, arranged in the order in which the corps or individual will stand in the column; and, lastly, the artillery and commissariat stores on carts drawn by bullocks.

In the other cases, when battalions or larger divisions are to take up cantonments, the baggage of each division going to a separate cantonment is to follow that division, and is to be arranged in the order in which each corps or individual will stand in the order of march of the division to which he may belong.

On all occasions the leaders of columns, whether composed of the whole army or of smaller divisions, will halt, once in every hour and a half, for five minutes to allow the men to fall out; and commanding Officers of companies will be held responsible if any man falls out of the ranks at any time during the march, excepting during these halts, or is absent from his company at the end of it, upon any occasion, excepting sick and consequent inability to keep up.

When circumstances shall oblige battalions, in rear of any column, to halt, the head of such columns must not be halted without the special orders of the Officer commanding the column, who will judge of the necessity of halting, according to the length of the interval which will thereby be occasioned in his column, the necessity there is that the column should be

well closed up, and the probability that, from the nature of the impediments of the road, the head of the column will soon be halted, and give time to the rear to close up.

COIMBRA, 29th May, 1809.

On halting days an Officer of each company must visit the quarters of the men of his company four times each day, of which one must be at eight o'clock in the evening. On marching days, an Officer of each company must visit the quarters twice after the men have got into them, of which once must be at eight o'clock in the evening. An Officer must also visit the quarters of the company, before the soldiers march in the morning.

The object of these visitings is to see that the soldiers conduct themselves regularly in their quarters, to ascertain whether there are any complaints by the landlords, and of whom, and that the men are in their quarters, instead of maurading in search of plunder.

The Officers of the companies, who shall visit, must report to the Commanding Officer that they have visited the quarters the number of times ordered, specifying the number.

The Commanding Officer will report daily to the Officer commanding the brigade that these visitings have been made. The Officers must be quartered in the immediate vicinity of their own companies. The use of carts to carry baggage of any description is again positively forbid; and it is equally forbid to have guards with any baggage.

ABRANTES, 11th June, 1809.

When the army is in cantonments, the following rules are to be observed in respect to quarters:—The allotments of the quarters of any considerable corps of the Army is to be made by the Officer commanding it, through the Assistant Quarter-Master General attached to the corps, or, in his absence, through any other Officer of his Staff. No individual is to take quarters for himself, or change them, without the authority of the Officer commanding in the cantonments.

The Staff and other unattached Officers are to be quartered by the Assistant Quarter-Master General of the corps of the army to which they belong, or the Officer acting for him. Regimental Officers are to take their quarters in the street or district allotted to their respective corps; but when a regiment is placed in any public building, which does not afford accommodation for officers, such as are not ordered to remain with the men will have quarters allotted to them. All regulations respecting quarters in the town

or village where the head quarters of the army are established, are to be made by the Commandant at head quarter.

ABRANTES, 13th June, 1809.

Whenever forty men at either hospital are sufficiently recovered to be able to march, an order and a route will be sent for their march, by easy stages.

An Officer must be sent in command of every detachment of 40 men, and two Officers, if the number should amount to 80, and so on; one Officer for every 40 in addition; one Non-commissioned Officer must be sent for every 20 sick; and the Commanding Officer at the hospital must make arrangements that other Officers and Non-commissioned Officers should take charge of the remaining sick of the brigade, in charge of which such Officer or Non-commissioned Officer has been left at the hospital.

The senior Officer at the hospital will report to the Quarter-Master General the departure of the recovered men; and Officers commanding the party of recovered men must report their progress to head quarters by every opportunity.

ABRANTES, 24th June, 1809.

All detachments must march by a route from the Quarter-Master General's Department, in which will be named the places at which such detachments will receive provisions, and from whom.

The Commanding Officer of each detachment, on its march, must take care to send forward notice to the person from whom the provisions are to be received of the arrival of the detachment, and of its strength.

When a detachment will move, the soldiers must be formed into divisions, and Officers and Non-commissioned Officers must be posted to each division.

A detachment must universally march at daylight in the morning, the Officers and Non-commissioned Officers must march with the divisions to which they are posted, and must prevent the soldiers from falling out of the ranks and straggling. The detachment must march at the rate of two miles and a half an hour, one halt must be made for five or ten minutes at the end of every hour and a half.

PLACENTIA, 9th July, 1809.

The Officer of the Quarter-Master General's Department, with divisions, must quarter the General Officers and their Staff, as near to their divisions and brigades as possible.

BADAJOS, 20th October, 1809.

In future all Officers moving from one place to another, in Portugal or Spain, are to have a route from the Quarter-Master General's Department, which is to specify where the Officer is to halt each day.

The Officers of the Quarter-Master General's Department, who will grant these routes upon application for them will keep copies of them; and the Officers, who will receive them, will send them to the Quarter-Master General on their arrival at their destination.

GAVION, 28th December, 1809.

The Commander of the Forces requests the officers commanding divisions will direct the officers of the Quarter-Master General's Department attached to them, respectively, to arrange with the magistrates of the different towns and villages in which the troops may be cantoned, in what houses general officers, field officers, captains, and subalterns, respectively, shall be quartered; and the officers are to be quartered according to this arrangement.

ALVERCA, 7th July.

1. The Commander of the Forces requests that the General Officers commanding divisions and brigades, and the Officers commanding regiments, will invariably adopt effectual measures to prevent the streets of the towns in which they may be cantoned, or the roads in the neighbourhood of their cantonments from being choked up with baggage, with carriages, or otherwise.

2. All carriages and loaded animals on their march must, when halted, if only for a short period, be packed in a field in the neighbourhood of the high road or housed; but must not on any account be left in the streets of any village, or on the road.

3. When a regiment on its march is halted for any length of time, or when halted, is bivouacked, the soldiers must not be permitted to sit or lay down upon the road, but must be placed on one side of it.

4. The Officers commanding detachments with baggage, or carriages of any description, the Conductors of ordnance or commissariat stores, and the Officers commanding regiments, are responsible for a strict obedience to this Order.

5. The General and other Officers of the Army will see the necessity of an early and strict obedience to the Orders of the Army, respecting the marching, cantoning, and provisioning of the troops, and to the preservation

of order and discipline, as well as those which may be issued for the operations of the troops.

CELORICO, 29th July, 1810.

The Commander of the Forces observes, that notwithstanding repeated orders on the subject, nearly all the regiments of the Army have carts in their possession carrying baggage and attended by soldiers. He refrains, upon this occasion, from taking any further notice of this irregularity, but if he should see hereafter a cart drawn by bullocks in any part of the line of march of the troops, orders will be given that the baggage shall be destroyed, and the Officer to whom it belongs will be brought before a General Court Martial.

ADJUTANT-GENERAL'S OFFICE,
FUENTE DE GUINALDO,
14th September, 1811.

G.O.

1. The frequent complaints which the Commander of the Forces receives of the conduct of the Officers, principally of the Commissariat and Medical departments, both in the mode of taking their quarters and in their conduct towards their landlords, when employed at a distance from the Army, obliges the Commander of the Forces to publish over again the Orders which have been repeatedly given and enforced upon this subject.

2. Those who do their duty with their regiments, or with the army, are well aware that at times they can have no quarters at all, and at others very indifferent quarters; and the Commander of the Forces is happy to say, that he has received no complaints of them, but exclusively of those at a distance, who cannot be satisfied even with better accommodation, which the circumstances in which they are placed enable the inhabitants to give them.

GENERAL ORDERS, 14th March, 1809.

Representations having been made to the Commander of the Forces on the subject of the inconvenience sustained both by the inhabitants and the Officers of the Army, for want of better arrangement regarding billets.

His Excellency finds it necessary to establish the following regulations:

1st. All General Officers and heads of departments will apply and receive their billets from the Deputy Quarter-Master General.

2nd. All other Officers are to receive their billets from the Town Major.

3rd. No Officer quitting Lisbon is to retain his quarters, but he must

give back his billet to the department from which he has received it, whether the deputy Quarter-Master General, or the Town-Major.

4th. No Officer is, on any account, to select any particular house, nor choose his own quarters; all that they can expect is, that each shall be provided with a quarter suitable to his rank.

5th. Colonels will be entitled to four rooms; Field Officers, three; Captains, two; Subalterns, one room for each. Staff Officers will have quarters allotted them, according to the comparative rank they hold in their several departments, civil or military.

6th. No Officer under the rank of a General Officer is to require more than two servants' beds at the most.

7th. No Officer is on any account to deliver over his billet to another.

8th. No billet is to be exchanged for any officer of any rank, without previous application to Deputy Quarter-Master General. If the Officer applying be under the rank of a General Officer, he is to apply through the Town-Major, who will presently explain to the Deputy Quarter-Master General the cause of the application.

9th. No Officer whatever has any pretensions to look for or require any thing more than the lodgings where he is billeted.

10th. The Town-Major, in applying to the Intendant-General for billets, is to specify the several ranks for which they are required; and if they are for Staff Officers, he will indicate the comparative rank held by them.

All Officers whatever who have got into houses without regular billets, are to send in their names to the Deputy Quarter-Master General, that the billets may be either made out for the present quarters they may now occupy, or other quarters allotted to them.

3. It is obvious that the Orders above referred to can be applicable only to the city of Lisbon; and in regard to other large towns, the Commander of the Forces requested, by his orders of the 28th December, 1809, that the General Officers commanding divisions would settle with the magistrates in what houses General Officers, Field Officers, Captains, and Subalterns, respectively, should be quartered, and those of the departments of the army of corresponding ranks; and he has written to the Government of the kingdom to request, that as far as it may be practicable, the Magistrates will carry this arrangement into execution

4. No Officer whatever is allowed to quarter himself, if marching with a body of troops; he must receive his quarters from an Officer of the Quarter-Master General's Department, or from the Quarter-Master of his regiment. If proceeding alone on any duty, or on account of sickness, or with

a detachment in which there is no Quarter-Master, he must receive his quarters, by billet, from the magistrates of the town or village in which he may be.

5. The officers of the Quarter-Master General's Department, or the Quarter Masters of Regiments, must, in every case, in which they require quarters for either officers or soldiers, receive them from the magistrates of the towns or villages, and afterwards allot them to the regiments, or to the several officers and troops, as the case may be.

6. It is to be clearly understood, that no Officer has a right to demand more from his landlord than house-room and stabling for his horses, if the building shall afford any, and it is obvious, that in no town in Portugal or Spain, can Officers expect the accommodation allowed by the Orders of the Commander of the Forces of the 14th March, 1809, at Lisbon, to the several ranks, and they must be satisfied with what the town or village, in which they may be quartered, can afford to those of their rank, and must not, on any account, seize more than is given to them.

7. The Commander of the Forces has always found, and believes the inhabitants of both countries to be disposed to give to every Officer and Soldier of the British Army such accommodation and comfort as their houses will afford; but it must be clearly understood, that every accommodation and comfort beyond house and stable-room, must be the result of the good will of the inhabitants, and nothing like compulsion must be used.

ADJUTANT-GENERAL'S OFFICE,
Frenada, 9th Dec., 1811.

1. The communications of the several divisions with head-quarters, are provided for by the arrangements of the Quarter-Master General; the internal communications of the divisions must be carried on by men on foot, unless on extraordinary occasions; to provide for which, orderlies of the cavalry have been attached to the General Officers commanding divisions, besides the Officers of their Staff.

ENCAMPING.

The Regiment being halted in open column, will occupy when encamped, the extent of its own front.

As soon as a Regiment has taken up its ground, the quarter and regimental guards will be formed and marched off. The quarter guard will be stationed in a tent 108 paces to the front of the extreme right flank of the camp, and will be of sufficient strength to furnish a line of sentries along the front and down the right flank of the encampment. The regimental guard will be stationed 15 paces in rear of the extreme left of the Encampment, and furnish a line of sentries along the rear and the left flank :

The battalion having been previously told off by threes, will be told off in the following manner, the band and drums having joined their Companies.

Right Files of Sections—Pole-men.

Second Files of Sections—Unpackers of Tents.

Third Files of Sections--Peg-men.

The Drill will first be practised without tents.

Drill for Encamping in Slow Time.

The first formation will vary according to the number of companies in the battalion.

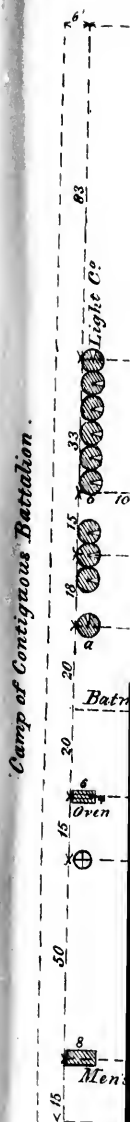
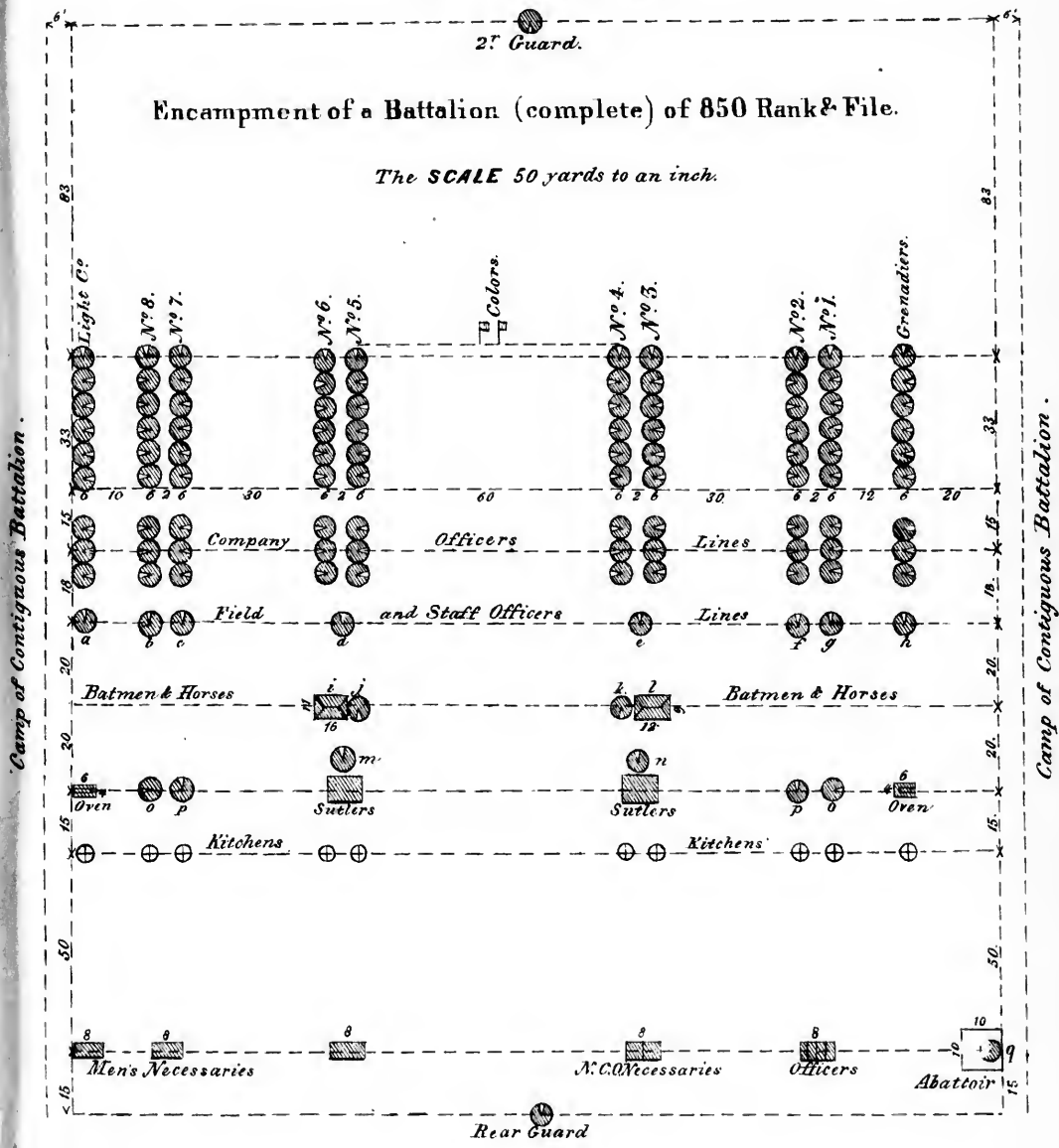


Fig. 4.

Total Front 230 yards.



References

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|---------------------------------|------------------------------|----------------|---------------------|
| a. Quartermaster. | b. Paymaster. | c. Surgeon. | d. Field-Officers. |
| e. Comm. ^d Officer. | f. Orderly Room. | g. Adjutant. | h. Staff-Serjeants. |
| i. Hospital. | j. Dispensary. | k. Messman. | l. Mess. |
| m. Quarterm ^r Store. | n. Comm. ^t Store. | o.o. Bakeries. | pp. Baker's tents. |
| q. Butcher's tent. | | | |

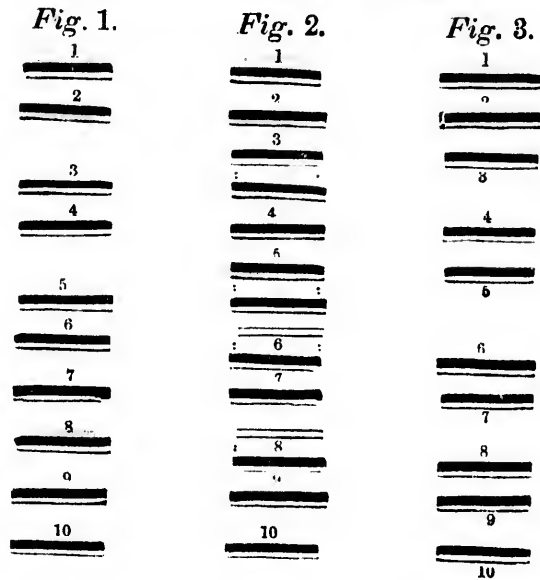
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Words of Command.

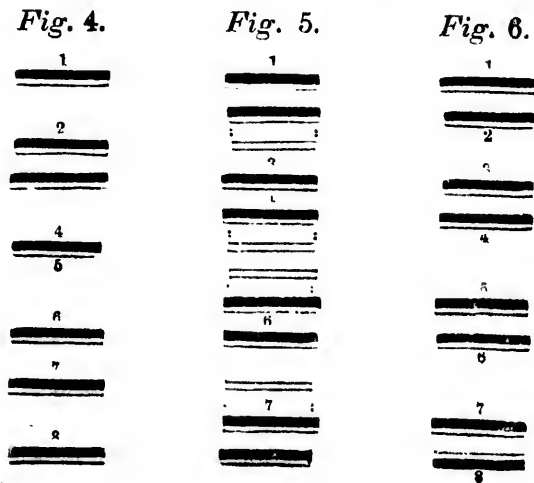
Nos. 6 and 8 Companies "*Right About Face.*"
 Nos. 1, 2, 4, 7, 9, and 10 Companies "*Stand Fast.*"
 Nos. 3, 5, 6, and 8, close six paces on the *Standing* Companies, "*Quick March, Halt Dress.*"
 Nos. 3, 5, 7, 9, and 10 Companies "*To the Right Face, Right Countermarch, Quick March, Halt Front, Dress.*"

For a Battalion of ten Companies.



Nos. 5 and 7 Companies, "*Right About Face.*"
 Nos. 1, 3, 6, and 8, Companies, "*Stand Fast.*"
 Nos. 2, 4, 5, and 7, close to six paces on the *Standing* Companies, "*Quick March, Halt, Dress.*"
 Nos. 2, 4, 6, and 8, "*Right Face, Right Countermarch, Halt, Front, Dress.*"

For a battalion of eight companies.



No. 4 Company "Right About Face."

Nos. 1, 2, 5, and 6, Companies, "Stand Fast."

Nos. 3 and 4 Companies close to six paces on the *Standing Companies*, "Quick March Halt, Dress."

Nos. 3, 5, and 6 Companies, "To the Right Face, Right Countermarch, Quick March, Halt, Front, Dress."

"Off Packs," "Pile Arms, Front."

"Out Front Rank Pole men."
(Vide Fig. 10.)

No. Co.—Polemen at eight paces distance from the right (or left) "Extend."

"Eyes Front."

No. Co.—Pole men, "Right About Face."

For a battalion of six companies.

Fig. 7.

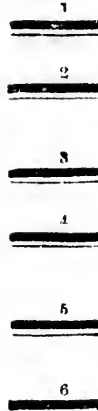


Fig. 8.

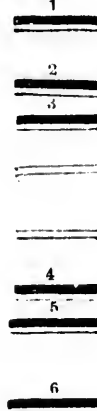


Fig. 9.



The remainder of the Drill is the same in all battalions, whether of *six, eight, or ten companies*.

The left files take off the packs of the right files first, the rear rank's packs being placed to the rear.

At this Word of Command, the front rank pole-men will step out of the ranks and fall in five paces from the reverse flanks of their respective companies, fronting in the same direction, and dressing with their front ranks.

A non-commissioned officer from each company will then extend his pole-men at eight paces distance from the pole men nearest the column—viz., from the front rank pole-man of the left section of the companies that have *not* countermarched, and from the front rank pole-men of the right section of the companies that *have* countermarched, placing himself opposite the third file from the reverse flank of his company, in order to dress his pole-men as they extend.

When dressed, the pole-men of the companies that have countermarched will be faced to the right about, and all the pole-men will be covered correctly from the head of the column by a Field Officer and the Adjutant.

In covering, the pole-men should be careful not to touch their dressing with their respective companies.

"Steady Polemen."

At this Word of Command from the Field Officer, the pole-men of the countermarched companies will come to their front.

"Out Rear Rank Polemen."

At this Word of Command, the rear rank pole-men will step out of the ranks and place themselves opposite their respective front rank men, at two paces distance, fronting towards them; and three non-commissioned officers from each company will also move out and take charge of the three tents farthest from the flanks of their companies, the non-commissioned officer already with the pole-men taking charge of the tent next the companies.

"Out packers of Tents."

At this Word of Command, the unpackers of tents will step out, and place themselves rank entire, in rear of the rear rank pole-men of their own sections.

"Out Peg men."

At this Word of Command, the peg-men will step out of the ranks and place themselves rank entire, in rear of the rear rank pole-men of their respective sections, the rear rank men of the unpackers of tents and peg-men will be on the left of their respective front rank men. (The above orders relates to Fig. 10.)

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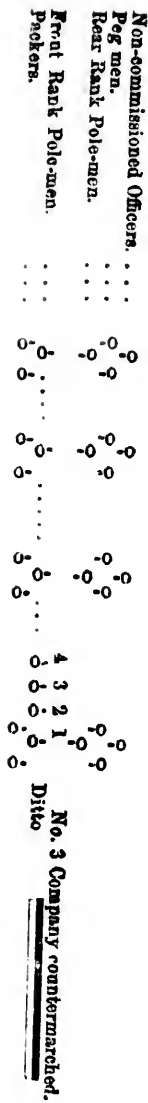
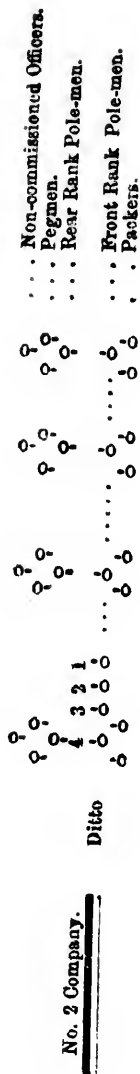
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Fig.—Battalion of Six Companies formed ready to encamp, with Companies counter-marched.



Non-commissioned Officers. 9 9
 Peg-men. 4 9
 Rear Rank Pole-men. 3 9
 Front Rank Pole-men. 2 9
 Packers. 4 3 2 1
 Ditto. 1 1 1 1
 No. 6 Company countermarked.

Non-commissioned Officers. 9 9
 Peg-men. 4 9
 Rear Rank Pole-men. 3 9
 Front Rank Pole-men. 2 9
 Packers. 4 3 2 1
 Ditto. 1 1 1 1
 No. 5 Company countermarked.

Non-commissioned Officers. 9 9
 Peg-men. 4 9
 Rear Rank Pole-men. 3 9
 Front Rank Pole-men. 2 9
 Packers. 4 3 2 1
 Ditto. 1 1 1 1
 No. 4 Company.

Non-commissioned Officers. 9 9
 Peg-men. 4 9
 Rear Rank Pole-men. 3 9
 Front Rank Pole-men. 2 9
 Packers. 4 3 2 1
 Ditto. 1 1 1 1

"Raise Tents."

At this Word of Command, the unpackers of tents and peg-men will take two paces outwards in a diagonal direction, to show the space their tents would occupy, and the rear rank men will take two paces to his rear to show where the door of the tent would be.

"Prepare to strike Tents."

The men being already in the position required for striking tents, no further movement is required.

"Strike Tents."

At this Word of Command, the front rank pole-men will step forward to their rear rank men, the unpackers of tents will step up to the peg-men, the whole of the polemen, unpackers of tents and peg-men will then join their respective companies.

Drill in Quick Time.

When the drill is understood in slow time, it should be practised in quick time to the following Words of Command:

"Out Front Rank Pole-men and Unpackers of Tents."

The front rank pole-men and unpackers of tents come out and act the same as in slow time, the latter immediately getting the tents ready.

"Steady Pole-men."

At this Word of Command, the rear rank pole-men and the peg men will all step out at once, and place themselves at their respective posts.

"Pitch Tents."

The same as in slow time.

"Strike Tents."

The same as in slow time.

When the battalion is perfect in the preceding drills, it will be practised in the actual pitching of the tents.

The tents will be placed on the reverse flanks of the column.

"Out Rear Rank Pole-men and Unpackers of Tents."

The same as in the drill at slow and quick time.

"Steady Pole-men."

At this Word of Command, the rear rank pole-men will get the poles, unfasten them, fasten the two pieces together, and place the ends of them between the feet of their front rank men. at the same time placing the other ends of them in the top of the tent. "The unpackers of tents *having unpacked their tents,*" "carry them to the pole-men of their own sections, and place them on the poles, with their doors fronting in the same direction as their respective companies." The peg-men unpack their mallets and pegs; they place one mallet

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2.
 Unpackers
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 Tents.

Fig. 1.

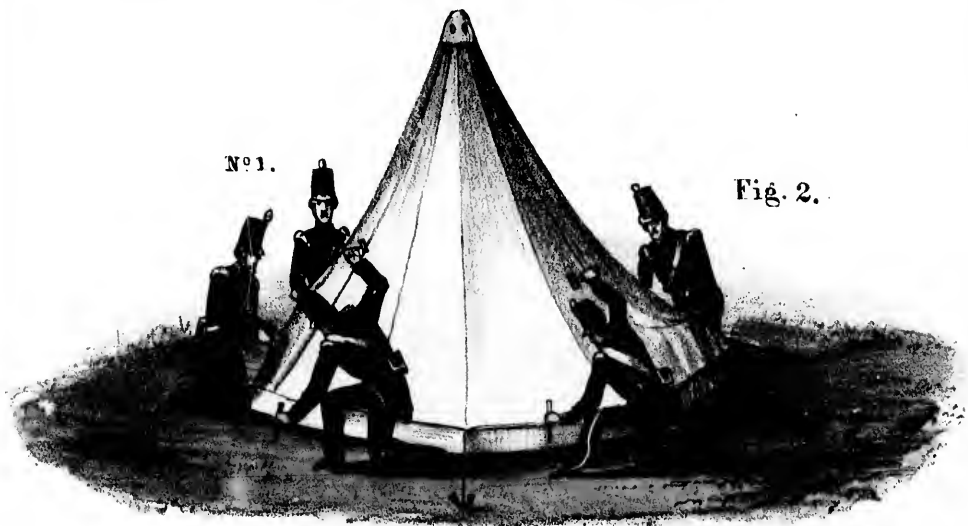


Raising the Tents.

- 1, *The Poleman under the canvass raising the Pole and fixing it straight in the ground.*
- 2, *Unpackers holding the lower edge and rear of the Tent clear of the Pole-men's heads.*
- 3, *The Peg-men in front of the Tent holding the ends ready to secure them.*
- 4, *Non-Commissioned Officer in rear of Peg-men, ready to hold the opening of the door together.*

N^o 1.

Fig. 2.



Tent raised.

Tent raised. Unpackers and Pegmen in the act of driving the Pegs. Non-Commissioned Officer N^o 1 holds together the edges of the opening of the doorway.



in rear of the unpackers of tents; distribute the pegs round the tent, and take their posts in rear of the rear rank polemen, as in the foregoing drill, the rear rank man having the mallet.

"Raise Tents."

At this Word of Command, the pole-men will raise the pole, the unpackers of tents will pass the backs of the tents over the front rank pole-men's heads, and take two paces outwards in a diagonal direction, as directed in the drill, and secure two ropes in rear of the tent, the rear rank pole-men as soon as they are perpendicular, will leave the poles and hold the *doors of tents together*, while the peg-men secure two ropes in front of each tent, the four ropes of each tent thus secured, should be at equal distances round the tent, in order that it may be pitched in good shape. This done, the rear rank pole-men will secure the door ropes, and the unpackers of tents and the peg-men will secure the remainder of the ropes, passing the mallet to the right, and complete the pitching of the tents.

The non-commissioned officer in charge of each tent, will superintend its erection, but not work himself.

After the tents are completed, the men's knapsacks should be arranged round the pole in each tent.

"Prepare to Strike Tents."

At this Word, the front rank pole-men place themselves at the pole, the rear rank pole-men at the doors of the tents, and the unpackers of tents and peg-men opposite the ropes they first secured.

"Strike Tents."

Roll of Drum.

At the roll of the drum, each man will pull up the pegs nearest him, the front rank pole-men will let the tops of their tents fall backwards, and step out of the doors, "*drawing their poles out with them*" The unpackers of tents will draw the bottom of the rear of the tents forwards, so as to bring them "*under the doors*." They will then wind up each rope on the wooden block belonging to it, and pack the tents carefully, assisted by the rear rank pole-men, will step up the pole, and the peg-men will collect and pack the pegs up with the mallets.

All hands place the tents on the mules.

The pole-men, unpackers of tents, peg-men, and

non-commissioned officers will then fall in with their respective companies.

Not more than fifteen men should be told off to a tent; every company should, therefore, be divided into more or less sections, according to its strength, each section not exceeding fifteen men, including non-commissioned officers, band, and drums.

While the men's tents are being pitched, the Quarter-Master of the regiment will mark the lines for the officer's tents, horses, kitchens, &c., and afterwards superintend the erection of the tents. Each officer's servant will be responsible that his master's tent is properly pitched.

The Quarter Guard tents are placed fronting each other in a Line with the right of Grenadier company. The Officers' Tent facing the front.

The Parade should be formed by a Trench of two inches being made along the Line.

The Colours and Drums are placed in the Centre of the Grand Street.

Captains and Subalterns pitch in the rear of their respective Companies fronting other.

The two Field Officers Tents front the Street on the right and left of the Battalion.

The Colonel's (or Commanding Officer's) fronts the Colours.

The Staff Officers' Tents front the Street on the right and left of the Grand Street.

The Bat-men's Tents front towards their horses, and are pitched in rear of the Field Officers'.

The Grand Sutler (or Mess House) is placed in rear of the Colonel's Tent.

The front poles of the petit Sulturs' Tents and Women's Huts are in a Line fronting the Kitchens.

The Regimental Guard Tent looks to rear.

When circumstances will, the necessaries should be one hundred yards beyond the Rear Guard.

A Trench should be dug round each Tent to carry off the water in rainy weather.

ADVANCE GUARD ON THE LINE OF MARCH.

How do you form the advance Guard from the Halt? I order the right double file of the company under the charge of a non-commissioned officer to proceed along the road, as the head of the advanced Guard; No. 3 and 4 files

3 Pegmen. 2 Rear-Rank Pole-man. 1. Front Rank Pole-man. 3 Unpackers of Tents.



Striking the Tent.

- 1, Front Rank Pole-man walking out of the door of Tent with the Pole. —
- 2, Rear Rank Poleman, assisting ditto and proceeding to separate the Pole.
- 3, Unpackers and Pegmen ready to pack Tent, collect mallets and Pegs, and the whole then ready to place the Tent &c. on the Mule.

Not more than fifteen men should be told off to a Tent every Company should therefore, be divided into more or less sections, according to its strength, each section not exceeding fifteen men, including Non Commissioned Officers, band and drums.

While the mens' tents are being pitched, the Quartermaster of the Regiment will mark the lines for the Officers Tents, Horses, Kitchen &c. and afterwards superintend the erection of the Tents. Each Officers' Servant will be responsible that his Masters' tent is properly pitched.

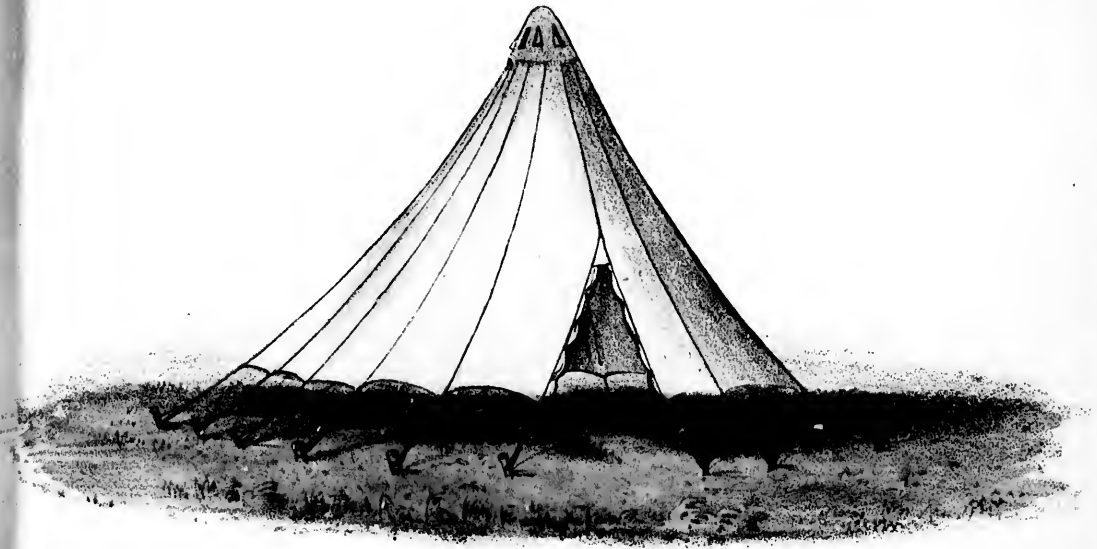
The arrangement of the encampment, and the distances between the lines of Tents are shown in the following Sketch. — Fig. 4.

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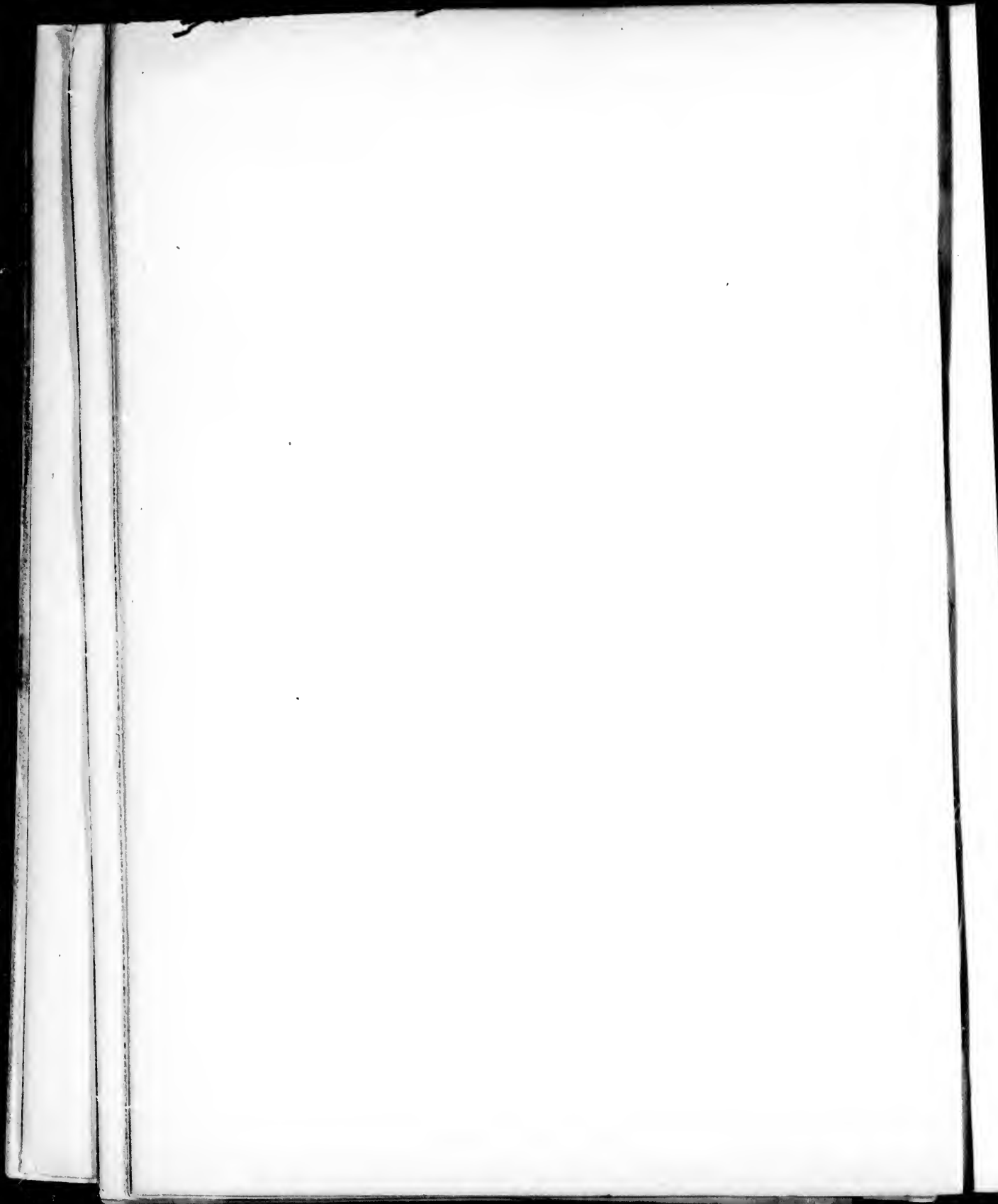
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Fig. 4.



TENT with CURTAIN Raised & DOOR folded.

In folding the curtain it should be rolled tightly with the hand inwards, the ropes slackened in succession, and the small round Nuts by which they are held to the Tent brought out and tied round the cord in a knot. — The Cords then are tightened.



move diagonally about a hundred yards to the right, and the two left files of the first section in like manner 100 yards to the left; the remainder of the first section then follow under Command of the Senior Subaltern, next the right file of the second section moves on; then the second section under the Command of a Subaltern, then the right file of the third section, then the reserve consisting of the two remaining sections, under the Command of the Captain, dropping the left file of the Company to the rear to communicate with a file thrown forward from the right of the Battalion.

If by Bugle sound, you are ordered to move your Company from the Column, to form the advance Guard, what is done?

I move off in a column of sections at the double march, distances being regulated by the previous order of the Commanding Officer. First, the left file will be halted, then the left subdivision as the reserve, sending forward the right file of the third section as a communicating file; then the second section sending forward the right file to communicate with the first section; lastly, the first section is halted, detaching a double file to front under a Non-commissioned Officer, a double file diagonally to the right, and a double file in the like manner to the left.

What are the necessary duties, and precautions to be observed by the leading double file?

On approaching a hollow way or entrance to a defile, the double file will halt until the detached files have occupied the height, and if it is discovered that no enemy is in sight, they will proceed on, the Corporal of the double file moving forward with a file, and the other following at a proper distance, so as to be able to communicate with the leading file, and first section.

If the road has many windings, what is necessary to be done?

Files must be thrown forward at certain distances from the first section, for the purpose of keeping up the communication, and the whole will proceed with great caution, until the defile is passed; the detached and communicating files will then fall back, and the whole will resume their original formation.

In ascending a Hill, what is necessary to be done?

The detached files will move round the base, the double files moving cautiously, stooping down, or creeping up as necessary, taking care not to shew themselves on the summit, but to lie down behind the brow and make their observations. If no enemy is in sight, a signal will be given by the Corporal holding his firelock in a horizontal position over his head, and the whole will advance as before.

If the party discover the enemy's patrols advancing, what is done ?

One man will hold up his cap on the muzzle of his firelock, but if the enemy is advancing in force, the men will in like manner hold up their caps taking up their position under cover, ready when assisted by the first and second sections to resist, until the main body has sufficient time to form an attack, or a defence, obstinately disputing every inch of ground. The third and fourth sections re-inforcing if necessary.

If the leading or detached files discover the enemy in Camp, or at the Halt, what is necessary to be done ?

The Corporal will order his party to remain as quiet as possible, detaching a man with the information to the first section, who will in like manner detach a man to the communicating file from the second section, and so on with the greatest rapidity to the Battalion. The Commander of first and second sections without delay extending their sections well under cover, and re-inforcing the advanced files at such distances, and in such a manner, as to prevent the flanks being turned, should the enemy unexpectedly discover their presence.

This disposition being made, the whole will remain perfectly quiet, and concealed, until instructions have been received, either to attack or retreat.

What is the duty of the detached double files ?

They will carefully examine all houses, and inclosures within their reach, but should more distant objects present themselves, one man of the party will inform the Commander of the second section, who will detach a patrol under a Sergeant to perform that duty; should an enemy be discerned, either by the patrols or detached files, the advance Guard will halt, and information will be immediately forwarded to the nearest section, and from that to the main body.

When the Bugle sound the Close, what is done ?

The detached and communicating files will fall back on the sections, and on the "close" sounding a second time, the whole will be brought steady on the Battalion by their respective Commanders.

When the Bugle sound the assembly ?

The whole run rapidly in on the Battalion, the sections by command of their Commanders, and the communicating, and detached files independently.

N. B. An advance Guard can in like manner be formed from a Brigade, by four Companies of a Battalion acting as Sections, in the same way as explained above for a Company, the detached files, and advanced Companies, acting in a similar manner on approaching an enemy or a defile.

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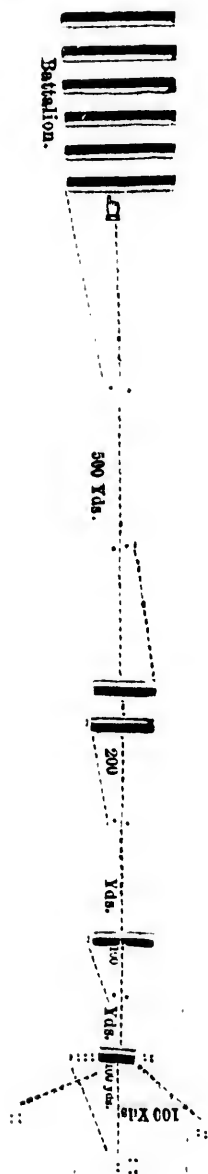
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Advance Guard on the Line of March.



Rear Guard on the Line of March.




REAR GUARDS.

- How do you form the Rear Guard ? I countermarch my Company, and form it precisely as the advanced Guard.
- Which way does a Rear Guard face when at the Halt, and how do they march when the main body is advancing ? Invariably towards the supposed enemy, and on the main body advancing, the sections, &c. are faced about by their respective Commanders, and march rear rank in front.
- Should they be attacked, what is done ? The advanced files will immediately fall back on the first section, which will extend under cover re-inforced by the second section, shewing as much resistance as possible, and disputing most obstinately every hedge, row, copse, or other cover that may present itself; during this resistance, parties must be detached to each flank to check the enemy in any attempt they may make to steal round the flanks, and thereby, not only endanger the Rear Guard being cut off themselves, but compromise the safety of the Main Body.
- How is the Rear Guard re-formed ? On the bugle sounding the Rear Guard, the sections will be formed with the detached and communicating files as before, and the whole will proceed with caution ready for defence, at any moment they may be attacked.
- If the close, or assembly sound, what is done ? See Advance Guard ?

ADDITIONAL REMARKS.

Either in advancing or retiring, the greatest care must be taken by the Skirmishers, not to allow any cover on their flanks to remain unexplored, a circumstance that would undoubtedly entice the enemy to take you in flank, and prove of the most destructive consequence; on the contrary, every pains should be taken to steal round the flanks of the enemy. For instance, if a line of Skirmishers is advancing in contact with the enemy, and cover should present itself at right angles, the Commander of the support should immediately, and if possible under cover, detach a party to line the cover and open a cross fire, which must instantly drive the enemy from their position as no longer of use to them, if the Skirmishers continue to advance, the flanking party must fire, taking ground to a flank, carefully

avoiding their own Skirmishers. Skirmishers on dashing up to a wall or rising ground, must invariably be loaded, lest an enemy should be concealed behind such cover. Skirmishers should never fire at random (although merely at drill,) on the contrary with as much exactness as when firing at a target. In fact, judgment, tact, and decision on the part of the leaders, and individual intelligence and correctness of eye, whether in selecting cover or in taking aim, are the chief requisites in light troops, and which alone can insure the prompt and accurate performance of the foregoing drill.



FORMS TO BE OBSERVED BY THE REGIMENT FURNISHING THE GARRISON DUTIES AT GUARD MOUNTING

Word of Command. The duties are formed on the Parade in open Columns of Guards, and Divisions of Guards, equalized into Six Divisions, Grenadiers on the Right, Light Company on the Left.

The men in waiting for Guard having marched from their respective Barracks, extend and keep the ground.

Town Major. At an appointed hour the Divisions are wheeled into line by the Adjutant of the Day, who will hand them over to the Town Major for his inspection.

Non-Commissioned Officers commanding Guards to the front. Quick March. Inward turn. After the Town Major has made his inspection, he will call the Non-Commissioned Officers Commanding Guards to the front, upon which they recover Arms, and step out in quick time, about 60 yards to the front, at which distance they receive the word "Inwards turn." The Non-Commissioned Officer in the centre halts, and fronts, the remainder close upon him, and face the line with arms advanced.

Word of Command. The Officers for Guard form themselves in a line about three paces in front of the Non-commissioned Officers, at two paces distance from each other, after receiving the Parade and Countersign; the Town Major will call the duties to attention and shoulder arms, and deliver over the Guards to the Field Officer of the day, with the Detail of Duties.

Guards Shoulder Arms. The Officers for Guard form themselves in a line about three paces in front of the Non-commissioned Officers, at two paces distance from each other, after receiving the Parade and Countersign; the Town Major will call the duties to attention and shoulder arms, and deliver over the Guards to the Field Officer of the day, with the Detail of Duties.

Field Officer.

Officers and Non-commissioned Officers outwards face. The Field Officer now takes Command.

Take post in front of your respective Guards. Quick March. The arms are brought to the recover at the Command, and when in front of their respective Guards they halt individually, and the Officers on halting "port swords."

Officers and Non-commissioned Officers to your Guards March, Halt, Front. The adjutant takes post facing the right of the Duties, Officers recover swords on the word "march," and at the word "halt front," they port swords, and the Non-commissioned Officers advance arms.

Order Arms. Fix Bayonets. Shoulder Arms. Officers and Non-commissioned Officers inspect your Guards. After the inspection the Adjutant collects the reports and delivers them to the Field Officer, then takes post on the left.

Word of Command. The Band marches across the front of the Parade in line, and returns to its place in quick time,—Drum Major saluting.
Troop.

Drummers call on the right.

When the Queen's Colour is trooped. The Captain, Lieutenant, and Ensign of the right division face inwards, and move in quick time, Captain to the front of the second file from the right of the second division, the Lieutenant three paces in front of the Grenadiers, the ensign two paces behind him, the Serjeant Major with his sword at the carry in rear of the centre of the escort, and in line with the supernumeraries, band and drums form in front of escort.

Escort for the Colours, Rear Rank take close order—March. Escort Quick March. Duties order Arms.—Stand at Ease. The Serjeant on the right of the Escort changes his flank and remains on the left until the finish of the second wheel, when he resumes his station on the right.

Lieutenant. Rear Rank take open order. March Present Arms. The Escort is halted to receive the Colour, which the Serjeant Major goes for, on the approach of the Colour, the Lieutenant faces the Escort, both Officers present, the Ensign returns his sword and receives the Colour from the Serjeant Major, who salutes as soon as he has delivered it, and proceeds to the rear of escort, the two Supernumerary Serjeants, half face outwards and port arms, the musicians do not face about.

Word of Command. Shoulder Arms.—Right Shoulders forward, March. Band playing, Ranks open, and the right shoulders are brought forward, which brings the right of the Escort in line with the left of the duties. When within about twenty

Field Officer. Attention. Shoulder Arms. Present Arms. yards of the left of the line, the band ceases. The line presents arms.

Lieutenant. The Officers lead in front of the line of Officers, the band
 Right Turn. Left between the Officers and the front rank, the front rank of
 Wheel. the Escort goes between the ranks, and the rear rank of the
 Escort goes between the rear and supernumerary ranks,
 both ranks are led by Serjeants; when the right of the
 Escort gets to the right of the duties, the Captain takes
 command.

Captain. Points placed to march past.
 Escort, Halt, Front
 Dress, Present
 Arms.

Field Officer. The Field Officer then gives the word "Shoulder Arms,"
 Shoulder Arms. and if the General is on Parade, General Salute, &c., and
 General Salute. form the duties in open Column right in front.
 Present Arms.
 Shoulder Arms.

The duties will then march past in slow and quick time,
 Rear Rank take as may be directed by the Senior Officer on Parade, after
 close order, March. which they are formed by Guards, the Adjutant of the day
 Open Column right reporting to the Field Officer when they are ready, when
 in front. Right he marches the whole off to their respective parts.
 about Face, Right
 Wheel.



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Parade in line,
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CHANGES OF POSITION BY BUGLE SOUND.

No. 1. Right skirmishers wheel quarter circle to right, each file moving to the new position independently. The Commander of the right support will bring left shoulders forward the quarter circle, and extend on the march from such file as will communicate with the left skirmishers. move up to them in line and halt.

If two companies are skirmishing, & two in support, the remainder of battalion in reserve, and "right wheel" is sounded—What is done?

The old left skirmishers close immediately to such file as will bring them nearest to their new position as a left support, and the old left support will become the right.

No. 2. Three or four files on the right of old right skirmishers will be wheeled up in new direction, and on the "right wheel" sounding, the remainder of right skirmishers and right support will conform to them, in the manner stated in preceding paragraph.

If obliquely to right.

No. 3. Left skirmishers wheel to left, and become right skirmishers. The left support will become the left skirmishers. The old right support, the left support, and the old right skirmishers the right support.

Should the bugle sound "left wheel" What is done?

No. 4. Three or four files on the left of old left skirmishers will be wheeled up in the new direction, and on the left wheel sounding, the remainder of left skirmishers and left support will conform to them.

If obliquely to left?

No. 5. Forms line to left in close files, and extends from centre, on march by word of command from the senior Officer.—When extension is completed, halt. (unless previously ordered to extend at the halt.)

When skirmishers are formed on supports, and in square should the Bugle sound the skirmish and wheel to left—What does the left square do?

No. 6. The degree of wheel having been previously ordered by the Commanding Officer. At the last sound of the bugle, the senior Officer forms line in the new position, and extends from centre on march as before directed, or from any other file if necessary.

If obliquely?

No. 7.

What does the square do, if the change of position is to left ?

Forms companies, and take up their position as supports, old right skirmishers becoming the left support.

No. 8.

If the changes of position are direct, or obliquely to right ?

The right square (consisting of two companies) forms line in the new direction, and is extended as before explained.

The left square forms companies, and take up their position as supports, the old left skirmishers becoming right support, and the old left support continuing as such.

No. 9.

If changes of position are ordered to take place from independent squares—What is done ?

If to right, the right skirmishing square, and right support form new line of skirmishers to right, or obliquely, and extend from right. Left square forms left support, old left support, right support.

If to left, *vice versa*.

No. 10.

If a line of skirmishers is ordered by bugle to wheel on centre to right. What is done ?

The right skirmishers turn smartly to right about, and the whole wheel inwards turning towards the centre file in coming to front, so as to see their proper distance and direction, previous to dropping on the knee.

No. 11.

If obliquely ?

Three or four files in the centre are placed in the new position, and on the wheel sounding, the others conform to them.

No. 12.

If "on centre wheel to left" is sounded ?

The left subdivision turns to right about, and wheels back. Right subdivision forward, each file independently.

No. 13.

In "wheeling on centre," which is the pivot file ?

The subdivision wheeling forward invariably furnishes the pivot. For instance, if on centre to right, the right file of left subdivision becomes the pivot. If on centre to left, the left file of right subdivision.

No. 14.

If when two companies are skirmishing, and two in support, the change of position is required to take place on the centre of right skirmishers—What is done ?

The right skirmishers' company call, and "on centre right wheel" will be sounded, the right subdivision will turn about and wheel back, the left forward, and the remainder of the change of position will take place as explained in No. 1 of this section.

If obliquely, a few files in the centre will be placed in the new position, and on the centre wheel sounding the remaining files of that company and right support will conform to them.

The supports will be formed as before explained.

No. 15. The left skirmishers' company call will be sounded, and
 If the change of " on centre wheel to left." The remainder of the change
 positions required " to left, or centre of position will take place as explained in No. 3.
 of left skirmishers? If obliquely, as before directed.

CHANGING POSITION RETIRING, BY BUGLE SOUND.

Two companies: The proper right skirmishers wheel to right on their pro-
 skirmishing, and per left file, and become left skirmishers, each file fronting
 two in support re- as it arrives on the new alignment. The Commander of
 tiring, and the "right wheel" the right support will bring left shoulders forward, and
 "right wheel" when on alignment with skirmishers will halt, front, ex-
 done? tending, and form right skirmishers.

The old proper left skirmishers will form left support,
 and the old left support will become the right.

If to left?

On the bugle sounding "left wheel," the old left skir-
 mishers will wheel to left, on their proper right file, each
 file fronting as it arrives on the new alignment. The old
 left support will be brought on the new alignment, halt,
 front, extend, and form the left skirmishers. The old pro-
 per right skirmishers will close and become the new right
 support. The old right support will become the new left
 support, and the reserve will move round to its position in
 rear of the centre.

[FLANK PATROLES.

If a company in column is ordered by word or bugle to form the right flank patrol--what is done? The Commander of the company will give the word—
 "Right four deep! March! Double march!" When clear
 of the column, "Front form company! Forward!" Halt
 inward subdivision as support, and extend the outward one
 from such file as will cover the flank of the column, and
 communicate with the right flank of the skirmishers.—
 When in position, if the skirmishers are at the halt, they
 will also halt, facing outwards.

If the Bugle sounds the advance how do patrols move? In file parallel to the column, and the leading file will
 take the outside flank of the skirmishers for his general
 line of march.

Left flank patroles Is formed in like manner, the company moving by fours from left, halting right subdivision as a support, and extending the left one.

If the patrol is ordered to fire? If on march, the same as taking ground to a flank.

How do the supports move? The right support by left four deep, or in open column of sections left in front.

The left support by right four deep, or in open column of sections right in front.

N. B. If the bugle sounds the "fire" to a line of skirmishers with flank patroles, it merely applies to the former, if the right or left flank patroles (or both of them) are required to fire, a separate order will be given them to do so.

COVERING THE MOVEMENTS OF A BATTALION IN ALL ITS CHANGES.

No. 1.
What is done?

The line will advance covered by No. 1.

On the bugle sounding the "skirmish." The Commander of No. 1 will give the word, "By the right double march!" and when advanced twenty paces, will extend from the right at such distances as will out-flank the left of the battalion; and continue to advance until ordered to halt.

If covered by left company: That company will advance in like manner, and extend from left.

If the battalion changes position to right, direct or obliquely, and the skirmishers are not called in, they will conform to the movement of the battalion, by marching in file and wheeling to right.

If to left, *vice versa*.

If it is merely intended to extend one subdivision, and to keep the other in support, previous instructions will be given by the Commanding Officer.

In this case should direct changes of position take place to right (or left) the support must form the new line of skirmishers, and the other skirmishers close and form support. If obliquely, it must be covered by the skirmishers

marching in file, and the leading file wheeling in the new position.

If the two flank companies are ordered to cover the advance of the battalion:—At the last sound of the bugle to skirmish, each Commander will give the word “Double march!” and when advanced about twenty paces, extend from such file as will communicate in the centre, and cover the flanks of the battalion.

No. 2.

The battalion will advance in direct echelon from right, covered by No. 1. On the bugle sounding the skirmish, the Commander of No. 1 will advance the company, and extend from its right on the march.

If while on the march the echelon is ordered to change its direction to left, the left company after wheeling up, will extend from its left on the march. No. 1 (the old skirmishers) turning to left, and marching as a right flank patrol—or if ordered in, will resume their place on the right of the battalion.

If the battalion advances in direct echelon from left, *vice versa*.

Should the battalion form square in any of these cases, and it being the intention to call in the skirmishers, the assembly will be sounded, skirmishers forming part of rear face. But if they are not to be called in, the “form square” will be sounded without any previous sound, on which the skirmishers will form a rallying square or squares.

No. 3.

The battalion advancing in a double column of subdivisions from the centre for the purpose of passing a defile masked by skirmishers.

The word will be given for the battalion to advance in a double column of subdivisions from the centre covered by the flank subdivisions.

On the bugle sounding the skirmish, the Commanders of the named subdivisions will give the word “Double march!” and after advancing twenty paces will extend so as to communicate with the centre, and outflank the battalion. On their arrival at the margin of the river, the skirmishers will lie down and continue their firing. The double column having passed the defile the two rear subdivisions will be thrown out if necessary as skirmishers, and the old skir-

mishers when clouded will form in rear of the column.

If a column at close, or quarter distance, is ordered to advance, covered by the leading division, the Commander of that company will give the word "Double march!" and when advanced twenty paces will extend from centre on march, continuing to move on unless otherwise ordered.

If a company of the column is ordered to protect a flank. (See Flank Patroles.)

No. 4.

The battalion will retire in a double column of subdivisions covered by the two flank subdivisions, which will extend along the rear.

At this word of command, the Commander of the flank subdivisions will face them to the right about—retire fourteen paces, halt, front, and extend from such file as will communicate with each other, and cover the flanks (and lie down) each man rising on his knee as his front becomes clear.

The skirmishers in rear of the two centre subdivisions form a lane by wheeling backwards until the column has retired, and then resume their places.

If the battalion reforms line after the retreat, and the skirmishers are recalled, they will run rapidly to rear, wide of the battalion, form four paces in the rear of the flanks, and resume their places in the line by command of their respective Commanders. But if the battalion forms square the "Assembly" will be sounded, and the skirmishers will run smartly on the battalion and form the kneeling ranks of rear face. If greater expedition is necessary, the skirmishers will be ordered by bugle to form a rallying square, one company of the reserve only (if the battalion consists of only six companies) forming the side faces of the battalion square.

If the officer commanding wishes to throw the skirmishers out to the front instead of the rear:—On the word that "The battalion will retire in a double column of subdivisions from both flanks in rear of the centre, covered by the two flank subdivisions," the bugle will sound the "skirmish," and the Commander of the named subdivisions will give the word "Double march!" and after advancing twenty paces will extend so as to communicate in the centre, and

outflank the battalion, the Commander giving the word "halt!" to the skirmishers as soon as the extension is completed; but should the line be ordered to advance covered by the flank subdivisions, the skirmishers will continue to advance until the battalion is out of shot, or until halted by the Commander of the battalion, (by bugle sound or otherwise.)

No 5. The moment the battalion has commenced its retreat in line, the Commanders of the flank companies will order their men to extend from such file and at such distance as will communicate in the centre.

The battalion will retire covered by the two flank companies which will extend on the spect.

If supports are to be thrown out, the Commander of the battalion when arrived at sufficient distance from the skirmishers, will order a company from each flank to halt, and front (as supports).

The remainder of the battalion will continue the retreat, and when at proper distance in rear will form column at quarter distance on a central company as reserve.

ADVANCED GUARDS.

No. 1. Advanced guard formed from the halt, separate instructions being given to each double or communicating file and section, previous to marching off.

Advanced double file.

The right double file under a non-commissioned officer will proceed along the road as the head of the advanced guard. On approaching a hollow way or entrance of a defile, the party will halt until the detached files have occupied the heights, and if they report that no enemy is in sight, they will proceed on, the non-commissioned officer (or the double file) moving forward with one file, and the other following at a proper distance so as to be able to communicate with the leading file and first section. If the road has many windings, files must be thrown forward at certain distances from the first section, for the purpose of keeping up the communication, and the whole will proceed on with the greatest caution, until the defile is passed. The detached and communicating files will then fall back, and the whole will resume their original formation.

In ascending a hill the double file will advance cautiously, stooping down or creeping up as necessary, taking care not to shew itself on the summit, but to lie down behind the brow and make its observations. The detached files during this advance will move round the base of the hill. If no enemy is in sight a signal will be given by the corporal holding his rifle in a horizontal position over his head, and the whole will advance as before.

If the party discovers the enemy's patrol advancing, one man will hold up his cap on the muzzle of his rifle; but if the enemy is advancing in force, two men will (in like manner) hold up their caps, taking up their position under cover, ready when assisted by the first and second sections to resist and obstinately dispute every inch of ground until the main body has sufficient time to form for attack or defence, the third and fourth sections reinforce if necessary.

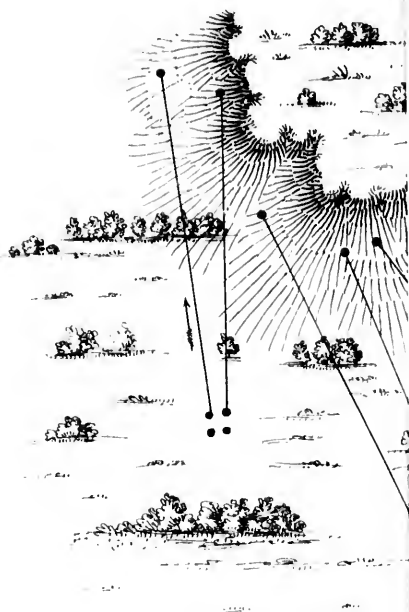
If the leading double file discovers the enemy in camp, or at the halt, the non-commissioned officer will order his party to extend, and remain concealed, detaching a man as quickly as possible with the information to the first section.

Detached double files should be accompanied by a Non-Commissioned Officer, their duties being equally as important, if not more so, than the leading double file.

Nos. 3 and 4 files will form the right detached party, and the two left files of the first section, the left detached party. } The instant the leading double file is marched off, the detached files will be moved off by the diagonal march, having first received instructions carefully to examine all houses and enclosures within their reach, but should more distant objects present themselves one man of the party will inform the Commander of the second section who detaches a party under a serjeant to perform that duty. Should an enemy be discovered by the patrol or detached files, the advanced guard (having been apprised of the circumstance by a man sent from the patrol or detached party for that purpose) will be thrown into skirmishing order, remaining well concealed until instructions have been received from the main body to attack or otherwise. If the enemy are discovered by the leading double file, the detached files will extend, and become the outer flank files of the skirmishers.

- First section.** *The remainder of the first section will then proceed under the command of the senior subaltern with a Bugler.* } Should the enemy be discovered by the leading double file, the commander of this section will, on receiving the intelligence, pass it as quickly as possible to the next communicating file, for the information of the Commander of the main body, and without delay proceed to re-enforce the front, extending from centre about fifteen paces, or at such distance as will cover the ground required, with the flanks well protected; and then remain quiet and concealed until further instructions are received from the main body. Should the enemy be discovered by either of the flank double files, this section will be wheeled up as the outer flank skirmishers, and extend six paces (or more if necessary) from their inner flank, either obliquely or direct to a flank, according to the position of the enemy, and remain concealed, waiting for orders as before explained.
- Communicating file.** *Right file of second section as the communicating file.* } Will keep up the communication between the first and second sections, and convey any intelligence to rear or front that may be forwarded from the other sections.
- Second Section.** *Remainder of second section under the second senior subaltern.* } Will forward any communication to front or rear that may be received.
- Should the enemy be discovered in front, this section will move up in double time, and extend from centre, and intermix with first section.
- If the enemy are discovered by the flanking parties, this section will not intermix, but will prolong the line of skirmishers to the inner flank, communicating with the inner flank of first section.
- Communicating file.** *Right file of third section.* } Will keep up the communication between the reserve and second section, and forward all intelligence that may be desired to pass to front or rear.
- Remainder of left subdivision except the left file, with a bugler.** Under the Captain will be ready to support or reinforce the front or flank, as circumstances may require.
- If the enemy are discovered, the reserve will act as support, and only reinforce when absolutely necessary.

PLATE N^o 5.



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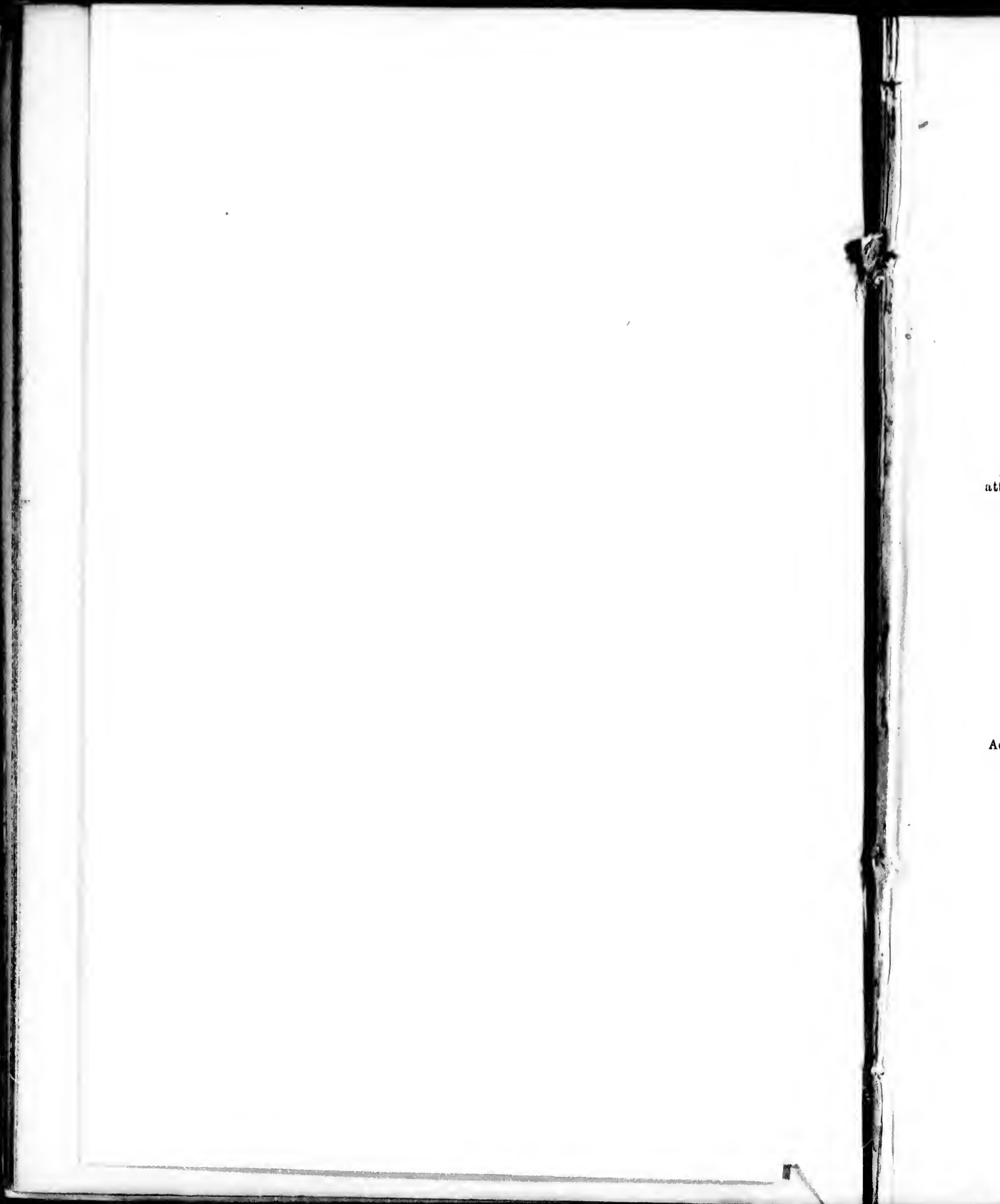
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Left file.

Will communicate with reserve of advanced guard, and communicating file thrown forward from the main body, and will convey any intelligence to next party either in front or rear, that they may have been desired to forward.

N. B. If either of the detached double files discover the enemy, one man should be sent to the first section, and one to the leading double file of the advanced guard with the information. The Commander of the first section, in addition to passing the intelligence to the communicating file between the first and second sections, will also detach a man to the other flank double file.

Should the enemy be discovered in front, the Commander will immediately extend from centre, and move up; the flank files of the skirmishers looking out for the detached double files to give them the information.

Advanced guard
attacked.

If an advanced guard is attacked, the detached and communicating files must fall back on the first formed body, which will extend, under cover, re-inforced by the remaining sections, resisting to the utmost, to give time to the main body to form.

If attacked on a flank, and the advanced guard consists of only one or two companies, the first section will wheel up to the required position to oppose the enemy, and extend—the second section elongating the inner flank (of the line of skirmishers). Third and fourth sections forming the support, and reinforce if necessary.

If the advanced guard consists of four companies. (See Rear Guards, paragraph 2 of the remarks.)

Advanced Guard.
No. 2.

If a company is ordered out from a column to form the "advanced guard," the company will be moved in a column of sections right in front of the double march, and will be formed in the following manner:—Should it be impracticable to move out from the column in sections, sections will be formed as soon as clear of the column.

First—The left file of the company will break into quick time, and form the communicating file between reserve of advanced guard, and the file thrown forward from the battalion. *Next* Nos. 3 and 4 sections as reserve throwing forward right file of third section to communicate with second section.

Next—Second section will break into quick time, throwing forward right file to communicate with first section.—Then the first section throwing forward right double file 100 yards to front, Nos. 3 and 4 files 100 yards diagonally to right, and the two left files of the section 100 yards diagonally to left.

The same instructions apply to each double file, communicating file, and section, as already detailed.

N. B. It will frequently occur on the march that one or both of the detached or flanking parties from the first section are of no use thus detached, such as marching along the margin of a river or over a very large plain, &c., in which cases they will join their section ready to move out to one or both flanks as their service, or the nature of the ground may require.

Close.

On the bugle sounding the "close" the detached and communicating files will fall back on their sections, and on the close sounding a second time, the whole will be brought steadily on the battalion by their respective commanders.

If the advanced guard is no longer required, but the line of march is to be continued, the "right close" should be sounded, and the files and sections will close to the head of advanced guard, ready to resume their places in the column, on the arrival of the battalion.

The distance between the sections and communicating files of an advance guard must depend on the nature of the ground, and the previous instructions of the Commanding Officer.

N. B. Previous to the march of a brigade or regiment it would save much fatigue to the body who is to form the advanced guard, by sending off the files, sections, &c., as laid down in "advanced guard No. 1," and when the last file has moved off, the main body to follow.

By moving a company off at the double march, to form the advanced guard (probably in heavy marching order) the leading double file and first section would have a run of nearly three quarters of a mile, and on their arrival at their proper places would be nearly unfit to shew resistance, if required.

REAR GUARDS.

A company is ordered to follow the column as a rear guard.

At the last sound of the bugle or word, the commander of this company will countermarch it, and if not the rear company of the column, it will be moved to the rear of the column.

When the column has moved off to sufficient distance with their file of communication dropped to rear, the left file of the company will be faced about to keep up the communication with that file and the reserve of the rear guard.

Next--Remainder of left subdivision as reserve, leaving the right file of third section to follow as a communicating file. Then the second section leaving right file as a communicating file.

Lastly will follow first section leaving Nos. 1 and 2 files with a non-commissioned officer as the rear party, and two files from each flank as the detached files.

The posting of officers will be precisely the same as in an advanced guard.

A bugler should invariably be with the first section to sound the "alarm" and "skirmish" if attacked, and also one with the captain commanding the company. The duty of the rear guard being to protect the rear of the column, additional flanking parties should be detached, if necessary, to prevent the enemy stealing round or gaining on the flanks of the main body.

The distance between the files and sections of the rear guard, must depend on the nature of the country, or the previous order of the commanding officer.

If attacked.

1. The advanced files will immediately fall back on the first section, which will extend under cover reinforced by the second section, shewing as much resistance as possible, and disputing most obstinately every hedge row, copse, or other cover that may present itself. During this resistance, parties must be detached to each flank to check the enemy in any attempt they might make to steal round the flanks, and thereby not only endanger the rear guard being cut off, but compromise the safety of the main body.

2. Should the enemy attack the rear guard in flank, the first section will be wheeled up in the direction given, to oppose the enemy, and extend from its inner flank six paces distance, or according to circumstances.

The second section will also wheel up, and prolong the line to the flank nearest the battalion. The reserve of rear guard will form support, ready to re-enforce if necessary.

Should the rear guard be attacked by cavalry, they must form into independent squares, or behind a wall, bank, or in rough ground, as rapidly as possible; but as numerous small squares are objectionable, the first and second sections will form together, if possible; for which purpose they will, on the approach of cavalry, double up to meet each other, unless any advantage of ground, &c., will be gained by their forming independently. Should either of the sections be in a good position at the time the cavalry makes its appearance, the other section will join it if time will permit.

Reform the Rear
Guard.

The enemy being repulsed, and if the retreat is to be continued, on the bugle sounding the "rear guard" the sections will reform with the detached and communicating files as before, and the whole will proceed with caution, ready for defence at any moment they may be attacked.

Rear Guard.
No. 2.

If a company is ordered to move out from the column, and to be thrown at once into position as a rear guard. The commander of the company will move out from the column in a column of sections right in front, and form it precisely the same as advanced Guard No. 2.

This latter method of forming a rear guard can seldom be requisite, as it imposes on the first and second sections an unnecessary run of nearly three quarters of a mile over ground which they will have to march again when following the column.

Close, or Assembly.

See advanced guard.

No. 1. *Remarks.*—When an advanced or rear guard is formed by two companies, the foregoing instructions for sections apply to subdivisions, without the least deviation; that is, the right subdivision of the leading company will form the advanced or first section under the captain of that company, with its detached and communicating files; and

the left subdivision as the second section under the senior subaltern, the rear company forming the reserve under its own captain. If four companies, one company becomes the first section, one company second, and two companies reserve.

2. If attacked to right flank, the first section or company will wheel to right, extend, and form left skirmishers—the second section or company will form the support to those skirmishers.

3. The leading section or company of the reserve of advanced or rear guard will be wheeled up in the new direction, extend, and form right skirmishers. The rear company of the advanced or rear guard forming the right support.

4. If to left flank, *vice versa*.

5. A rear guard halted should immediately front, that is facing to the proper rear, (the direction the enemy is supposed to be in,) for which purpose it is always desirable that a rear guard should be moved rear rank in front when following the main body, and the moment the bugle sounds "halt!" front without word of command.

If a very weak company is required to form an advanced or rear guard, it can be formed as follows :

Advanced Guard.

First.—The right double file under a non-commissioned officer, the head of the advanced guard.

Second.—Nos. 3 and 4 files the right detached party; and the two left files of the right subdivision, the left detached party.

Then.—The remainder of right subdivision under the command of the senior subaltern.

Next.—The right file of the left subdivision as a communicating file.

Then.—The left subdivision (except the left file) under the captain.

Lastly.—The left file of the company as a communicating file.

Rear Guard.

When the column has moved off to sufficient distance with their file of communication dropped to rear, the left

file of the company will be faced about to keep up the communication with that file and the reserve of the rear guard.

Next—Remainder of left subdivision as reserve, leaving the right file of third section to follow as a communicating file.

Lastly—Will follow the right subdivision, leaving Nos. 1 and 2 files with a non-commissioned officer as the rear party, and two files from each flank as the detached double files.

N. B. A subdivision of a strong company can, if required, form the advanced or rear guards with the 1st and 2nd sections only, exactly on the same principle.

ADVANCED OR REAR GUARDS PASSING A BRIDGE.

When in presence of the enemy, an advanced or rear guard is merely a line of skirmishers with supports and reserve.

An advanced guard, when not in the immediate presence of an enemy in passing a bridge, should use the following precautions:—

Advanced Guard.

On the arrival of the leading double file at the bridge, it will pass over, and proceed on slowly and cautiously.

The detached double files will draw towards the bridge, pass over, and move off to right and left.

On the arrival of the first section it will halt (sending on a file to keep up the communication,) and take possession of the bridge to prevent a surprise from the enemy, with the view to cutting off that part of the advanced guard which has passed over.

On the arrival of the second section it will be halted, and the first section will move on. The second section retaining possession of the bridge, until the reserve of the advanced guard arrives, when it will also proceed on, having previously sent on the communicating file at the proper distance.

The reserve will keep possession of the bridge until the arrival of the regiment or brigade; it will then pass over,

and the whole will proceed according to the original formation.

Rear Guard.

On the arrival of the reserve of the rear guard at the bridge, it will halt until the second section arrives, sending on two or three files to keep up the communication until the third and fourth sections afterwards arrive up to their proper distance (having been relieved at the bridge by the second section.)

On the arrival of the first section, the second section will proceed on; the first guarding the bridge until the detached and rear double files have passed over, it will then proceed to its place, according to the first formation.



EXTRACT FROM INSTRUCTIONS FOR THE GENERAL REGULATION OF THE CAMP.

As soon as the "Rouse Bugle" has sounded, the bedding folded, and tents put in order—the Camp, and its precincts, should be thoroughly cleaned in all respects ; no bones, litter, broken glass, or rubbish of any description allowed to remain on the ground.

At 9 o'clock, the weather permitting, every tent should be struck by "Bugle sound"—the bedding being previously placed with uniformity in a spot pointed out by the Commanding Officer,—the rugs and blankets well shaken, the straw mats beaten, Arms piled, and belts hung on accoutrement racks. The Tents, particularly when the day is fine, should frequently be turned inside out.

About 11 o'clock the Tents should again be pitched, but the bedding can remain exposed to the sun. At all times during the day, except in very cold or wet weather, the walls of the Tents should be tightly rolled up, and the cords tightened, so as to cause a thorough circulation of air through the Tent.

The "Pioneers," morning, mid-day, and evening, should throw a quantity of loose earth or lime over the Latreens.

A Bathing Parade, unless the Medical Officer thinks it not advisable, can take place at 7 o'clock, if the men are not otherwise required,—but on no account are they to bathe except at the place and hour appointed by the Commanding Officer.

In carrying out these orders, much, of course, must be left to the discretion of the Officer in command, who is held responsible by the Major General, in all respects, for the regularity of the Camp, and who must bear in mind that uniformity, neatness, and cleanliness, when under canvas, are quite as necessary as good food to insure the health and comfort of the Soldier.

The Town Major will attend the Camp at 9 o'clock, A. M., every morning, to receive the Commanding Officer's report, which he will deliver in person, either to the Major General or the Deputy Quarter-Master General.

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COOKING IN THE FIELD.

The following order was issued by the Duke of Wellington, dated Grenada, 28th November, 1812 :

“ In regard to the good of the Soldier I have often observed and lamented in the late campaign the facility and celerity with which the French Soldiers cooked in comparison with those of our army. The cause of this disadvantage is the same with that of every other description. The want of attention of the Officers to the order of the Army, and to the conduct of their men, and their consequent want of authority over their conduct.

“ Certain men of each Company should be appointed to cut, and bring wood, others to fetch water, and others to get meat, &c., to be cooked ; and it would be found, if this practice were daily enforced, and a particular hour for seeing their dinner, and for the men dining, named, as it ought to be, equally as for parade, that cooking would no longer require the inconvenient length of time which it has been lately found to take, and that the Soldiers would not be exposed to the privation of their food at the moment at which the Army may be engaged in operations with the enemy.”—[Duke of Wellington’s Despatches, vol. vi., pages 181 and 182.]

With a view to carrying out the directions contained in the above order and to establish a system by which the Soldiers shall cook with celerity, Lord Frederick Fitzclarence laid down the following system :—The Companies having been previously told off by three’s, and the Non-Commissioned Officers told off for the following parties, the Regiment will be formed in open or half distance column and ordered to pile arms.

Front rank men of 1 file of three’s,	Fire-men,
Front rank of No. 2 ditto,	Water-men,
Front rank of No. 3 ditto,	Wood-men,
Rear rank of No. 1 ditto,	Beef-men,
Rear rank of No. 2 ditto,	Bread-men,
Rear rank of No. 3 ditto,	Charge of
Arms, Packs, &c.	

Subaltern Officers will be warned who will take charge of the various parties named, and march them off.

The words of the Commanding Officers of the Battalions will be as follows :

“ Pile Arms ”—“ Off Packs ”—“ Prepare to Cook ”—“ Out Non-Commissioned Officers of Parties.”

At this last word of command the Non-Commissioned Officers will place themselves in close column in front of the pivot files of each Company, Non-Commissioned Officers, of fire-men leading, then water-men, wood-men, beef-men, and bread-men.

Out Fire-men. At this word the fire-men will step to the front and form on the leading non-commissioned Officer.

Out Water-men. Ditto on the second non-commissioned Officer.

Out Wood-men. Ditto on third non-commissioned Officer.

Out Beef-men. Ditto on fourth non-commissioned Officer.

Out Bread-men. Ditto on fifth non-commissioned Officer.

The water-men on being called to the front previous to falling in on their non-commissioned Officers, will collect the camp-kettles of the Company when such are provided ; if not, the whole of the canteens of the front or rear rank, as may be directed by the Officer commanding the Company, and one for every two non-commissioned Officers ; in case of a blank file, they will take one extra when the rear rank canteens are used.

The wood-men will, in like manner, collect the canteen straps and hatchets.

The beef-men will fall in, each with a bayonet, having been previously warned how many they are to draw rations for.

The bread-men ditto, with haversacks, having been previously warned how many they are to draw rations for.

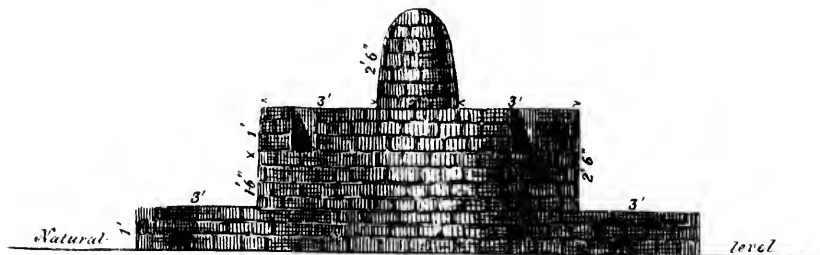
The men told off for the arms, and supernumerary men of messes, to remain with the arms, the latter to be available for any fatigue.

The uneven number of men, and non-commissioned Officers, are to be divided amongst the messes, so that the bread and meat men, may know how many rations to draw.

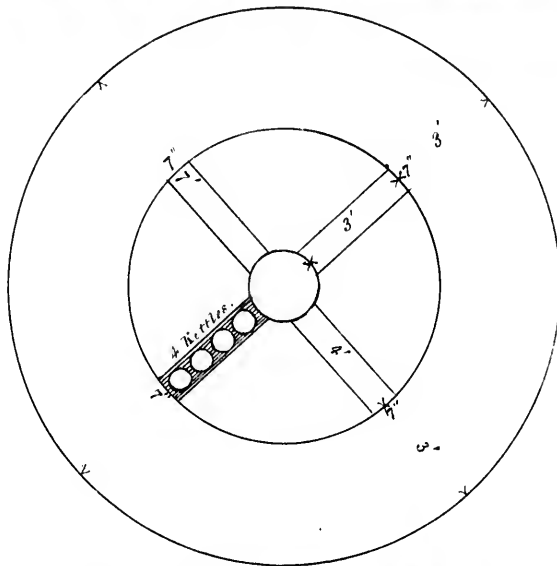
All being ready, the Commanding Officer will face each party towards the place where the bread, meat, &c., may be found, and will direct them to close in on the march upon the companies nearest those points where each party will be taken charge of by the subaltern Officer appointed for that purpose who will be already there, having received directions from the Adjutant.

DRAWINGS OF TWO KINDS OF FIRE PLACES.

*N^o 1, For a Country where Stones abound.
 N^o 2, For a Country where only Earth can be had.*



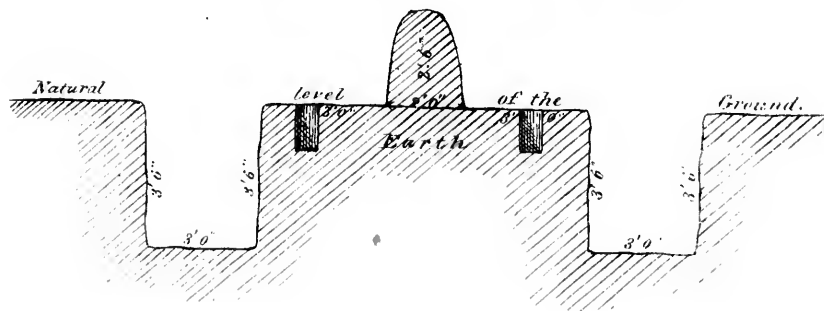
N^o 1. Elevation of a Dry-stone Fire-place.



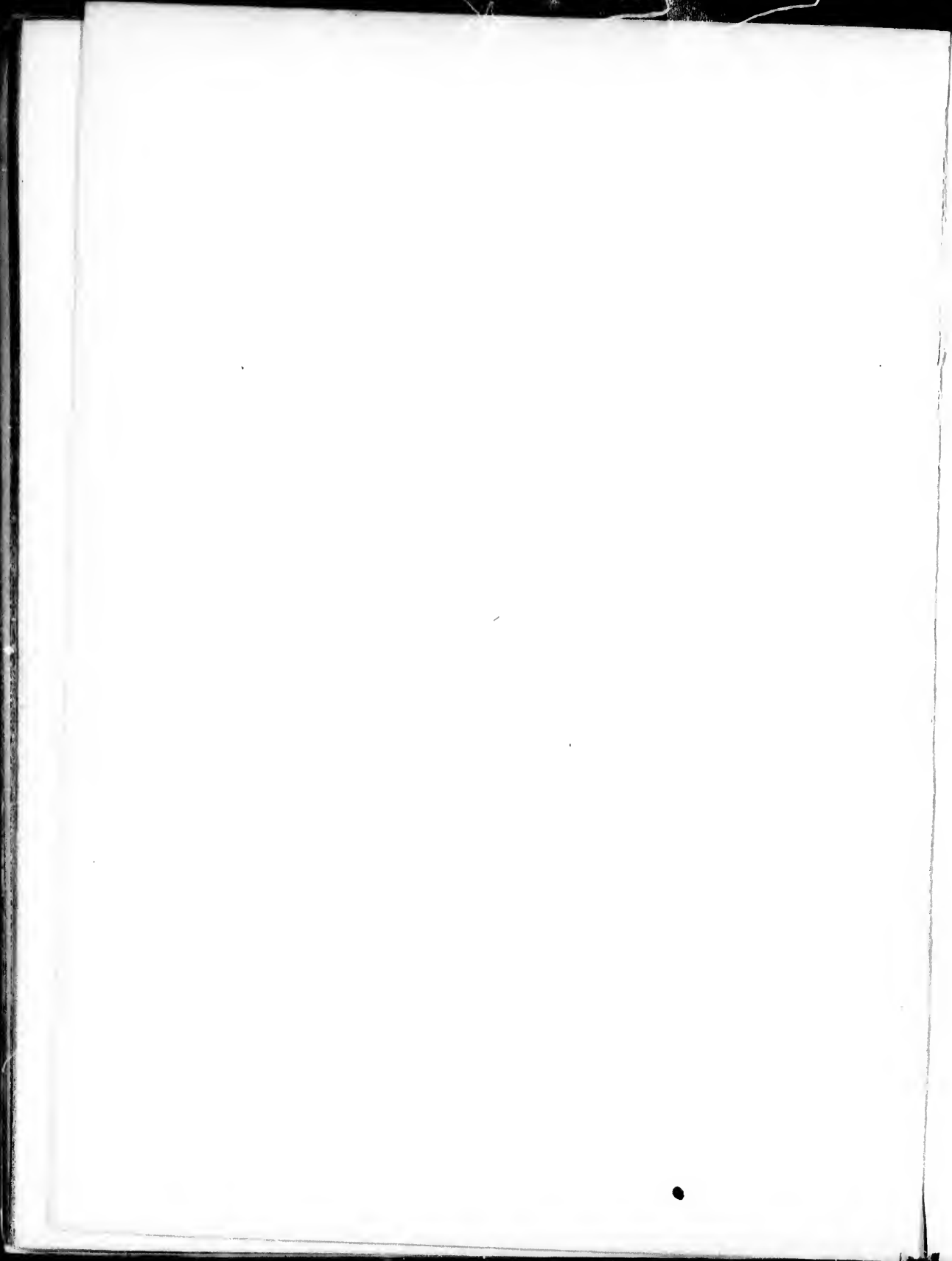
Scale:

3 feet to an inch.

PLAN FOR BOTH N^os 1 & 2.



N^o 2 SECTION OF AN EARTHEN FIRE PLACE.



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IN QUICK TIME.

Words of Command :—

“Pile Arms.”

“Off Packs.”

“Prepare to Cook.”

At this last word of command all the parties will fall in as above detailed on their non-commissioned Officers and be marched off at once by the Commanding Officer.

The places for the kitchens will be marked off by the Quarter-Master of the Regiment, and the fire-men will be at once marched to him.

CAMP KITCHENS.

The following methods can be used in the formation of kitchens :

1st. From the spot on which the right-hand man of the fire-men stands, trace a circle 16 feet in diameter on the ground, (see fig. , plate ,) then another from the same centre, 19 feet in diameter ; this can be done by means of a piece of string or wire, or three fire-lock's slings and a couple of sticks or ramrods. Between the circumferences described, dig a trench (T), 1 foot 6 inches deep, and throw the earth from it in a high heap (H) in the centre, taking care to leave a space (or berm) between the bottom of the heap and the edge of the trench, 2 feet 6 inches wide ; this done place four men in the trench at equal distances from each other to divide the circle in four equal parts, and cut niches (N N N) in the inner bank of the trench opposite each of these men, sufficiently wide to admit a camp kettle, made to contain six men's messes, the same depth as the trench, and running into the solid earth towards the centre of the circle about 18 inches or two feet, to give room for three small canteens in a row (AAA), should there not be sufficient number of camp kettles at hand. The bank of the niches may be sloped off a little towards the bank, in the centre, to make the fire draw better.

After this, cut as many more niches of the same dimensions between these four as will give sufficient room for the camp kettles or canteens, containing the messes of the whole Company, allowing one camp kettle, or three canteens, to every six men.

It is advisable to have two or three spare niches in case of accident or inconvenience from high winds.

The canteens may be supported by sticks stuck in the bank (D) supported by a forked stick (O) in trench (T).

Sixteen niches, that is, three in each space between the first four niches that are cut, would hold 48 small tins, 96 men's messes. This kitchen would answer well for a company 80 strong.

The formation of these kitchens would occupy considerable time, (about two hours in average ground, 8 men being employed,) and they could not be constructed at all without a sufficient supply of tools.

The above kitchen is applicable for a permanent encampment, and for one old large 20 or 30 men's kettle.

Kitchens for the small mess tins or centre tins only, may be formed as follows—with a view of cooking with celerity, previous to an unexpected march, or on a halt, or a retreat, when it is requisite the men should have sustenance in order to support them under the effects of severe fatigue and weather:—With a spade make a slanting hole in the earth, from the surface, about 18 inches deep at the deepest part, and so narrow that the small tins will stand across it. (vide fig. , plate ,) or with stones build up a kitchen high enough to contain a good body of fire underneath, which can be assisted by digging up the earth as above. These kitchens may be long enough for a mess of one section of three's, or for comrades, (which Colonel J. Leach so strongly recommends, and therefore should be followed); but "*where great celerity*" is required in cooking, it would be better to cook in messes, as the division of labor would greatly accelerate the operation, particularly as the fire-men (No. 1 front rank of threes) would have the kitchen built and fire ready by the time the water, wood, and ration parties were returned.

After the observations and remarks that have been made in the Duke of Wellington's Despatches relative to cooking in the field, showing the necessity of doing it with celerity, which is so essential to the Soldier, it will be unnecessary to enter much more into the subject, but still it is requisite to make young Officers and Soldiers aware that the more sustenance and support that can be got out of whatever ration may be provided for the Soldier, the better. It, therefore, becomes a matter for consideration, after knowing what the usual ration on active service generally is, how to make the most of it, in order that it should be most nutritive and wholesome; it seldom consists of more than a pound of beef or mutton (generally the former) killed about half an hour previous to being issued, with "*perhaps*" a little rice or flour, and a pound of biscuit.—The meat being generally tough, hard, and stringy, it requires a little knowledge of gastronomy, which an English soldier seldom possesses, whilst the Frenchman almost naturally does, to make this ration answer the above purpose; it becomes, therefore, very desirable to teach the uninitiated to make as good a mess as possible out of what Providence and the Commissariat may provide them with.

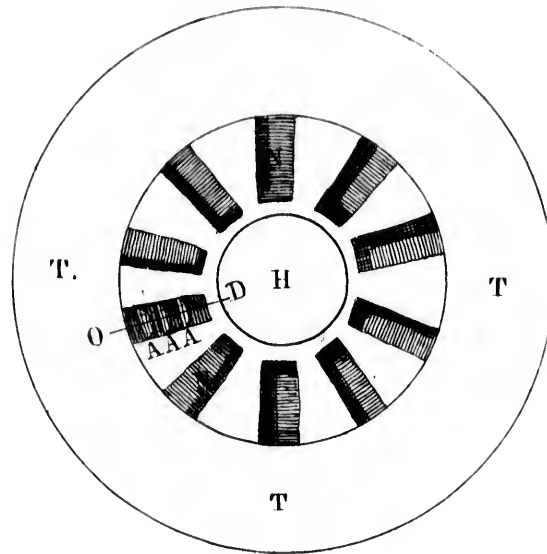
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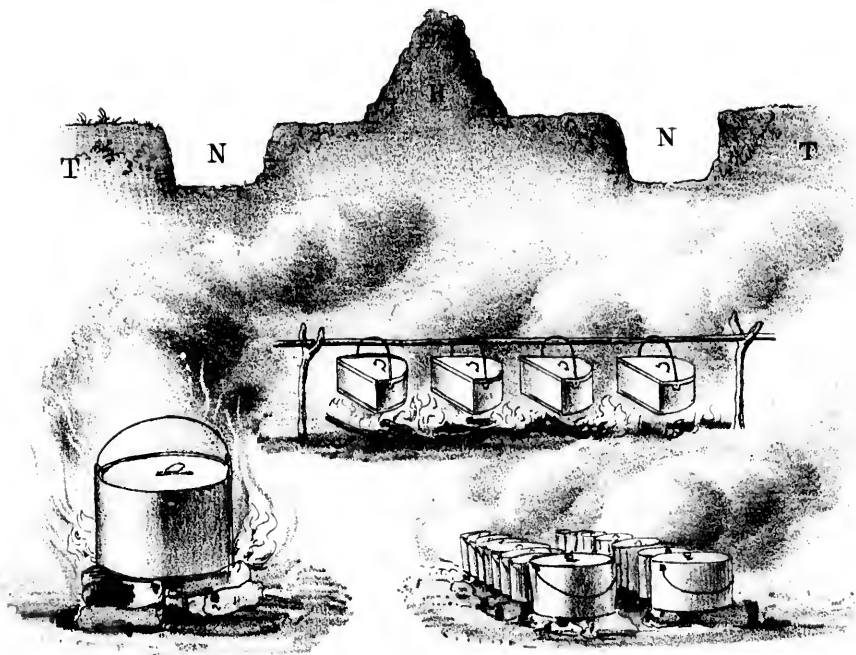
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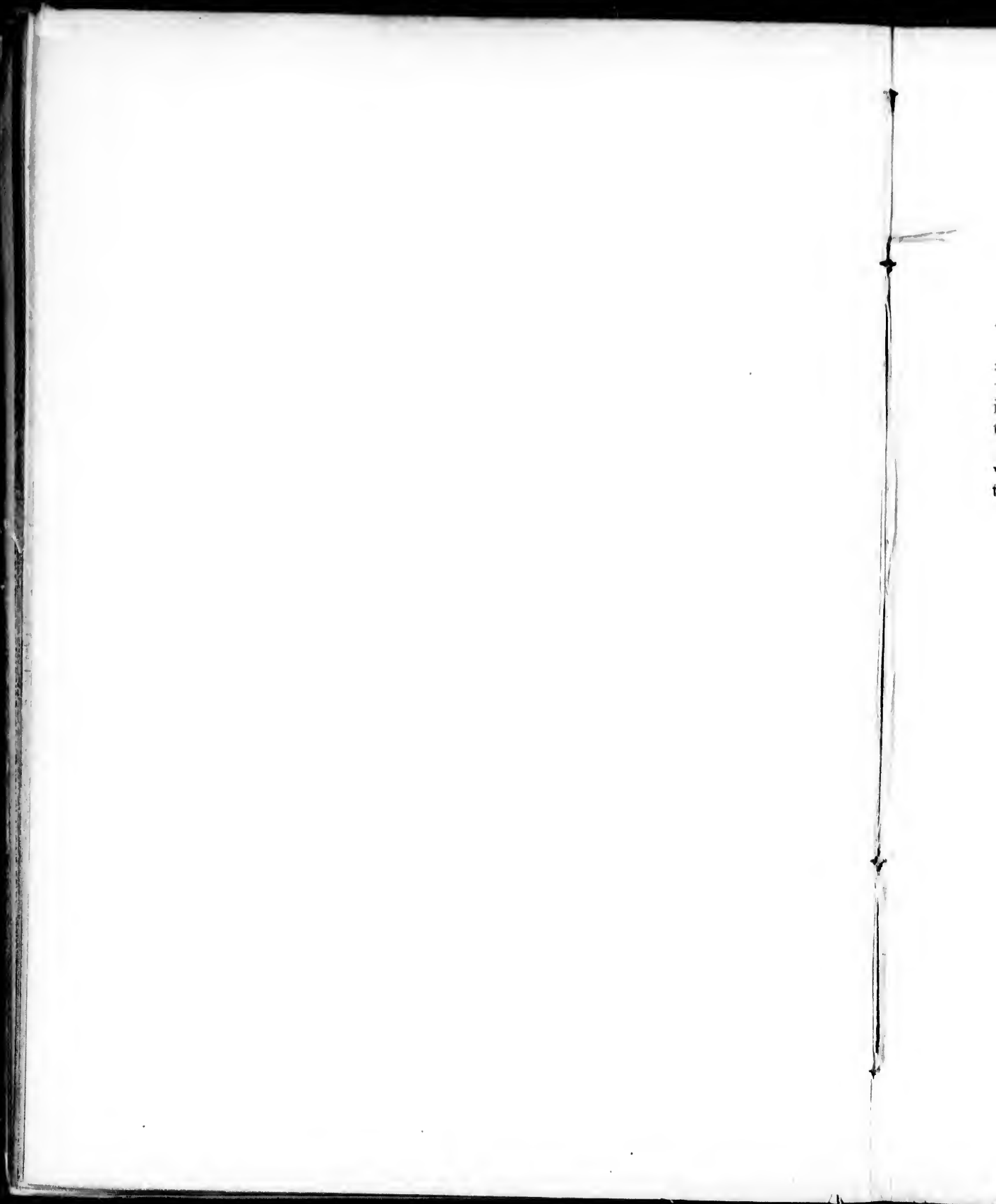
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Fig. 1.





Section of Fig. 1.





the ration is by stewing ; or, in other words, only "*just*" to cover with water the meat, which must be cut into small pieces, and not to make it into a jorum of broth, which is objectionable for two reasons :—first, it takes three times as long to cook ; and, secondly, it hardens and soddens the meat if boiled in haste, and makes it therefore less strengthening and nutritious ; whilst "*stewing*" with a little biscuit powder (which a man will find at the bottom of his haversack), a little rice or flour, and a bit of onion, will make him a good mess in twenty minutes, providing he has dry wood and water at command. This can be cooked in the small centre tin by comrades, or in the mess tin. Every soldier should have pepper and salt in his haversack, and with the above ingredients he is no soldier who can't make a good stew from them. It will be observed that by cooking in the centre tin, "*where there is time,*" potatoes can be boiled in the men's mess tin.

Where stones are plentiful, kitchens constructed as in plate , fig. , will be found useful, and, indeed, sometimes more efficient and successful than those described in the preceding methods.

BAKING.

FORMATION OF THE OVEN.

"Ovens" constructed in the following manner were found to succeed very well, and, during a period of two months, that they were under trial, never failed from first to last in producing "bread" of excellent quality. They were built on the surface of the ground of stones and clay, having an orifice about 20 inches wide, 18 inches high, and 9 feet long,—for the "Oven"; large flat stones were used for the bed or sill, and others of greater thickness for the roof, or crown, the walls and roof being well plastered over with clay, and then covered in with a thickness of about 3 feet of earth: the whole finished, for the sake of neatness, with turf—a small trench being cut in front of the entrance, to enable the Bakers to work easily. When time will admit, it will be found a great improvement to arch the roof of the oven, this construction can be easily effected, by first making a clay or sand cast of the dimensions required, then placing rough stones in the usual position for an arch, and, after the key stone has been inserted, breaking up and withdrawing the cast.

When the oven has been made a few days and thoroughly heated (250 ° fahrenheit), the process of baking takes about one hour and a half.

In "laying the Fire" the back of the oven should be heated first, and the wood gradually drawn to the front until the proper degree of heat has been obtained, when all the wood and ashes should be carefully raked out, the pans with the dough placed in, and the entrance closed, either with logs plastered over with clay, or, when time admits, a rough door of wood made for the purpose.

The utensils required for Baking and mixing, are:—1st, a trough (on trestles) about 10 feet long, 18 inches deep, and two feet wide, divided in the centre into two compartments, in one of which the "Spun," as the mixture of flour and yeast is called, is "set," in the other dough is made which at the proper time is mixed with the "spun."

The "spun" should be in proportion, about 30 lbs. of flour to one quart of yeast, and be allowed to "set" for about 9 hours, or until it rises and falls—to be afterwards mixed with about 100 lbs. of flour, and sufficient water to make the dough of the required consistency. It should then be

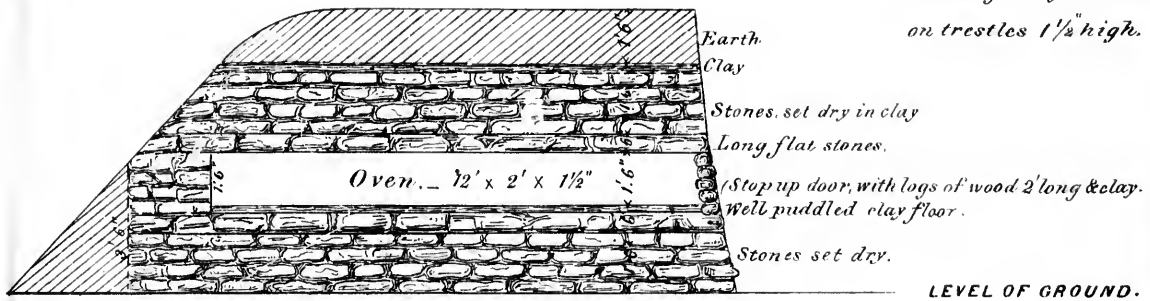


DRAWINGS OF A CAMP OVEN, For 500 Men.

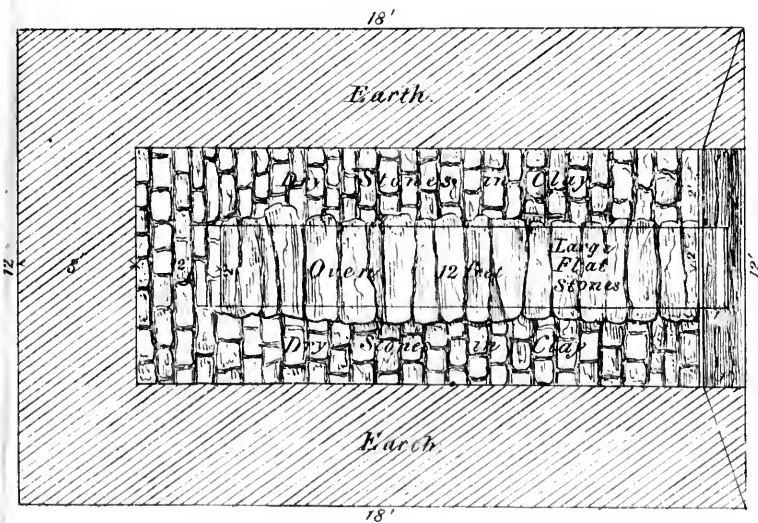
NB. Two Bakings per diem. 9 pans (of 8 Three 1/2 Loaves each) each batch.

Scale: 5 feet to an inch.

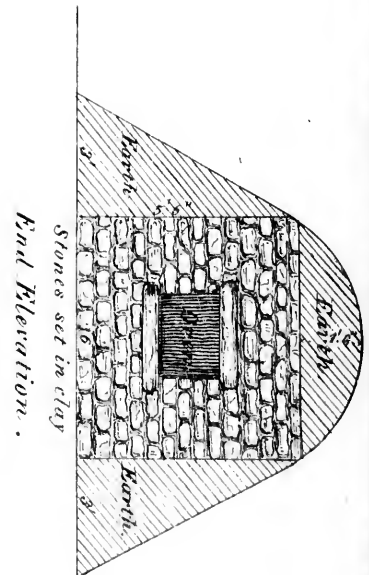
Implements required, —
 9 pans 4' x 6' x 5' deep.
 2 "peels", 13' long.
 1 hoe ... 13' long.
 1 kneading trough 10' x 2' x 1 1/2'
 on trestles 1 1/2' high.



Sectional Elevation



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allowed to remain about two and a half hours before being placed in the oven for the purpose of "proving." The dough should be divided into loaves of the proper weight, and placed in iron pans provided for the purpose, about 4 feet long, 6 inches broad at the top, and about 5 inches deep. An oven of the dimensions stated will contain six of these pans, which are placed in it with long wooden tools called peels, and withdrawn by the same, or a long iron fork.

The process of heating the oven will require the services of one man continually to attend to it, and will occupy from one and a half, or sometimes two hours, according to the state of the weather. The oven and the "dough" should be ready at the same time, to effect which the fire should be commenced during the time the dough is "proving."

When "yeast" is not to be obtained, an "American powder," extensively used in the United States, can be substituted, a very small quantity of which is required to be mixed—and which may be employed with considerable success.

ABATTOIR.

When circumstances permit, "Abattoir," or Slaughter Yards, should be formed, which may be done by clearing a space of about sixty square yards enclosing the same by what is usually termed "snake fencing" and which requires no nails in its construction, two trees should be left standing for the purposes of a gibbet to which tackle should be attached.

A deep pit should be dug, each time an ox is killed in which to bury the offal mixed with quick lime; lime should be also strewed over any blood which might have fallen in the yard.

The Butcher's implements required for the use, and to be kept in the possession of each Regiment when encamping, are as follows :

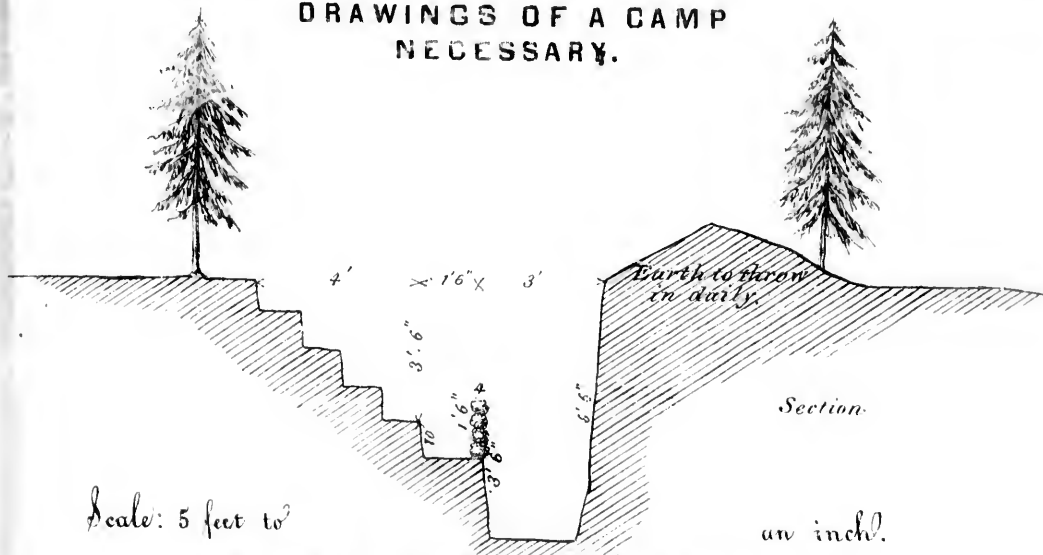
Slaughter Tackle,
A Picketing Hammer,
An Axe,
Two Knives,
A Steel.

A slaughter board. or block, must be provided on the spot.



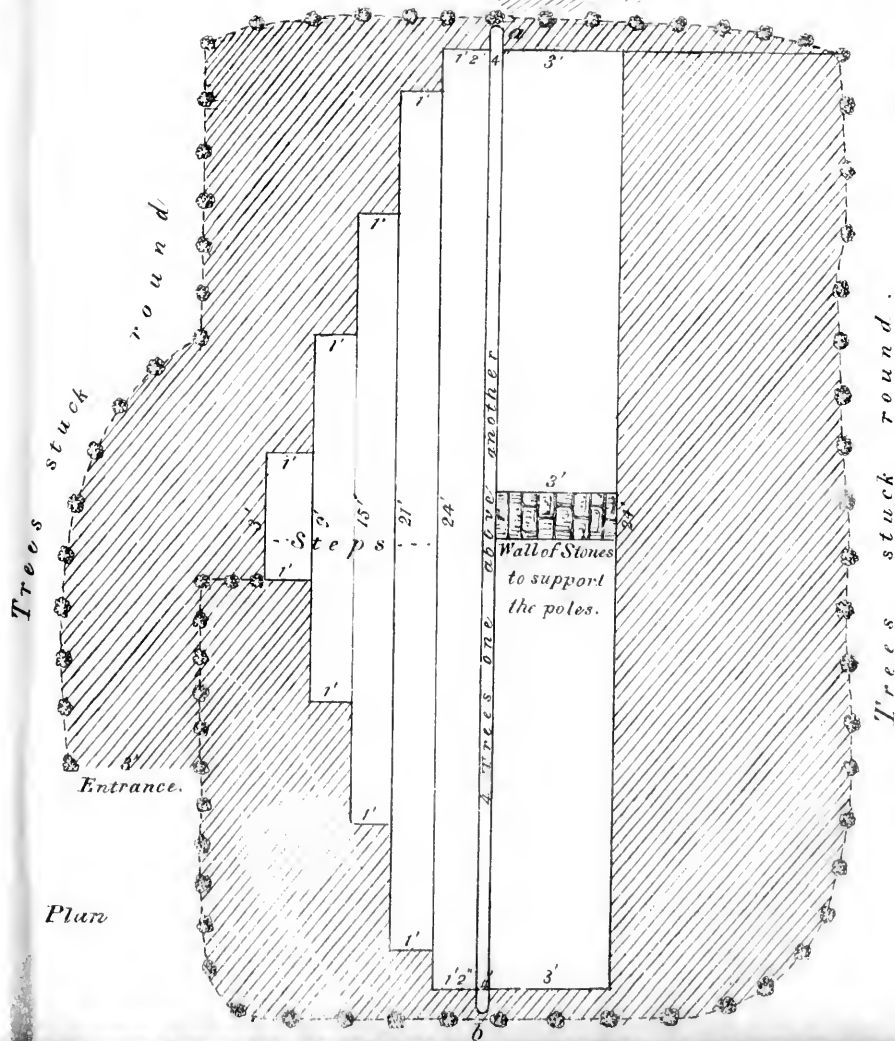
Plan

DRAWINGS OF A CAMP NECESSARY.



Scale: 5 feet to

an inch.



N.B. The Poles are let in about 1 ft at a and b.

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LATREENS.

On a Regiment encamping Latreens should be formed without delay, one for the Officers, one for the non-commissioned Officers, and a third for the men, the latter about 24 feet long, with a soil pit five feet deep, the two former about 10 feet long, the whole with steps leading up the front; and, where practicable, bushed round by a circle of trees.

A portion of the earth which has been excavated when digging the soil pits, should each morning, or oftener, if required, be thrown over the soil mixed with quick lime.

If the proper attention is paid in this latter respect, no injurious effects will result from a Latreen of the dimensions already mentioned, and made available for 300 men.

DUTIES OF WORKING PARTIES CUTTING BRUSHWOOD, MAKING FASCINES, GABIONS, ETC.

When the investment and other preliminary arrangements for undertaking the siege of a fortress, have been carried into effect, the first demand for Working Parties will generally be made for the purpose of cutting Brushwood, and making Fascines, and Gabions.

CUTTING BRUSHWOOD.

The men for this duty may be told off in divisions of 25 each, and be drawn up in single rank. Each man must be furnished with a bill-hook, and for every 100 men employed a portable grind-stone, and some rag-stones, should be taken to the ground for sharpening their tools. In selecting the wood to be cut down, it should be remarked that straight and pliable rods varying in length from 10 to 15 feet, and about $1\frac{1}{4}$ inches thick, are the best. These qualities will be found united in the willow, alder, ash, Spanish chesnut, &c., of from five to seven or eight years growth, and in hazel of almost every age; but if Brushwood of this quality cannot be found in the neighbourhood, or within any convenient distance for being transported to the spot where it is required, any trees that have branches approaching to this character must suffer, and be converted to the purpose, though it will be a more tedious operation.

The mode of using the bill-hook will be easily acquired by the men, when they see any one at work who has been accustomed to it. The safest and best way is to strike back-handed, and upwards, especially when the brushwood is of a size to be severed at a single blow.

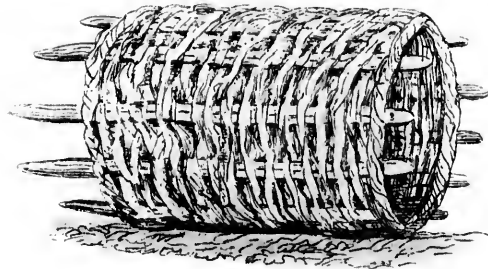
If the wood where the work is to go on is extensive, convenience alone will decide whether the whole party shall be set to work in one line; but if from circumstances the front is restricted the working party must be divided and arranged in two or more parallel lines, with an interval of a probable days work between each.

The men must be drawn up for work in single rank, at 6 or 8 feet apart, according as the brushwood stands thick on the ground or otherwise, and they then work straight to their front. Each man should be required to bind up what he fells in loose bundles weighing about 40 or 50

A FASCINE.



A GABION.



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lbs., which are of a convenient size for being transported to the rear, and it will materially forward the work if a certain task is assigned to each party. The produce of an acre will of course vary in every wood you go into, but if favoured with good luck, an acre may produce somewhere about 1,000 bundles of the size mentioned.

It may be estimated that if the "*stuff*" is well adapted to the purpose, so that there will be a little or no waste in working it up. 1,000 bundles of brushwood varying from 40 to 50 lbs. would be convertible into:

250 Fascines, 18 feet long; and
1,500 Pickets, or 1,000 French Gabions.

An ordinary labourer will cut, bind, and carry to a short distance to the rear, at the rate of four bundles an hour, and five hours fair work, exclusive of delays, and marching to and from the place, will be sufficient for each relief. On this supposition each division of 25 men, in one relief, would cut and bind 500 bundles.

FASCINES—AND METHOD OF MAKING.

The men for making Fascines should be divided into squads of five men each, with one non-commissioned Officer to superintend four or five squads.

The tools, &c., required for each squad are:—

Five pairs of strong stakes, 6 feet long, for making trestles,

A shovel, a mallet, a hand-saw, and

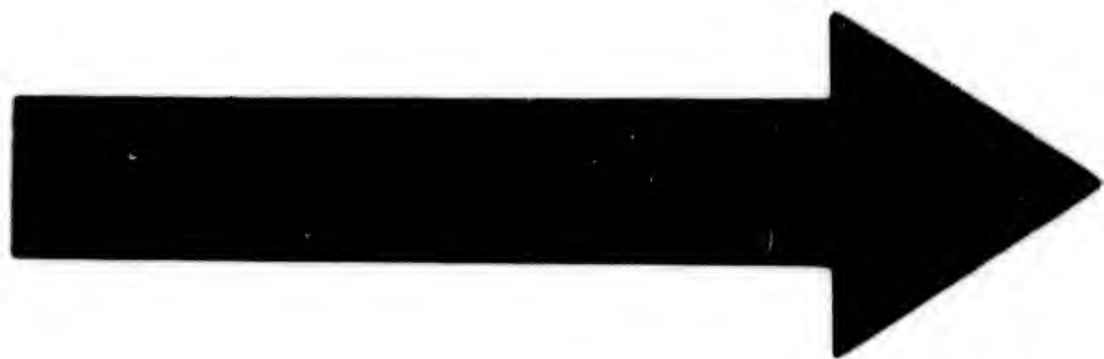
A measuring rod of some sort.

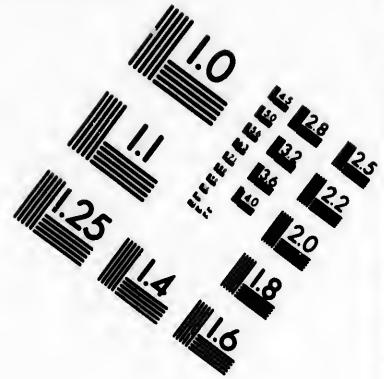
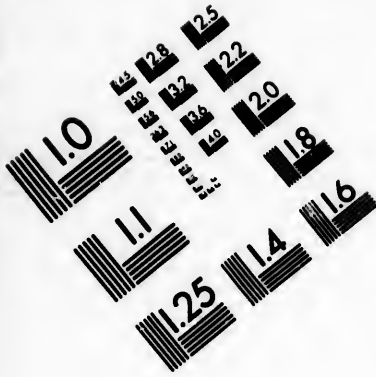
Each man should have a cutting tool, and they may be in the proportion of three bill-hooks and two pruning knives for five men, a chopping block is likewise convenient for each man, but they perhaps can be got on the spot.

Fascines are made in a "cradle" composed of a certain number of "trestles," placed at intervals, not exceeding four feet apart. Each trestle consists of a couple of stakes driven obliquely into the ground, touching each other and crossing at right angles, where they are fastened together with a pin, or lashed with spun yarn or rope. The crossing should be about two feet 6 inches above the ground with the end of the stakes projecting obliquely about two feet beyond it (fig.).

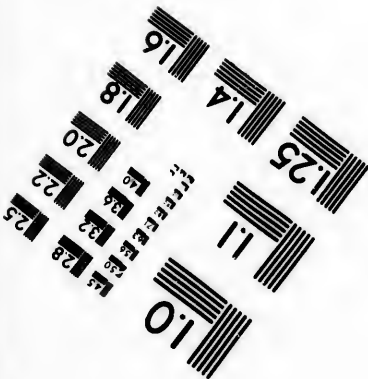
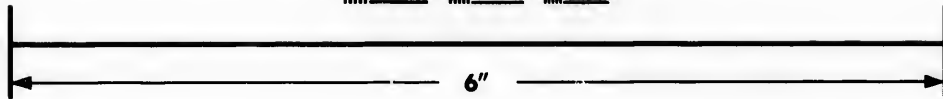
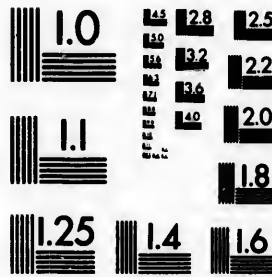
When one trestle is placed in a convenient situation another is fixed at the distance of 16 feet from it, and three intermediate trestles may then be introduced between the two extreme ones, which will make the five at equal intervals of 4 feet apart.

When the trestles are fixed, straight rods and branches not exceeding





**IMAGE EVALUATION
TEST TARGET (MT-3)**



**Photographic
Sciences
Corporation**

23 WEST MAIN STREET
WEBSTER, N.Y. 14580
(716) 872-4503

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1½ inches in diameter at the thick end, are laid over them, their ends projecting about 18 inches beyond the extreme trestles. The leaves must be stripped off entirely as well as the refuse ends and crooked branches, other branches may be half cut through and laid in. In piling the brushwood on the trestles, the larger rods should be kept as much as possible on the outside, and the smaller stuff be put in the middle.

When the "cradle" is nearly full, the "choker" (fig.) is applied in several places to prove whether there is sufficient for a fascine of the required diameter. The fascine is then finished by binding it with "withes" or spun yarn. This is done by four men, two of whom apply the "choker," to compress the brushwood into the proper diameter near the place where the other two bind. The first band should be near the end of the fascine, about 6 inches from the outside trestle, and others should be applied every 18 inches, or nearer if the brushwood is short. The fascines may then be removed from the cradle and the ends sawed off. The mode of preparing the "withes" requires some little nicety and must be explained.

Straight pliable rods, of five feet long, should be selected, the thickest end being about the size of a man's thumb, and the other end the size of a little finger. The thick end is put under the left foot, and taking hold of the top the rod is twisted to the right till all the fibres of the wood are broken. A loop must be made at the thin end, and the thick end must be then sharpened. In binding the fascine, the men stand on opposite sides of the trestles, the "withe" is put underneath, and the ends being brought upwards, the thick end is passed through the eye and hauled tight, and being then doubled back is twisted in and out till it is secure.

The three little sketches (fig.) will shew the mode of making the eye, and the appearance of the "withe" when it is bound round the fascine. Great care must be taken in binding, for on this the goodness of the fascine much depends. When the "withes" cannot be had, spun yarn, cut in lengths of 6 or 7 feet, may be used.

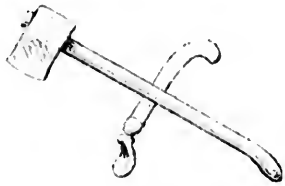
It will be necessary to explain what a fascine "choker" is, and the mode of using it. It consists of a stout chain attached to a couple of strong levers about 4 feet long, 2 inches in diameter, made in a round or oval shape. The chain is four feet long between the levers, and is fixed at the distance of 18 inches from the ends, and a mark is made on each side of the centre of the chain with a couple of rings, which are placed at a distance to correspond with the circumference of the fascine to be made for a 9-inch fascine these rings should be about 20 inches apart.

In using the choker, two men stand on opposite sides of the fascine, the centre of the chain is first brought under the brushwood, and then the

Pick

Sand

Axe and Billhook.



Gabions.



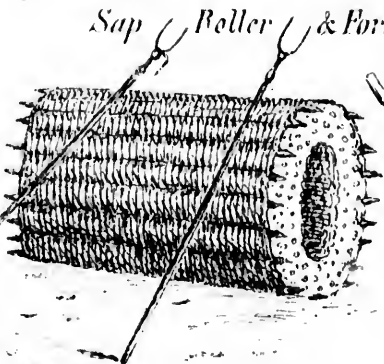
Pickaxe and Shovel.



Fascine Making.

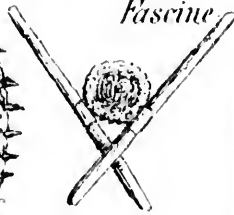


Sap Boller & Forks.

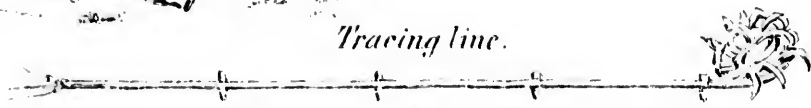


Fascine

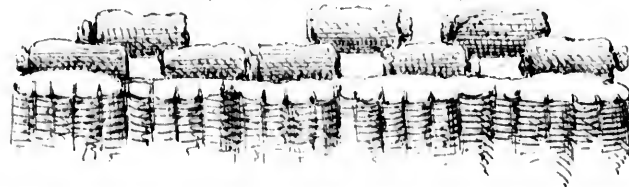
Choker.

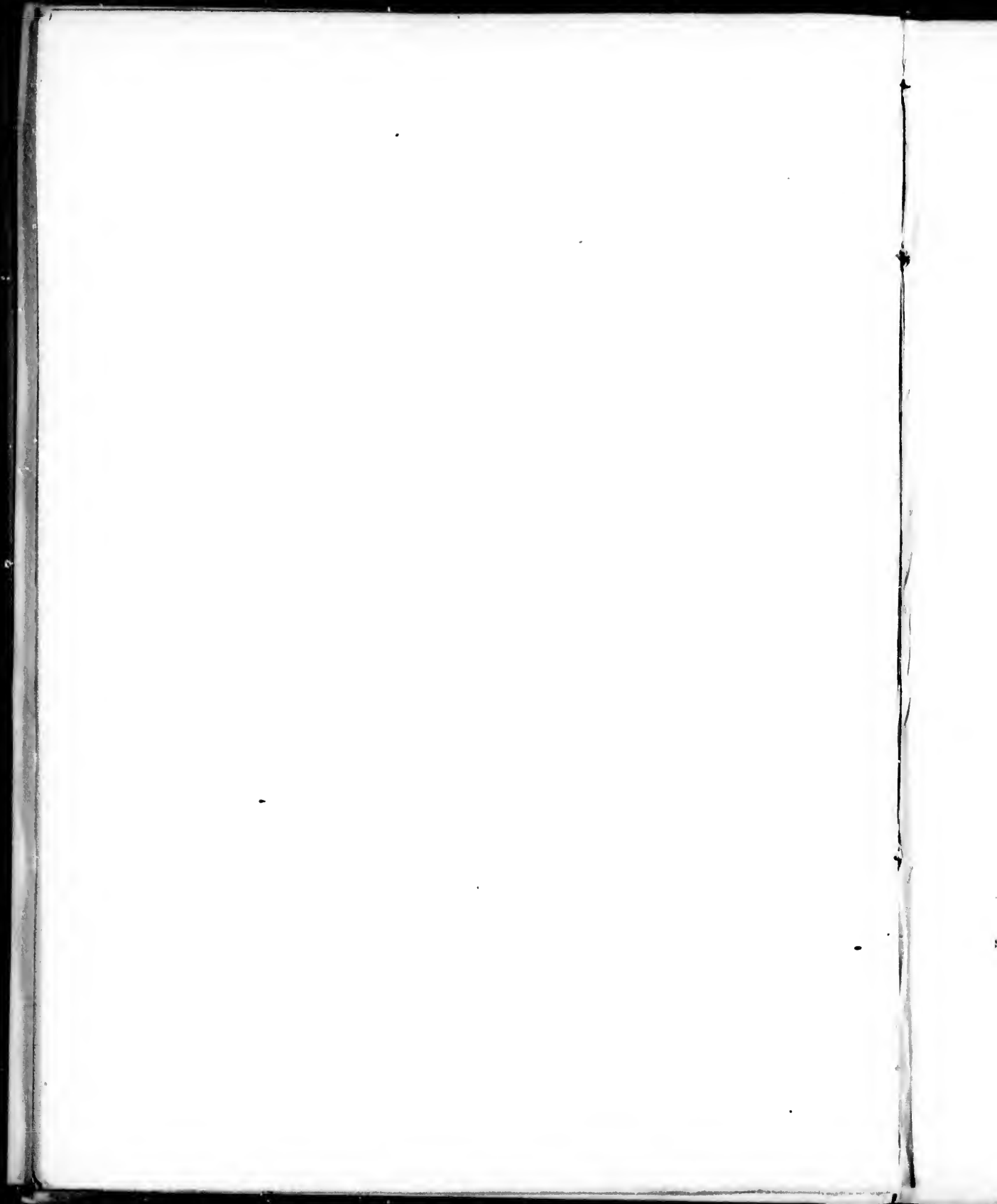


Tracing line.



Sandbags disposed for Musketry on the top of a Gabion Parapet.





ends of it, with the levers, are brought upwards and passed over the top of the cradle, the men handing over the opposite levers to each other with the long ends of the uppermost (see fig.) ; the long ends are then pressed upon, and when the two rings indicating the proper circumference come together, the fascine is bound close to the choker, which is then slackened, and applied elsewhere.

If regular chokers are not to be had, a couple of stout stakes and a piece of strong rope will answer the purpose.

TIME AND WEIGHT.

The average time of making an 18-foot fascine is one hour, and the weight may be stated at about 140 lbs.

If the brushwood is very short and small it is better to make 9-foot or 6-foot fascines than to cut those lengths out of longer ones. The trestles and cradle must be made to correspond.

GABIONS.

Those intended for the "sap" should be as light and small as possible, consistent with strength and stability.

The dimensions recommended are, 2 feet in diameter and 3 feet high.

The mode of making them is as follows :

A circle, one inch less than the required diameter, is traced on the ground with a piece of string made fast to two short pickets, and the circumference is divided into as many equal parts as there are pickets, to be used, which varies in proportion to the size of the brushwood to be worked up. In general from ten to fourteen pickets will suffice. They should be from $\frac{1}{2}$ to $\frac{3}{4}$ of an inch in diameter, and 9 inches longer than the gabion is high. Four pickets rather stouter than the others should be placed at equal distances in the circumference. The pickets being driven about six inches into the ground, the large and small ends being alternately uppermost, the best way of executing the web is by working with three rods (called waling). The rods being carefully stripped of leaves, are first placed as shown in fig. ()

The first rod which is to the rear is then passed over the other two, outside two of the pickets, within one and the top brought out again.—The second rod is then passed over the other two, round two pickets, within one, and out again, and so on with the third.

In working with four rods the only difference is, that each rod is passed successively outside three pickets and inside one.

In waling with five, the rod may be passed outside three and inside two.

The best rods must be selected for the top and bottom of the gabion, and great care must be taken to finish it in the best manner, or the web will separate and the gabion fall to pieces.

In the progress of the work the web must be continually pressed down with the hand or foot, or beat with a stout picket, and two gauges of the proper length should be placed transversely across the inside of the finished part, and pressing against two opposite pairs of the pickets to preserve the dimensions and circular form. When the web is completed to the required height, it must be bound from top to bottom with "withes" in at least four distinct places, and these should be applied so as to secure the extreme ends of the rods in preference to the middle of them. The centre of the "withe" being laid on the web, the ends are passed through it in contrary directions a few inches below and near together, but not between the same rods. These are hauled upon and passed through again a few inches lower till you arrive at the centre of the web, when the gabion may be pulled out of the ground, and the same process followed to bind the remainder; the "withes" meeting in the middle and being secured together. Before pulling the gabion out of the ground, the ends of the pickets that are uppermost must be cut off to about an inch in length, and when it is turned upside down, the others must be cut off in the same manner.

MEN AND TOOLS.

The squads should consist of three men each; one man prepares pickets, rods, and withes, and the other two men level the ground, and afterwards work at the gabion.

The tools, &c., required will be:

1 bill hook; 3 knives; 1 three-foot rod, or gauge, and a piece of string. A chopping block may be cut on the ground.

1 hand-saw and 1 mallet are useful when heavy gabions, or sap rollers, are to be made, and some entrenching tools for levelling the ground are generally necessary.

1 grindstone and some rag-stones should be on the ground.

TIME.

Three men will finish a gabion, 2 feet outside diameter by three feet high, with only eight pickets, and of large brushwood, in two hours.

A common gabion, with twelve pickets, and of smaller brushwood, in three hours; but a very light gabion with from sixteen to twenty pickets, and made of the smallest brushwood that can be used, cannot be properly finished in less than four or five hours.

M.
L.
Dia

N.B.

Gabions.
Scale 1' to 1"

Nº of Pickets - 12

Length of D^o 3' 3"

Diametre of Gabion - 2'

Height of Web - 2' 9"

Nº of Gads - 8.

Nº of Men - 3.

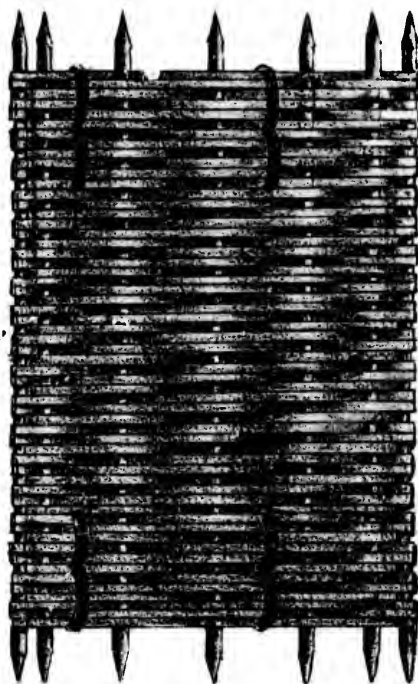


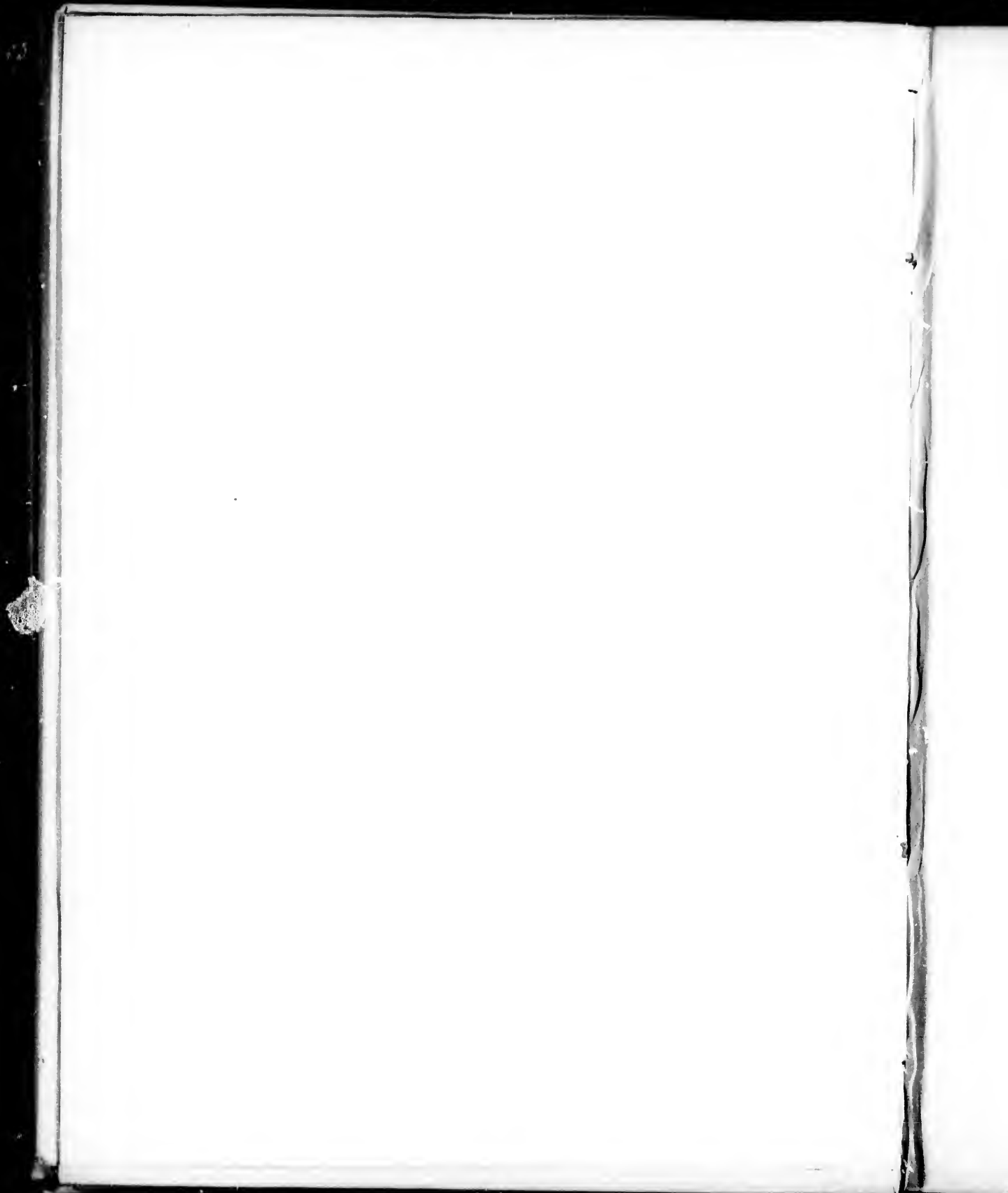
Fig. 1. Elevation of a Gabion.

*N.B. The blunt ends show
the pointed ends.*

*the beginning and
the termination of the
Rods.*



Fig. 2. Plan of the Commencement.



The time increases in proportion to the number of pickets.
The weight of gabions, of the dimensions stated, averages from 36 to
40 lbs.

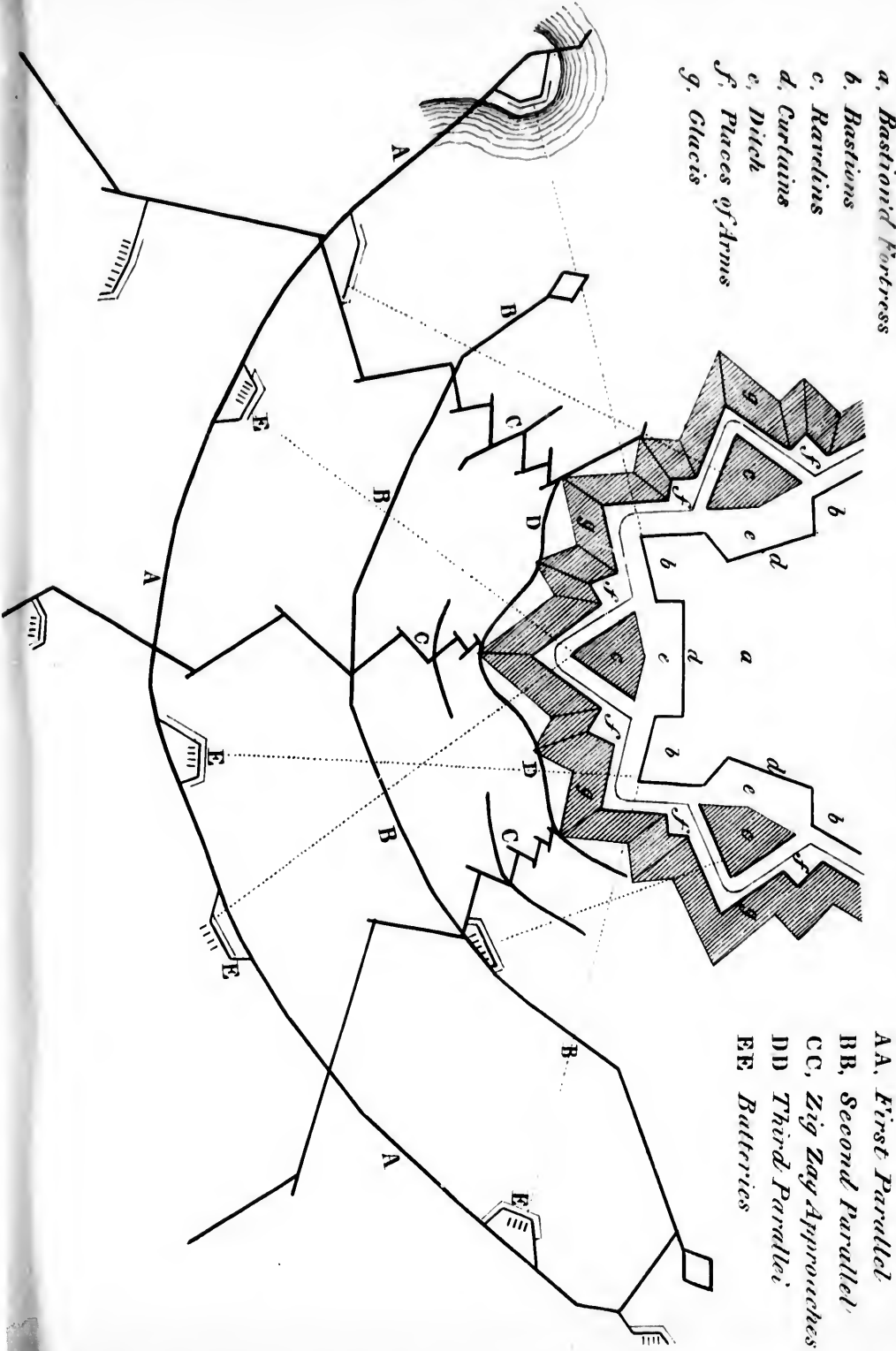
TRACING.

Though the tracing and laying out the parallels, approaches, and other works of a seige, is strictly a part of the duty of the Engineers, the mode in which it is affected will be briefly adverted to; otherwise, a working party marching up in the dark and coming across a mysterious looking white line laid on the ground, and perhaps stretching away for a mile or two, will be speculating how it got there, instead of forwarding the purpose for which it was placed by the vigorous use of the pick-axe and shovel.

Before the working party is brought up to commence operations, the different lines which have been drawn upon the project of attack to represent the first parallel and its communications to the rear (which is all the work which should be attempted the first night,) requires to be marked on the ground in such a way as that they can be seen in the dark. This is effected at dusk. The pickets of the besieged are first driven in—an operation to which it is assumed they have been accustomed for a week or ten days before, and if somebody is not wide awake in the place, it is possible the garrison may be ignorant of the further mischief that is contemplated. A greater force under the title of the “covering party” is, however, now employed upon this duty, and they are afterwards charged with protecting the workmen and repelling any sortie that might be attempted for interfering with them. For this purpose they should be equal to about two thirds of the garrison, and the main body should be posted at dusk in extended order in front of the proposed parallel. It is very essential that the tracing should be completed before it is quite dark, for it is next to impossible to do it afterwards, even with the best arrangements. A working party, however, may be distributed when it is pitch dark, when once the white line is found on the ground.

When the works are extensive two or three Officers of Engineers are engaged in tracing them. These Officers will have previously taken every possible precaution by measurement and observation to make themselves thoroughly acquainted with the ground, and all the objects upon it, that can guide them in determining the precise situations of certain fixed points in the first parallel, and have taken means for laying out its proper direction from these points to whatever extent it has been judged necessary.—

PLATE 1 PLAN OF A MODERN FORTRESS WITH SIEGE WORKS.

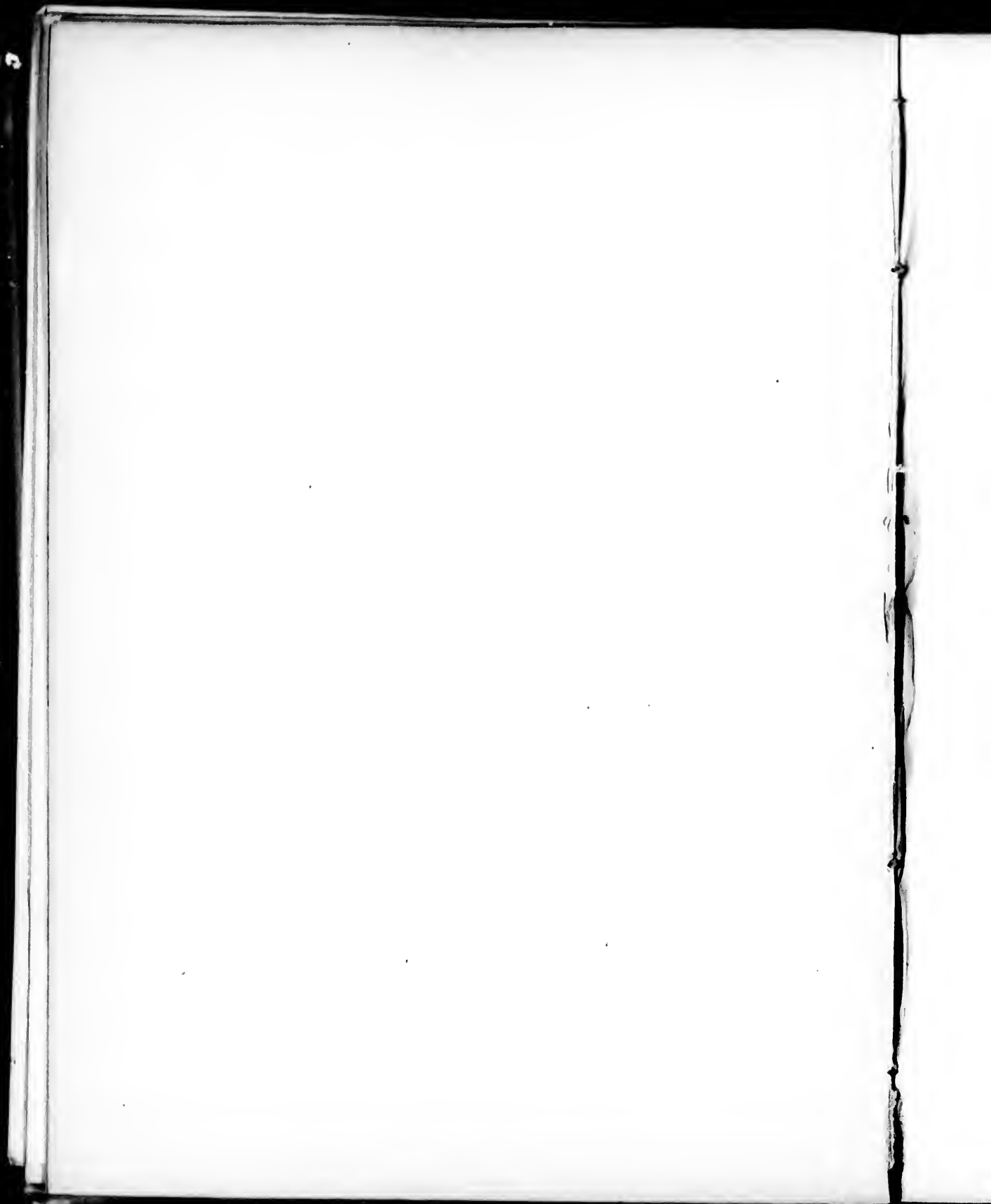


- a. Bastionid Fortress
- b. Bastions
- c. Ravelins
- d. Curtains
- e. Ditch
- f. Places of Arms
- g. Glacis

- AA, First Parallel
- BB, Second Parallel
- CC, Zig Zag Approaches
- DD Third Parallel
- EE Batteries

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To facilitate explanation we will suppose that two officers are employed, and that each has to trace 1,000 yards of parallel from some central point. Two parties of 20 sappers each would be paraded an hour before dusk at the Engineers depot, and each man would be furnished with 50 yards of broad white tape, rolled up into a ball, and the parties would be marched off by the Officers, so as to get as near as possible to the situation at dusk: they would then conceal themselves, waiting until it was sufficiently dark to screen them from distant observation, and yet be light enough to distinguish objects and see what they were about. The Officers would then cautiously advance, each followed by the 20 men in single file, and by measurement or other means would ascertain when they had arrived at the central point of the parallel. The two leading men would then halt and give the ends of the tapes to their Officers, who would here separate, and going in opposite directions, followed by the remainder of their respective parties in single rank, would walk on in the line of the proposed parallel until they had run out the whole 50 yards of the first tape.

The second man would then halt and deliver the end of his tape to his Officer, who would proceed in the same manner as was done with the first, and so on till the whole twenty tapes were laid on the ground, and the 1,000 yards of parallel were thus marked out by them. Each tape bearer when he delivers the end of his tape, drops the ball on the ground, and lets the tape run out through his fingers. The ends of adjoining tapes are tied together and a small peg is used for securing them in their places on the ground.

We have now the line traced, and a man placed at every 50 yards of its length as a marker, who would receive orders not to stir until the distribution of the working party was completed. The direction of the approaches, which are to communicate from the first parallel to the rear, are traced in a similar manner, and it is previously arranged from what points the distribution of the workmen is to be made.

The Officers of Engineers, charged with conducting the working parties to those points, will have taken measures for acquainting themselves with the most convenient routes. If it were likely to be very dark or foggy, an Officer would have accompanied the tracing party to the central point, and with white tapes would lay out his road back, to some fixed object which could not be mistaken or accidentally missed, and by this route he would conduct the working party to the spot. We will suppose that besides the 2,000 yards of first parallel that have been traced, the two approaches, leading from the rear up to it, have likewise been marked out, each 500 yards in length, making altogether 3,000 yards to be commenced.

WORKING PARTY, AND EXECUTION OF PARALLEL AND APPROACHES.

The number of workmen for lining 3,000 yards, supposing each man is required to execute two yards in length, will be 1,500; and it will be obvious that nothing but the best arrangements and the utmost regularity will insure those men being quickly distributed, each one to his own distinct measured portion, ready to begin work on a concerted signal; and it will easily be believed by any one who reflects on the subject, that if such a body of men once get spread abroad and into confusion in the dark, and that nobody must utter a word above a whisper, it will be almost a hopeless task to get them right again, at all events much valuable time would necessarily be lost, the consequence of which would be that the work of the night would be incomplete, and there would not be sufficient cover provided before daylight to enable the second relief of workmen to go on comfortably with the trenches during the next day.

Working parties are usually relieved every eight hours, or rather three times in twenty four hours; the first relief should parade an hour and a half before sun set at the Engineers park to be told off and receive their tools; the second relief should parade for a similar purpose an hour and a half before sun rise, and third relief would be brought to the ground at some intermediate hour during the day. As it would harass and fatigue the men to come into the trenches for eight hours work at the same hour every day, the number for furnishing these parties should be equal to four reliefs. By which arrangement each man would be on this duty and at work eight hours, and off duty twenty-four hours.

It is advantageous to require task work from each relief instead of allowing it to be done at random. The length of task usually assigned to each man, and measured on the white tracing line, behind which the working party is drawn up, is 6 feet; and they might be required to sink this portion to the depth and breadth, as specified underneath.

The first relief might dig out a trench—

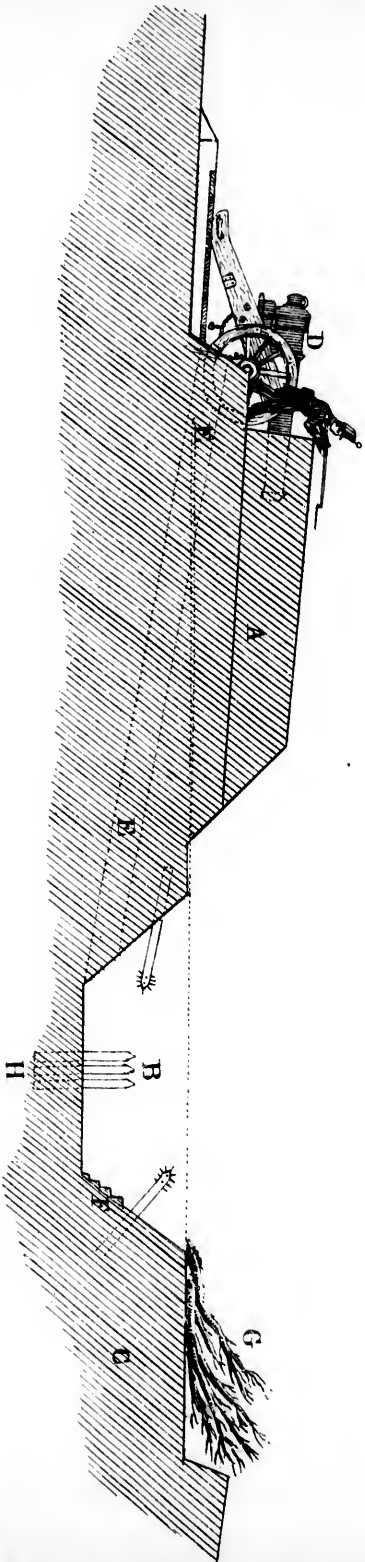
6 feet long,
3 feet deep,
5 feet wide.

The second and third reliefs—

6 feet long (as before),
3 feet 3 inches deep,
4 feet wide.

The working party detailed in orders from the different corps or brigades being paraded so as to arrive at the Engineers depot an hour and a

PROFILE VIEW OF A BASTION &c.



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|---|-------------------------------|---|---|
| A | <i>Parapet</i> | F | <i>Port Cullis, by which the troops of the garrison descend into the Ditch.</i> |
| B | <i>Ditch</i> | G | <i>Steps leading to covered way</i> |
| C | <i>Covered way of Ravelin</i> | H | <i>Shockades</i> |
| D | <i>A Gun in embrasure</i> | | |

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half before sun set they are marched there, and told off in divisions, and the columns drawn up to correspond with the arrangement that has been determined upon for executing the work. For the sake of illustration let it be supposed as before, in describing the mode of tracing, that one of the parties for the night have to commence the first parallel, which is 2,000 yards in extent, and that they are to be distributed from a central point.

For this purpose there would be two columns of 500 men; each division might consist of 25 men, and each column of 20 divisions, drawn up in single rank and formed in the same order they would be if from line they had been broken into a double column in rear of the two centre subdivisions. Every man would be provided with a pick-axe and shovel, which, for the purpose of distribution, would be laid out in rows to correspond exactly with the columns. The divisions would be filed up in rear of the rows; each man taking post behind a set of tools, which, on the word being given would be taken up. It is a great object to prevent any noise or clatter of tools in marching to the ground, and this will be best secured by each man carrying the pick-axe and shovel together on the same shoulder, and receiving a caution on the subject.

On proceeding to the ground the column may be halted some 20 yards in rear of the white tracing tape; and what we have to do is, to form line at extended order on the two leading divisions, and to get each man seated on the ground with a measured portion of six feet of the white tape in his front indicating the length of his task. To execute this manoeuvre of forming line, it has been found convenient to bring up the column in successive divisions, for as it takes some little time to grope about and extend the men the rear divisions would soon be crowded by the leading files being checked. To obviate this the two leading divisions should be faced inwards, and advance in double files to the point from which the extension is to be made, each led by an Officer of Engineers. On arriving at the white tape, the leading man of each division "halts," and if the tape has had six feet lengths marked upon it by cross pieces sewn on, so as to present the appearance of the tail of a boy's kite, the men will recognize their portions as they come up, and all they have to do, is to place their shovels quietly along side the line, and the pick-axes opposite the middle of them, and sit down in silence on their tools. The remaining men will file outwards in rear of the white tape, and form up into line to the right and left in extended order, each man placing his tools opposite one of the marked intervals of the tape, and sitting down until the order is given to begin work, which will be done when the whole extension is complete.—

If the tape has not been divided in this manner, two sappers will be found at the central point fronting the men as they come up, each with a white rod which they turn over and over to measure the portions for the men as they present themselves.

When the extension of the two leading divisions is complete, the two next in column are faced inwards, and advancing to the central point, will then file outwards and form on the flanks in the same manner as has been described.

When the extension is complete, the divisions last formed receive orders to commence work which must be taken up by the whole line "*without a word being spoken.*" It is half the battle to get the first nights work over "on the sly," and if favoured by a dark and windy, or foggy, night, it is just possible to elude the vigilance that now, of course, reigns among the listeners in the fortress.

The task to be executed by each man of the first relief has been already adverted to. It is to sink a hole or trench, 3 feet deep, and 5 feet broad, along the whole length of 6 feet which has been the measured portion on the white tracing line. This is not to be sunk close to the line but about 18 inches from it. Now it may seem superfluous to give any further directions, but there really are two ways of doing even this simple operation, and a miner and a tailor would set about it on very different principles. The object is to obtain cover as speedily as possible and to work with ease. In commencing work each man should be directed to begin a hole with his pick-axe on one end of his task, about 3 feet in rear of the line, as if he were going to plant a tree, and throw out the earth with his shovel to the front of the tracing line, and when it was as deep as his knees to jump into it. By this he would obtain a little "face" of earth to work at, which is a great advantage. This hole must be converted into "a bit of a ditch," just broad enough to work in, and running the whole length of the task, which he will gradually deepen till it is the regular depth of 3 feet; by these means a man will be partially covered before half his task is finished, and it will be completed with far less labour than if he had attempted to sink the whole area of 6 feet long by 5 feet broad, an inch or two at a time, by fiddling away with his pick-axe all over the surface, and then scraping the loose earth off with his shovel.

After the distribution of the men has been effected, and they are set to work, the "responsibility" of the Engineer in a great measure ceases, and it remains with the "Officers" and "men," on whom the execution of the work devolves, to acquit themselves of their duty. There are few services on which an Officer or Soldier can be employed which call for

the exercise of more vigorous exertion and energy than the first night's work in breaking ground before a place ; indeed, the duties of working parties generally demand, not only the passive courage, which makes men stand fire, to which they can make no reply ; but that zeal, perseverance, and intelligence, which alone can overcome the many difficulties that they may have to encounter.

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OBSTRUCTIONS.

Obstructions in front of Temporary Works of inconsiderable profile, are essential to their being vigorously defended, and various expedients have been devised, some of which it will be well to explain.

"An Abattis" is, perhaps, the best obstruction that can be formed in a limited time. It is made by felling a number of trees, if they are on the spot, and laying them side by side, with the branches towards an enemy, and interlaced as much as possible. Small twigs should be cut off, and the projecting points sharpened. If the trees are so large that they cannot easily be displaced, no precaution is necessary for securing them; but if they are smaller they must be confined in their places by driving stakes among them, and laying heavy timber on their butt ends, or burying those ends in a small ditch. If trees and brushwood stand pretty thick upon the ground, there will be no necessity for placing them in any regular form when cut down, for it has been found on service, that if permitted to lie as they fall, a most formidable obstacle will be presented.

With smaller sized trees, if instead of being entirely separated they are only half cut through, and the heads pulled down, and interlaced among each other, in the way a growing hedge is "pleached," a most formidable obstacle would be presented, providing there were enough trees on the spot to make it perfect.

Having already explained the nature of an "Abattis," it may now be as well to show how to surmount or deal with such an obstruction, when placed as the attacking party.

An abattis is probably the first obstacle a column will fall in with, and in an attack by surprise an endeavour should be made to get round the flank of it, and if that "wont do" the men must crawl through in the best manner they can, avoiding any noise, and forming again as they succeed.

If the attack is by open force, and the abattis should prove a puzzler, there is no harm in making the attempt to set it on fire. A few resolute men carrying small faggots which have been previously dipped in pitch, and each man provided with a lighted "port-fire," if it is day-time; or if they can approach unseen by night, with some other means of setting

Drawings of Abattis

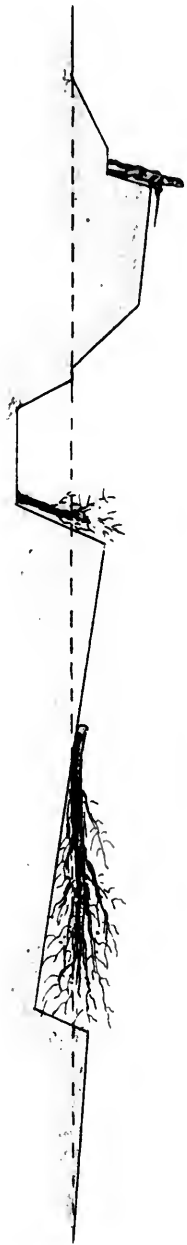


Fig. 1. Section of a Parapet, shewing methods of arranging abattis.

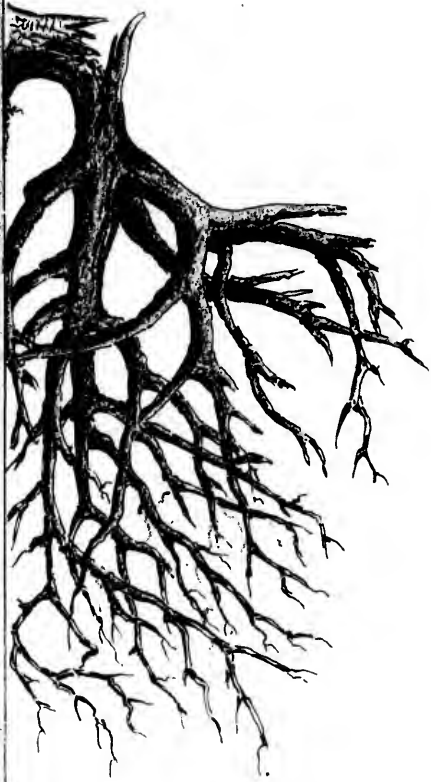


Fig. 2. An Entanglement (invented by Sir Wm Reid K.C.B. R.E.)

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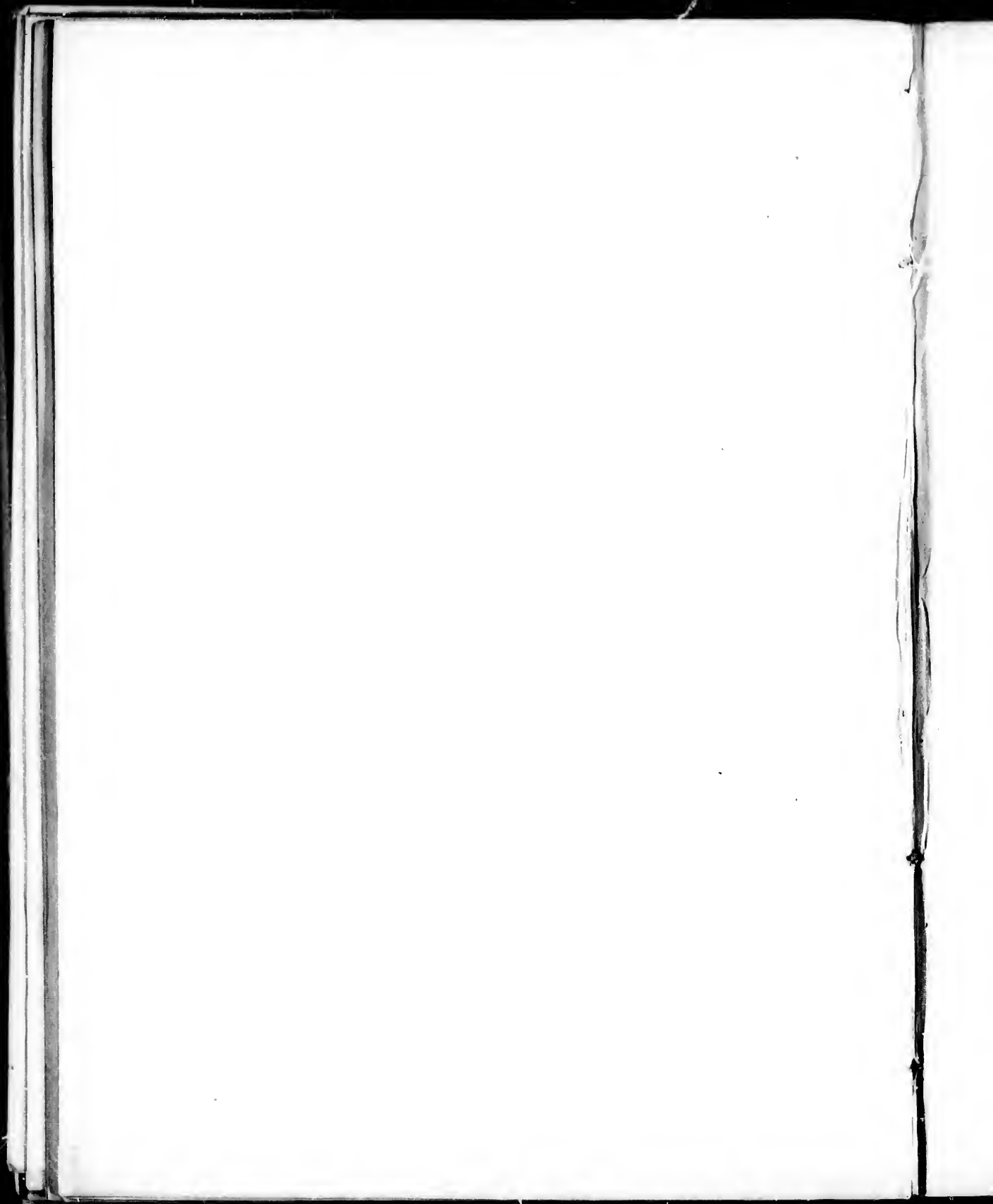
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fire to them,—must rush up from some neighbouring place of concealment, covered by a smart fire of musketry, and throwing in their lighted faggots, all will soon be in a blaze. When that has subsided and there is no fear of the men's pouches being exploded, the breach will be practicable without waiting for the hot cinders to cool: for they will only prove stimulants to exertion. This little conflagration would go on under the protection of a party, near enough to prevent any attempt on the part of the defenders to extinguish it. If, however, abattis is formed of small materials, or that sufficient precautions have not been taken to secure it in its place, that is, if it is "a bad one," it will be a waste of time to submit to the delay of burning it. In such a case, a party rushing up with ropes, may tie them to some principal trees; a big hook fixed to a rope or pole, such as the companies of firemen have for their work, may be used, and a tree or two may by these means be dragged forcibly out of the line: or some handy fellows, with good tools, may partially open it, by cutting away a few of the small branches, so as to let men get through it at "open order." A little impudence will go a great way sometimes; and in cases of necessity, putting a good face on a dangerous enterprise, is the best handmaid to success.

"Palisades" form a very good obstruction, especially if protected from the effects of artillery; and if the means are at hand they are soon planted.

They are composed of stakes of strong wood 8 or 9 feet long and 6 inches thick, fixed about 3 feet in the ground, and 3 or 4 inches asunder.

"Chevaux de frize" consist of a piece of timber from 9 to 12 feet long, and about 6 inches in diameter, into which is inserted staves crossways, about 9 inches asunder, about 2 inches thick, six feet long, and pointed at the end, if not shod with iron. Their use is to stop up a breach, defend a passage, or form an intrenchment against cavalry.

"Chevaux de frise" of a temporary nature may be made for stopping up an outlet through a barricade, or for adding to the defence of a doorway, or cutting off the communication between different parts of a post, &c. If it is to be removed for the convenience of passing, it should be made in length proportionate to the weight; and when so arranged the means should be at hand for chaining or otherwise securing the lengths together.

A good obstruction might be made out of common sheep hurdles, planted in rows at 8 or 10 feet distance, and leaning a little to the front, in which direction they are very awkward to get over.

Stakes firmly driven into the ground, and plenty of them, are not easily passed over in close order.

Holes about 3 feet deep, and the same diameter usually called "trap holes," dug rows as if for planting trees, and the earth out of them piled up in small heaps, would materially interfere with regular and rapid movements.

Many other temporary expedients would suggest themselves under the difference of circumstances that are to be met with at every step. It should ever be remembered that whatever will cramp and impede the steady movement of a column, and detain it under a close fire for however short a period, is "worth having," and should not be neglected. Where a mighty "abattis" could not be formed, perhaps a cabbage garden could be found, and that would be "better than nothing," inasmuch as it would be preferable to a bowling green, over which people could come at a racing pace to the assault of a small work.

HOW TO MACADAMISE IMPEDIMENTS.

If the obstructions outside of a post consist of military pits, stakes, or the stumps of trees, &c., they may be passed at "open order" if they can not be avoided, and the column be re-formed as soon as possible. Small ditches may be filled up with faggots or bundles of hay; Chevaux de frise may be displaced by main force with a rope, and a good pull altogether; or they may be cut up or blown to pieces with a bag of powder; palisades or faisces in a ditch may be got rid of in a similar manner; or if a party is provided with ladders or planks, and the ditches are narrow, the last obstructions may frequently offer facilities for constructing temporary bridges for passing over them. Stockade work or palisading may be escaladed with ladders brought up in a line under the protection of a firing party and carried by two or four men, according to their length. The ladders would be planted as close together as they conveniently could be, and the assailants would mount them, on as extended a front as their numbers permitted; or a stockade may be breached by the explosion of a bag of powder, &c. By some such means as these, applied with boldness and decision, in a common sense sort of way, troops assisted by workmen would be a match for any of the ordinary obstructions which might oppose their advance, whether the attack were made by night or by day, by surprise or by open force.

Drawings of Trouis de Loup.

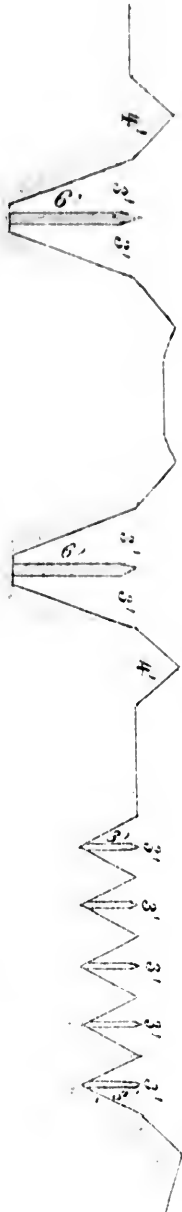


Fig. 1

Sections

Fig. 2.

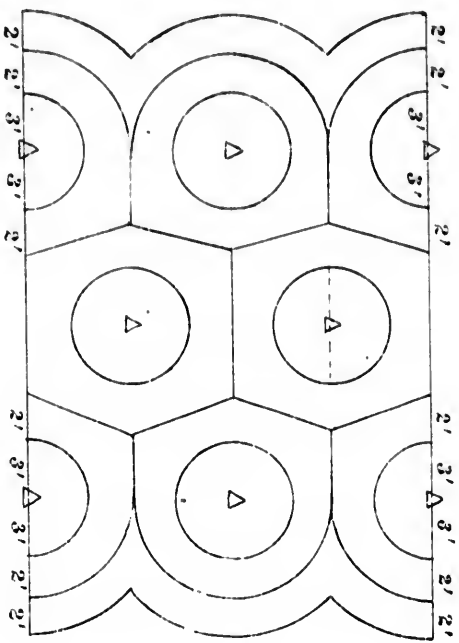


Fig. 1.

Plans.

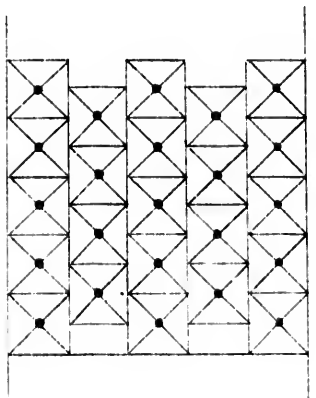


Fig. 2.

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COMMENCING A SECOND PARALLEL BY THE FLYING SAP.

When a parallel is said to be commenced by sap, it merely implies that gabions are used. The peculiar arrangements, and manner of working with them, described in this paragraph, constitute what is called the "Flying Sap."

The workmen ordered for the duty of commencing, or opening the second parallel, will parade at the Engineers depot to receive their tools and gabions in divisions of 25 men, who must be formed in column at single rank. (General Pasley recommends these divisions to be of 50 men each.)

Every man is to carry a couple of 2 feet gabions, holding them under his arms, by means of a picket 2 feet 9 inches long, driven transversely through each of them, about 15 inches from the top, which pickets he grasps in his hands.

In one of these gabions he also carries a pick-axe, and in the other a shovel. The iron part of the shovel, and likewise of the pick-axe, rest on the top of their respective gabions, and are secured from falling by passing them beyond the picket ends, which project above the web, whilst their helms hang down inside. In carrying these tools in the gabions, they should be as near to the man's sides as possible. The pick-axe may therefore come entirely under one of his arms, but the shovel iron standing too high to be carried in this position, must be a little to the rear of his other arm. The transverse pickets must not be driven through the centre of each gabion, but nearer to one side of it, namely that which will touch the man's thighs after he takes it up.

The implements necessary for each division, consisting of 50 gabions with their transverse pickets, and a shovel and pick-axe fixed in each alternate gabion, must be previously laid out at the Engineer depot, in successive parallel lines, at central intervals of about 6 feet apart, so as to suit the formation of the column. The sappers employed in this duty must be well acquainted with the proper mode of arranging the pickets and tools, and strictly cautioned to do so with the greatest care, for which purpose they should be ordered to lift up each pair of gabions in succession, by way of trial, after the pickets and tools shall be fixed, shifting them if inconveniently placed.

After receiving their tools and gabions, the whole working party must advance by files, in single rank, through the continuations of the several approaches, in front of the first parallel, and through other openings made for the purpose in the parapet of that work, to the proper points on the proposed second parallel, from whence they are to extend to the right or left as may be directed, on reaching which points they will be formed along the line of white tape previously laid, as has been already explained under the head of Tracing, Working Parties, &c., excepting that no marks on the tape are necessary in the "Flying Sap;" for the two gabions carried by each workman measure his task.

As they come up into their proper places on the reverse side of the white tape, the men will successively put down their gabions close together, in front of the line, so as to clear it by two or three inches.

The sapper who assists in superintending the extension, is to correct the position of every successive pair of gabions, which it is difficult for the workman himself to place properly, on setting them down. As soon as each workman has got his gabions placed by the assistance of the sapper, he will disengage his tools and pickets, as it is useless to waste the latter by leaving them in the gabions. They may be laid down in rear of, and close to, the gabions. The tool's must be laid down behind the two gabions which mark each man's task, in the manner before described in treating of the first parallel.

Whilst the extension of the whole working party is thus going on progressively, the men first posted will sit down behind their own gabions and tools, as soon as the latter are properly laid out, and will wait "in perfect silence" for the order to commence work, which will be passed on from the extreme points of the parallel, as soon as the whole operation shall be completed.

In all cases when working parties take their arms, they should sling them behind their back, with the sling all to the front of the body, over the right shoulder, and under the left arm, and with the musket behind, the "butt" downwards and muzzle upwards, having the bayonet previously fixed in reverse or downwards. Parties in this order having both their hands at liberty can carry their two gabions each as well as tools, and having placed the former, and laid down the latter, after being extended, as has been already explained, each man will unsling his fire-lock and fix his bayonet properly, and afterward ground his arms, three full paces in rear of his own tools, the bayonet turned towards the rear.

Working parties when allowed to go armed, should carry the musket and bayonet only, without accoutrements, because it is impossible for men

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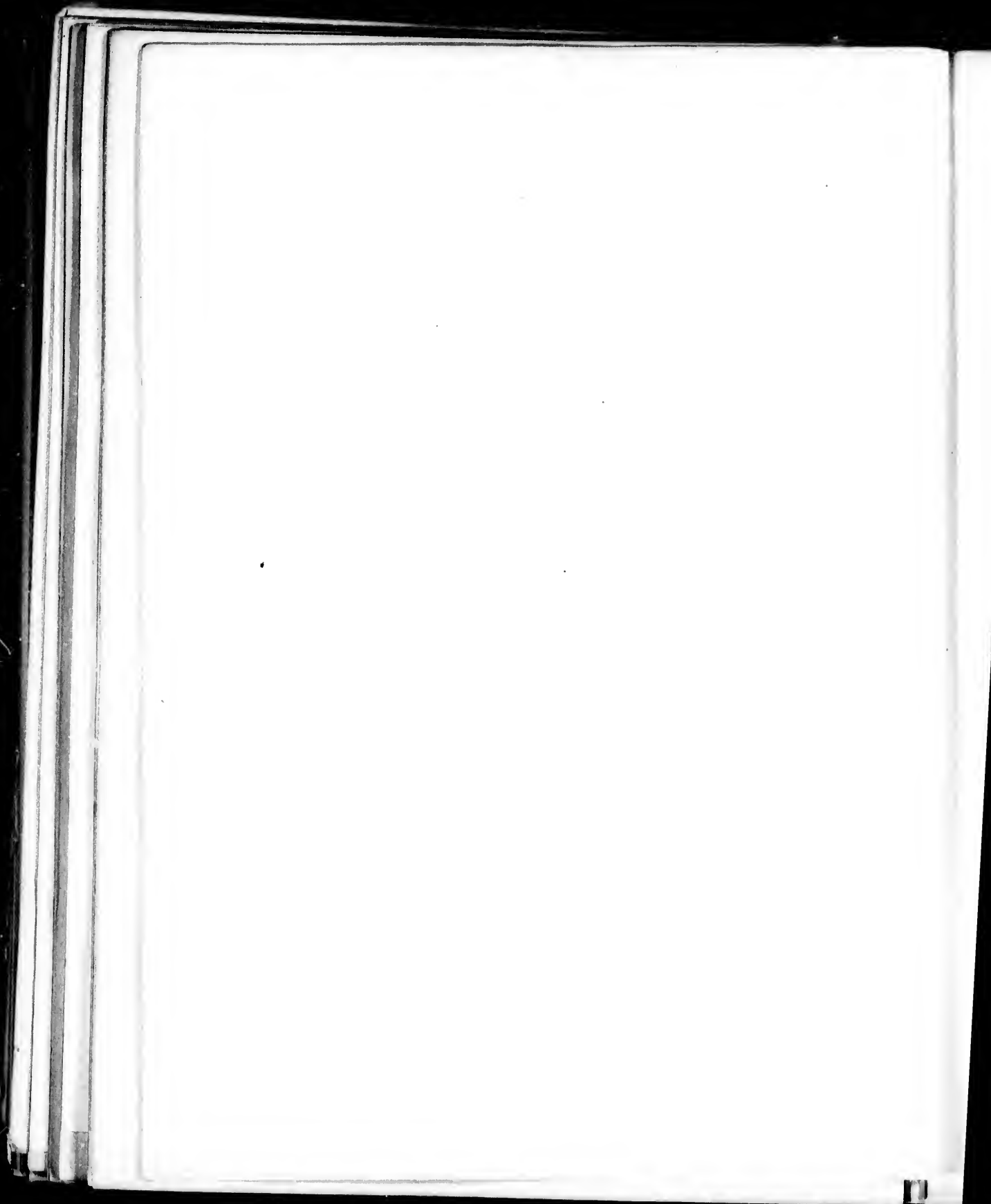
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*Sketch showing the method of carrying the
Gabions in advancing to make a Flying Sap.*



to work with their accoutrements on, and if they take them off, they could not put them on again, and adjust them in proper time, in the event of a sudden sortie; besides which the men of the working parties, if provided with accoutrements, could not be distinguished from the guards of the trenches; and thus lazy or ill-disposed individuals might often have an opportunity of skulking from their work for a great part of the night, without detection. The working parties, when armed, should therefore only carry a few ball cartridges in their pockets or foraging caps, and they should not even be allowed to take their bayonet-scabbards with them, which might be liable to be lost.

RULES FOR OPENING A SECOND PARALLEL BY THE FLYING SAP.

The method of arranging the workmen with their tools, behind the line of gabions, so that the space covered shall be at the rate of 2 gabions, or about 4 feet per man, has already been explained. In this order the men are rather more crowded than one could desire, but the use of gabions, the size of which is necessarily limited, leaves no alternative.

When the order is given to commence work, every man will begin digging in the rear of his own two gabions, which he will fill with all expedition, striking the sides of the gabions from time to time with his shovel, and afterwards patting the earth at top, to shake it down and make it compact before he throws any of it over. When filled, which may be done by good workmen in from 7 to 15 minutes, the line of gabions will be musket proof everywhere, except in intervals between adjacent ones. The Engineer officers superintending, and the sappers attached to divisions will take care to instruct the men to force their gabions forward at top, whilst the work is in progress, in order to give them a slope of about one fourth of their height, which is necessary to their stability, and which may be judged of, with sufficient accuracy, by the eye. This arrangement may be aided by introducing sods under the back of each gabion. The usual berm of 18 inches must be left behind the line of gabions.

The parapet of a second parallel may be crowned by one or more rows of fascines laid over the gabions, with which it is rivetted interiorly.—When fascines are used to crown the gabions in a second parallel, the second and third reliefs of men ought to take them out with them, each man carrying a 6 feet fascine, and 2 or 3 pickets—these fascines should be laid at the same slope of one-fourth, which was before prescribed in placing the gabions.

The fascines must also be secured by pickets driven through them, ob-

liquely, downwards, into the earth, at an angle of about 45 degrees.— There should be two such pickets to a 6 feet fascine.

In dealing with this subject the system of dividing Working Parties into three reliefs during the 24 hours, each relief never working more than 8 hours at a time or less if tasked, has been adopted, and which has been the rule laid down in most military works. But, towards the close of the Peninsular War, at St. Sebastian, in 1813, for instance, this rule gave way to a system of employing them by two reliefs only in the 24 hours, the first commencing at dusk, and taking the duty for all night, while the second, commencing at day-light took the duty for all next day; and this arrangement, together with the guards of the trenches being only relieved once in the 24 hours, has been strongly recommended by many Engineer Officers, as saving the fatigue to the troops of marching backwards and forwards between the trenches and their camps; allowing longer intervals of rest; and also that in the parallels and approaches in which the military working parties are first employed, which are commenced at night, and if discovered, exposed to the enemy's fire; the confusion and waste of time that must attend the relief of 1,500 or 2,000 men in the dark, and setting an equal number to work instead of them, is obviated.

OF RIFLE PITS, AND SAND-BAG LOOPHOLES.

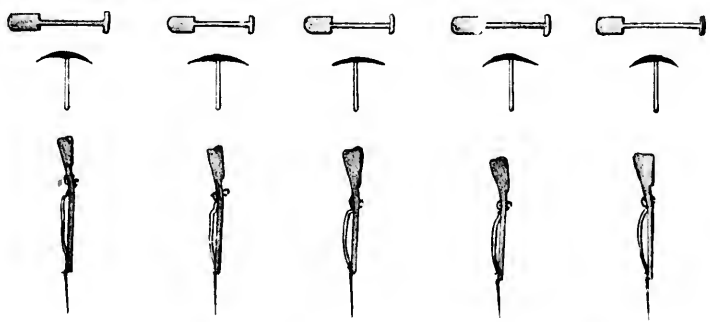
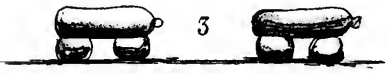
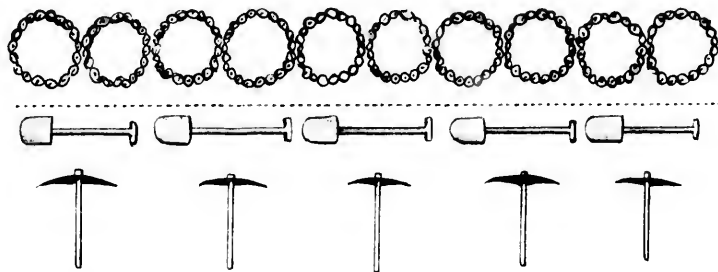
The covering parties, which by night throw out pickets with an advanced chain of sentries to cover the workmen employed in the opening of the trenches, must retire into them by day, with the exception of the double sentries in extended order, who may still keep watch in front, provided that they shelter themselves in small portions of trench, protected by a low earthen parapet. In making these pits, which are called "rifle pits," two Soldiers provided with a pick-axe and shovel, and a dozen sand-bags, work and watch by turns, and make an excavation, of which the form is of no importance; but it may be rectangular or elliptical, and just large enough to hold them conveniently, throwing the earth up in front, and also on each flank if necessary, and forming the reverse of their trench with a step in which they can sit.

They then lay two of their sand-bags as headers, with a splay towards the front, about four inches apart in rear, on which they lay a third sand-bag, on a stretcher over this narrow opening, affording a convenient loophole through which a man can fire at his ease, and in the same manner a

45 degrees.—

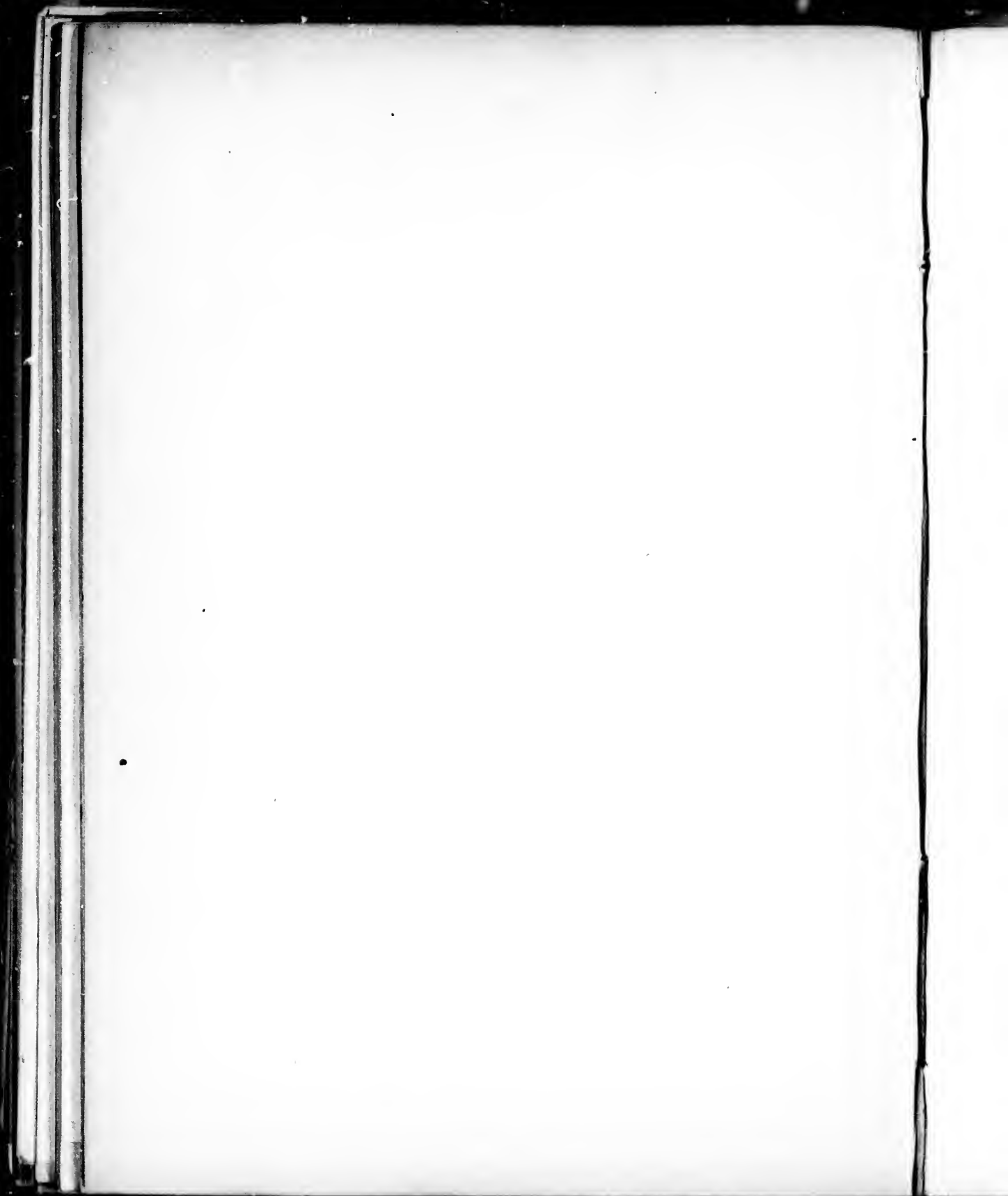
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second loophole is formed one for each of the two men. The depth of a rifle hole may be about 3 feet, but no particular directions are necessary as to dimensions, for the men are sure to make it convenient for their purpose, and comfortable for themselves, which is all that can be required.

A line of rifle pits in front of the position intended for the second parallel may greatly facilitate the tracing of that work, and might also be made useful in preparing for the opening of the trenches, but in this case it would be necessary to spread them out opposite to several other fronts of the place, in order to keep the enemy in a state of uncertainty, as to the intended project of attack.

A CATECHISM ON OUT-POST DUTIES.

Question.—What are the different parties of troops called in the British service, as laid down in the “Field Exercise Book,” which act in front of an army, for its protection and security, when in camp or contonments?

Answer.—The “Outlying Picquet,” its “Patroles” and “Detached Parties,” and the “Reserve for the Picquets,”—in all “four.”

Quest.—What is an Outlying Picquet, and its object?

Ans.—An Outlying Picquet is a certain number of men, under the command of a Captain or Subaltern, detached to the front of the main body of troops. Its principle duties are to secure the safety and repose of the camp or contonments, by occupying such ground and commanding such roads that no part of the enemy’s force can approach without being seen.

Ques.—What is the Reserve?

Ans.—It is a body of troops of such force, and so placed, as to support and assist the Picquets on their being attacked, or that the Picquets can retire on, if found necessary; and to impede the advance of the enemy so as to enable the main body to get under arms.

Quest.—What is a Patrol?

Ans.—As relating to an Outlying Picquet, it is composed of a small body of men, under command of a Subaltern or Non-Commissioned Officer, to be sent to the front, and flanks of the Picquet, for the purpose of gaining information in regard to the movements and position of the enemy that may be in their vicinity.

Quest.—On being ordered to take charge of an Outlying Picket with a view of covering any part of the camp or contonment, what would be your first duty?

Ans.—To make a nominal list of the Non-Commissioned Officers and men of the Picquet, and inspect their arms, ammunition, and rations.

Ques.—How would you move the Picquet to the ground you are ordered to occupy?

Ans.—I should move as an advance guard, to avoid being surprised, with advanced, flank, and connecting files.

Ques.—On moving to the ground you are to occupy, what observation would you make?

Ans.—I should take particular notice of all roads on my flanks, and such positions that, should I be driven in, I could defend.

Ques.—What is your “first duty” on arriving on the ground you are to occupy?

Ans.—The ground having been pointed out to me by a superior officer, where my right and left flanks are to rest, I immediately guard against surprise by placing sentries in such situations that no enemy can approach my picquet without being seen. Besides which the advanced files of my picquet will feel their way and ascertain if any immediate attack is probable.

Ques.—What is the second duty after taking the foregoing precaution?

Ans.—To communicate with the officers of the picquets on my right and left flanks.

Ques.—How do you communicate?

Ans.—I take as many men as I think will be requisite to keep up a chain of sentries from my picquet to the picquet I am going to communicate with, posting double sentries as I pass along, and keeping them in view; and, having communicated with the Officer on my flank, or Non-Commissioned Officer in charge of the flank parties, I return to my picquet, reducing or increasing the sentries as I find requisite, and placing them in the most advantageous positions to overlook the approaches to my picquet. My junior Officer, or Serjeant having done the same on the other flank. I then, by visiting myself personally, ascertain that they have posted the sentries according to orders, and communicated with the Officer on my other flank.

Ques.—When do you conceive that your sentries are posted as they ought to be?

Ans.—When they completely command every approach to the picquet, and can see the sentries on their right and left, and are as much concealed as possible from the enemy's view.

Ques.—Should the picquet be a flank picquet, what precautions would you take for its security?

Ans.—I should, after taking care of my “*immediate*” security, send out patrols, under an Officer or Non-Commissioned Officer, to the “*unprotected flank*,” which I should do every half hour, day and night.

Ques.—Into how many reliefs do you divide your picquet? and how often do you relieve your sentries?

Ans.—Into three reliefs of double sentries, and relieve them every hour, taking care to have sufficient men to patrol.

Ques.—After your communications are established with the picquets on

your flanks, and your own security from surprise ensured—what do you do?

Ans.—With a patrol I make myself thoroughly acquainted with the approaches and environs of my post; and “*if ordered to defend it,*” do my best to strengthen it, by throwing up obstacles, making loop-holes should my picket occupy a house, and in the neighbouring walls; throwing up breast-works, if I have tools, and making my defence so as to have as many cross fires as possible.

Ques.—Are the sentries on an outlying picquet posted double?

Ans.—Yes; and a communicating (single) sentry from them to the body of the picquet, to convey any signal or order that might come from the front.

Ques.—How do you place your sentries at night?

Ans.—I generally remove them from the place they occupied during the day, particularly should they have been seen by the enemy; and if they have been on a height I move them to lower ground, in order that they may discern any object on the sky-line with greater ease than looking down they would be able to do, and place them in the most advantageous positions.

Ques.—Would you increase the number of sentries at night?

Ans.—As a rule, yes, with the view of preventing the possibility of the enemy stealing in between them.

Ques.—Would you increase your sentries at any other time?

Ans.—Yes, during foggy weather.

Ques.—Ought you to post your sentries thickly or not?

Ans.—If possible not, but it must depend upon the nature of the ground and the state of the atmosphere. The great object should be to save my men as much as possible, always bearing in mind that every unnecessary sentry entails additional “*duty on all his comrades.*”

Ques.—When the advanced sentry is very near the enemy, what precautions would you take to secure his preservation?

Ans.—I should place obstacles in the approaches to his post, about 30 yards in his front, as well as flanks, when it is practicable to do so, such as abattis, &c., which the sentry could see over, “and so that they may not afford shelter to the enemy,” in order to stop any sudden rush that might be made upon him. I should particularly take this precaution at night, or should the sentry be placed at the end of a bridge where he must actually stand on the end of the defile.

Ques.—Were you not to take this precaution what might happen?

Ans.—The sentry might be suddenly overcome, and not able to fire, or

give the alarm, and consequently the picquet might be surprised, from being unable to get under arms to meet the enemy.

Ques.—Is it generally recommended that the “advanced” sentries should be so protected?

Ans.—Yes, where practicable for the above reasons.

Ques.—When a wood is in your front how would you place your sentry?

Ans.—As far from the wood as would be advisable, with a view of keeping as good a look out as possible, but being most particular not to endanger the sentry from a sudden rush from the wood?

Ques.—How do you ensure the body of the picquet being instantly made acquainted with any immediate threatened approach of the enemy?

Ans.—By the communicating sentry firing, or making the preconcerted signal.

Ques.—What regulates the actual position where you place the body of your picquet?

Ans.—After having ascertained the most advantageous point for posting my advanced sentries, I place my picquet so as to be within hearing of the connecting sentries fire, and out of sight of the enemy, and as near the centre of my line of sentries as possible.

Ques.—Do you examine your sentries as they are relieved?

Ans.—Yes, in order to ascertain whether they have observed anything in their front, and, if of importance, immediately to report the circumstance to the Field Officer of the picquets, always taking care to state in my report whether the movements, or whatever demonstration was observed, was on “our” right or the “enemy’s” left, or “vice versa.”

Ques.—On receiving verbal orders from your Superior do you write them down immediately?

Ans.—Yes, in order to give them over correctly to the Officer of the new picquet that relieves me?

Ques.—Do you place the same men on the same posts during the time they are on picquet?

Ans.—Yes; and I take care to place the most intelligent men, on the most important stations.

Ques.—Should a sentry or a man from the picquet desert, what would you do?

Ans.—Immediately inform the Field Officer of the day of the circumstance, and the Officers on my right and left, and be most careful of my immediate security.

Ques.—When you are permitted to have a fire for your picquet where would you place it ?

Ans.—As much out of observation as possible; and in case the picquet should be attacked at night, I should previously point out the place for the alarm post on the strongest and most defensible ground, and, if possible, “*in rear of the fire,*” in order that the enemy should be exposed themselves on coming up to it.

Ques.—When do you “*always*” get your picquet under arms ?

Ans.—One hour before day-break.

Ques.—How do you ensure your sentries looking in the right direction during the dark ?

Ans.—By placing a piece of stick horizontally on two forked pegs in the direction of the enemy’s posts. This precaution is to be taken also by the body of the picquet ?

Ques.—Under what circumstances should you retire your picquet ?

Ans.—When my flanks are thoroughly threatened, unless I have orders to defend my post to the last.

Ques.—If you were forced to retire, in what direction would you fall back ?

Ans.—The Field Officer of the day having shown me where the reserve is posted, I should retire upon it, firing, and disputing the ground; and on approaching the reserve I should order my picquet, which would be in extended order to place itself on its flank, and not cloud its front by our retrograde movement, so as to impede its fire upon the advancing enemy.

Ques.—When you hear firing on your flank or flanks, which indicates a retrograde movement of the picquets posted there, what should you do ?

Ans.—I should retire throwing myself on the flank of the advancing enemy, of course keeping my retreat open to the rear.

Ques.—If after you have been relieved from your post you hear firing from the front, what should you do ?

Ans.—I should immediately return, and give my support to the advanced picquets, and send word of what I had done to the Field Officer of the day.

Ques.—You have stated that a patrol is a body of troops varying in strength according to circumstances, sent out under command of an Officer or non-commissioned Officer to gain information regarding the enemy; how many different sorts of patrols are laid down in the regulations of our service ?

Ans.—Two: one for patrolling when the enemy is near, the other when the enemy is distant.

Ques.—What should you do previously to going out with your patrol when the enemy is near? and how do you move?

Ans.—I should inform the Officer or non-commissioned Officer on my flank, from whence I start, that I am going to patrol!

Ques.—Do you always commence patrolling from a flank of your picquet?

Ans.—As a general rule, yes, and return by the other, passing along the front of the line of sentries, never out of their sight, if possible, during the day, nor out of hearing the report of a firelock at night, and move as silently as possible, often halting to listen, and returning within the line of sentries to the place from whence I started.

Ques.—If you meet an enemy within the line of sentries what do you do?

Ans.—Immediately fire, and continue doing so to give the alarm.

Ques.—Should a patrol avoid firing as much as possible?

Ans.—Yes; and give as little alarm as can be avoided to the picquet.

Ques.—How should you act when ordered to patrol? the enemy being distant.

Ans.—I should move in the direction ordered as a small advance guard, with feelers in front, flankers, and connecting files, the first being men chosen for their quickness of sight and hearing.

Ques.—What should the advanced files and the feelers do if they hear any footsteps approaching.

Ans.—They should instantly fall back to the patrol, and if a larger body than the party to which they belong are advancing, two men should be sent back to the picquet to give information to the Officer, who will take immediate measures accordingly.

Ques.—What does the patrol do?

Ans.—It retires steadily, and if possible unobserved, on the picquet; but if observed and overtaken, it will keep up an incessant fire to give the alarm.

Ques.—Should a patrol fire on meeting an enemy's patrol?

Ans.—If possible not, as it tends to alarm unnecessarily.

Ques.—Who should inform the conductors of the different patrols the route they should take?

Ans.—The Field Officer of the day, who would also inform them the distance they should patrol to the front or flanks.

Ques.—Do you send out a strong patrol just before day-break.

Ans.—Yes, towards the enemy; and this patrol must be very cautious, as this is generally the time the enemy makes his attack.

Ques.—What precaution should be taken on the return of the patrol ?

Ans.—They must often look to the rear on returning, to ascertain that they are not followed, which is very frequently the case; and frequently halt to listen.

Ques.—In what manner would you move a large patrol to the front ?

Ans.—In the same way as an advanced guard, with advanced, connecting, and flank files.

A SYSTEM OF EXAMINATION FOR REGIMENTAL OFFICERS.

The following queries were in use in the several corps that I have commanded.

Once a month the Captain closely examined his subalterns, and reported thereon to the Major of his Wing. The Major examined the Captains of Companies; and the Adjutant severely examined the Non-Commissioned Officers of the Corps.

Monthly reports were forwarded to the Lieut. Colonel of the Regiment, by the Majors of Wings, on the general efficiency of the Officers on the above information.

[His Royal Highness the Duke of Cambridge, at his half-yearly inspections in Dublin, put somewhat similar queries to the Officers.]

QUERIES OF INSPECTION REQUIRED FROM ALL COMPANIES OFFICERS.

1. Captains.—The conditions of Enlisting money for Recruits, and apportionments thereof?
2. State the daily Pay of all Ranks?
3. The Annual and Biennial Clothing Return, with sums allowed for Clothing of each rank, and compensation for broken periods?
4. The several Acts of Enlistment of the Soldier?
5. The conditions of the Good Conduct Warrant?
6. Name and service of the oldest and youngest Soldier in the Company?
7. The number of Recruits joined since last Inspection?
8. The numbers in each Company, with the ability to account for every man by name on the strength of it?
9. The number of married men, and children?
10. The Religion, Country, and average height of the men?
11. The number of men drawing extra pay, with the different grades?
12. The number of forfeitures, and for what periods?
13. Number restored since last Inspection?
14. Define the powers of Regimental, Garrison, and General Courts Martial?

15. Number of Courts Martial since last inspection—with the names of men in confinement, their crimes, and periods of punishment, and the date of their release?

16. Number of desertions, and number of deserters recovered since last Inspection, with nature of punishment?

17. Names of men in hospital, with date of Admission, and rate of Hospital Stoppages?

18. Weight carried in light and heavy marching order and when in the field, and weight in detail of each article?

19. Price of rations, ditto of messing and washing. The heaviest debtor, and greatest credit; the amount in Savings Bank, and the greatest creditor?

20. What is the state of your Company's abstract with the Paymaster?

21. The time necessary for pitching and striking the Tents of a Company, with the number of men for each Tent?

22. Price of necessaries in detail?

23. The number of men for every 100 tons of Transport, with the warrant for Officers Messing?

24. The provisions of the Treasury Warrant, regulating the daily rations and messing for Soldiers on board ship?

25. Explain to your Company pitching and striking Tents in detail!

26. Explain, tell off, and fight an "Advance" and "Rear Guard" on meeting an enemy?

27. Define the powers of punishment of a Commanding Officer irrespective of Courts Martial.

FLAGS OF TRUCE.

Any person coming from the enemy with a Flag of Truce, must never be allowed to advance further than the chain of videttes or sentries.—When the signal is made the Officer of the picquet meets the Flag of Truce with four men, and desires the bearer of it to halt, if possible in a bottom, or makes him face towards the side he came from, as it may be only the intention of the enemy to make observations respecting our position, or to see how the picquet is placed, in order to surprise it in the night. Does the bearer of the Flag of Truce only bring letters, they are to be taken from him, and a receipt given for them; if he insists upon being allowed to proceed, permission must be asked, which being obtained, the person proceeding is blindfolded—a non-commissioned Officer brings him to the General's quarter. Should there be more persons than one, the remainder must stay where they are until the other returns.

A Flag of Truce ought to be treated with the utmost politeness; but no conversation relative to our position, and to the Army, is to be permitted.

After a Flag of Truce has left the picquet must be very attentive.



DESERTERS COMING FROM THE ENEMY, AT DAY-TIME.

As they are discernable at a distance, but cannot be known to be deserters, a proportionate number from the picquet must have advanced to receive them as they approach. Deserters generally make themselves known by flourishing the cap above their head, and calling out "deserter"! but this is not to be depended upon; their further behaviour must be previously observed. They are to be told that it is an order in the army to

take their arms from them, which is to be done, and in proportion to their number they are then to be brought to the General's quarter, by one, two or three men.

At night great caution is to be used, they are to be ordered to halt at some distance, and by no means to be allowed to come too near. The picquet advances and the deserters are to come towards it one by one, and be disarmed immediately. After all this is done they are to be brought to the rear. Deserters may be examined respecting the movements, &c., of the enemy.

PRACTICE OF ESCALADING.

WORDS OF COMMAND, &c.

The joint scaling ladders, of the present pattern, which when put together for scaling walls of 32 feet in height, or even more, will bear the greatest number of soldiers with arms and accoutrements that can stand upon them, are no incumbrance to men with their muskets slung, and after planting them, to unsling and trail arms at the foot of the wall, in readiness to mount the ladders, is the work of a moment. Nothing can be more ill-judged, therefore, than to employ a carrying party without arms, to plant the ladders for the column of assault to mount.

For practice, therefore, the party will parade in any number of rank and file divisible by 6, because six men are to carry each ladder.

The ladders will be previously laid out with the butt ends to the front and about 4 feet apart in the clear. The escalading party will form in line two deep, about ten paces in rear of the line of ladders, and told off in subdivisions, sections, and sections of threes.

“Threes on the left backwards wheel.”

“Quick March.”

“Halt,” “Dress.”

“Left face.”

“Officers and coverers to the front.”

The Officers place themselves in front of the right section of threes of



DRAWINGS OF SCALING LADDERS.

N^o 1, Store pattern: *in lengths; 2, 3, or 4 to be placed together and lashed (as in Fig. 3.)*
Sides 3 $\frac{3}{4}$ deep 2 thick. Yellow Pine.
N. B. Conventional Colors. Blue-Iron: Yellow-Pine: B^t Sienna-Oak.

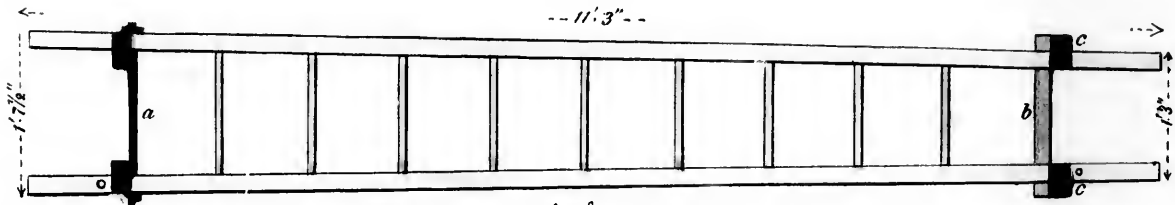


Fig. 1. *Scale. 2 to 1.*

- a. Iron rung of 3/4" round Iron.*
- b. Broad Wooden rung: this and all except a are Oak.*
- c. c. Iron bands receiving the ends of the next Ladder, when fitted as in Fig. 3.*
- d. d. Lashing-holes*

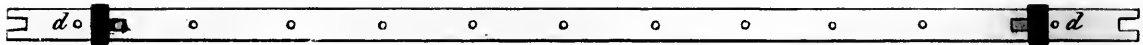


Fig. 2. *Side Elevation.* *Scale. 2 to 1.*



Fig. 3. *View of Ladders lashed together.* *Scale 10 to 1.*

N^o 2. Impromptu Pattern: *one length: a tree upwards of 32" long ripped auger bored, and bolted with oak rungs 1" thick Iron rung every tenth.*

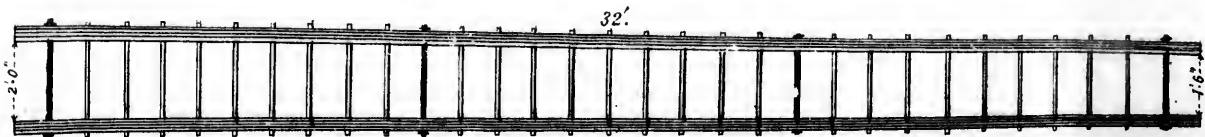


Fig. 4. *Scale 5 to 1.*



the right subdivision, their covering Serjeants in front of the right sections of threes of the left subdivisions.

“Officers and coverers take post by your respective ladders.”

“Quick March.”

They place themselves in front of the right ladders of subdivisions and face their men.

“By threes to your respective ladders.” “Quick march.”

The men will march up and form on each side of their respective ladders, being guided by the Officers and coverers.

“Sling arms.” “Shoulder ladders.”

Front rank men sling on the right shoulder, rear rank men sling on the left shoulder.

The ladders will thus be formed in line on the glacis opposite the wall to be escaladed.

“By the centre, Quick march.”

On reaching the ditch the men will lower their ladders at once, without waiting for any order.

“Trail arms.” “Form at the bottom of the ditch.”

“Forward.”

They will descend—form at the bottom of the ditch, and sling arms.

“Threes by ranks inwards face.”

“Move your ladders across the ditch.”

The leading files will ground the ladders close to the foot of the wall, the rear files keep the ladders on their shoulders.

“Turn Over.” “Trail Arms.”

“Form line within the rampart.”

“Forward.”

When the men are at the top of the ladders they will fix bayonets, and form line within the rampart, two deep, and with shouldered arms.

The drill being thus far completed, the troops will return across the ditch only to repeat it.

FORDS.

In examining and reporting upon a ford, the main points to be considered are the firmness and regularity of the bottom, its length, width and direction, the depth, (and its increase by tides or floods,) the rapidity of the current, the facilities of access, security from attack, and the means of rendering it impassable; a ford should always be tried personally before making a report upon its capabilities.

The depth of fords for cavalry should not be more than 4 feet 4 inches; and for infantry 3 feet 3 inches; but if the stream is not very rapid, and the direction of the ford is down stream, the latter may pass by holding on to the horses, even if the depth is 4 feet. Should the stream be very rapid, however, depths much less than these could not be considered fordable, particularly if the bottom is uneven. Carriages with wheels 5 feet in diameter may cross a ford 4 feet deep; but if it is necessary to keep their contents dry, the depth should not be more than 2, or at most, 2½ feet. Fords are generally to be found above or below a bend; and rivers which are not anywhere fordable perpendicularly across, may sometimes be found passable in slanting directions between two sinuosties.— In searching for fords, therefore, from the size of the river, their existence is doubtful, the trial should be made between any two sinuosities, not far distant from each other. First, enter upon the bank always found below a point, and follow it downwards in a slanting direction (X X X, fig. 9), toward a point nearly equidistant between the point R, and that where the current begins to diverge from the opposite bank. Thus crossing obliquely the transit of the current from side to side, both extremes will be avoided; and rivers have frequently been found fordable in this manner, which could not have been crossed at any part perpendicularly. The Spanish army forded the Esla in the campaign of 1812, without loss or difficulty by taking advantage of this circumstance; and in the same manner the Duero was forded near Zamora, and several other formidable rivers.

Small gravel forms the best bottom; and rock, on the contrary, the most dangerous, unless perfectly regular, and not slippery. In sandy countries, where the bottoms of rivers are usually of soft, moving sand, or the very fine loose gravel, the fords are dangerous and deceitful; be-

to be considerable width and rapidity of the means usually before

at 4 inches; very rapid, less by hold-stream be considered ch wheels 5 necessary to or at most, and; and rim may some- inuosties. — their existence osities, not ys found be- XXX, fig. d that where crossing ob- emes will be his manner, ularly. The out loss or e same man- dable rivers. ontrary, the y. In sandy oving sand, ceitful; be-

T. W. STROUD, CIVIL ENGR.

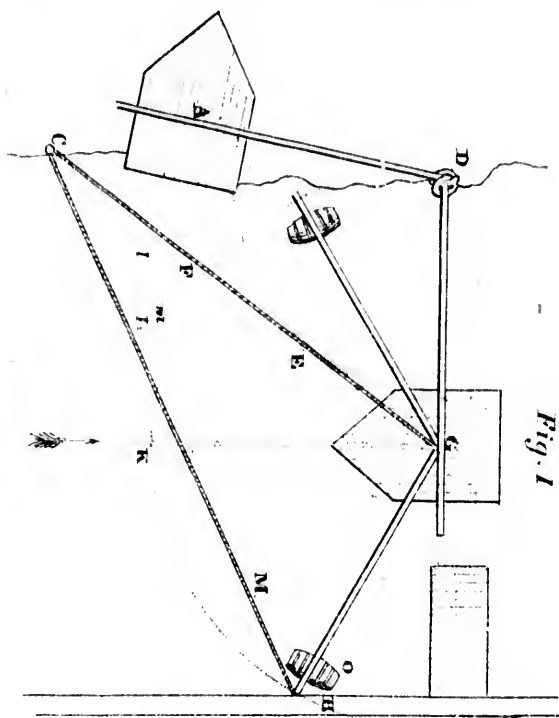


Fig. 1

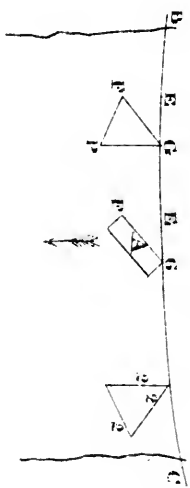


Fig. 10.

Section 3

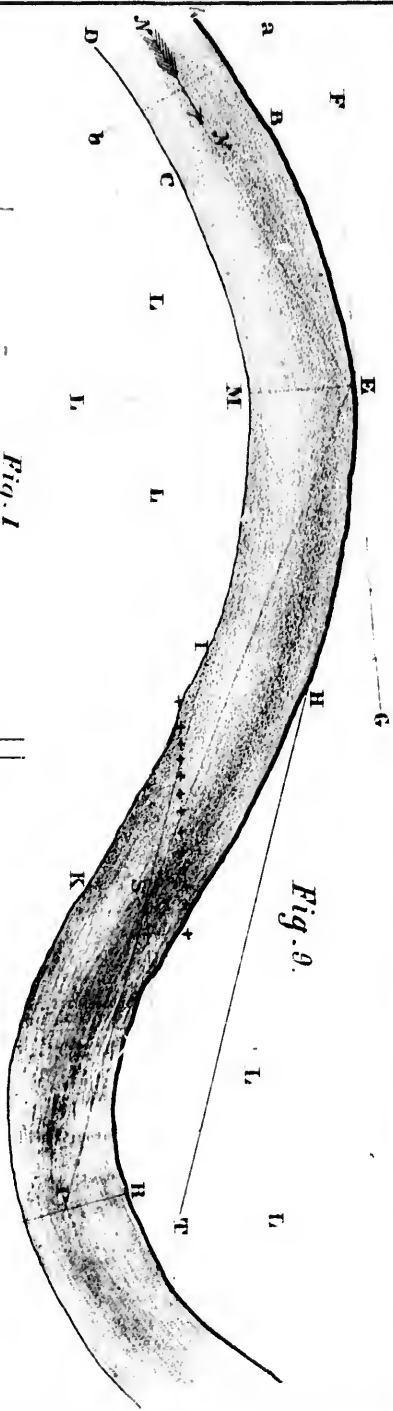
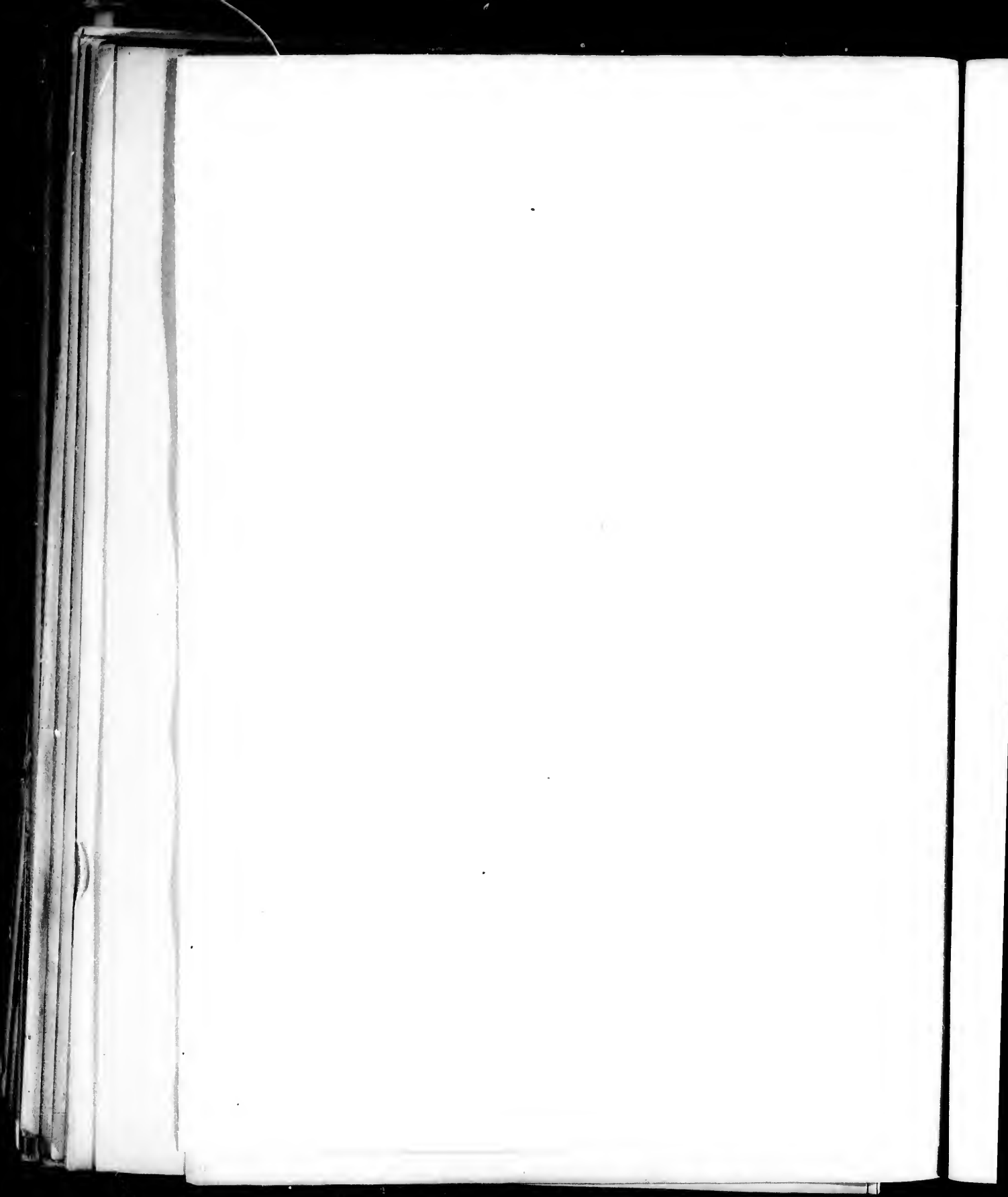


Fig. 9.

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cause, if large bodies of troops be to pass, and the current be strong, the sand stirred up by the operation, will be gradually carried away, the depth increased, and the ford which was passable for the head, may become impassable for the rear of a long line of march, of troops of all arms.

The best precaution for crossing a ford is to drive rows of pickets, at common distances, to mark and contain the best line of direction; and to pass strong ropes across each row, with a turn round each picket;—these pickets may also be notched, so that a dangerous rise in the river may be observed. Where the current is rapid, boats and horsemen should be in readiness to rescue men on foot from being swept away; the force of the current may be broken by the cavalry crossing a little above them; but if the bottom is sandy the cavalry should cross after the infantry and artillery, as the passage of the former deepens a ford sometimes very materially.

The best way to reconnoitre a ford is to descend the river in a small boat, with a sounding line hung over the stern, adjusted to the requisite ordinary depth of 3 feet—conducting the boat in the direction in which, from the principles laid down, fords are most likely to be found, the sounding line will indicate when it touches the bottom; and the direction, width, quality of bottom, &c., can then be ascertained and laid down. They may also be sounded by means of a boat having a pole attached. But cavalry or good swimmers may effect it with lances or poles, carefully feeling their way before advancing.

Parts which may be too deep, or even the whole width, if the river is narrow, may be rendered fordable by throwing in fascines parallel to the direction of the current, and loading them with stones, which must afterwards be covered with small material to render the surface level. The approaches should also be levelled, and where the soil is soft rendered firm by covering them with fascines, &c., so that the troops may advance with a broad front; and rapidly mount the further bank.

The opening and shutting of the mill-sluices will sometimes alter the depth of fords, and floods may even entirely destroy them: They can be rendered impracticable by means of large stones, harrows, planks with spikes, sharp stakes driven in so as to be concealed by the water, abbattis, &c., or by cutting trenches across.

REPORTS.

1. All reports should be written half margin on foolscap paper, and each paragraph numbered: this arrangement enables the superior Officer to whom the report is addressed to make marginal notes, and the numbering of the paragraphs affords an easy reference to the several parts of the subject.

2. All reports should be accompanied by drawings either as sketches of the ground, or view of the principle features; and the more they are illustrated by vignettes and diagrams, which may be given in the margin or in the paragraphs of the reports, the more interest will be given to them, as facilitating a quick comprehension of the subject.

3. Many parts of a report may be given in a tabular form, which should be done when possible.

4. An early attention to the object of the report, and the instructions or orders received for making it, will save much trouble; it is also necessary to arrange the subjects in the order of their relative importance, so time may not be lost in seeking for information of little value.

5. An important consideration is the condensation of facts in the smallest possible space, in logical order, so as to keep up the interest of the subject, and by inserting unimportant details in notes or in appendix to the report.

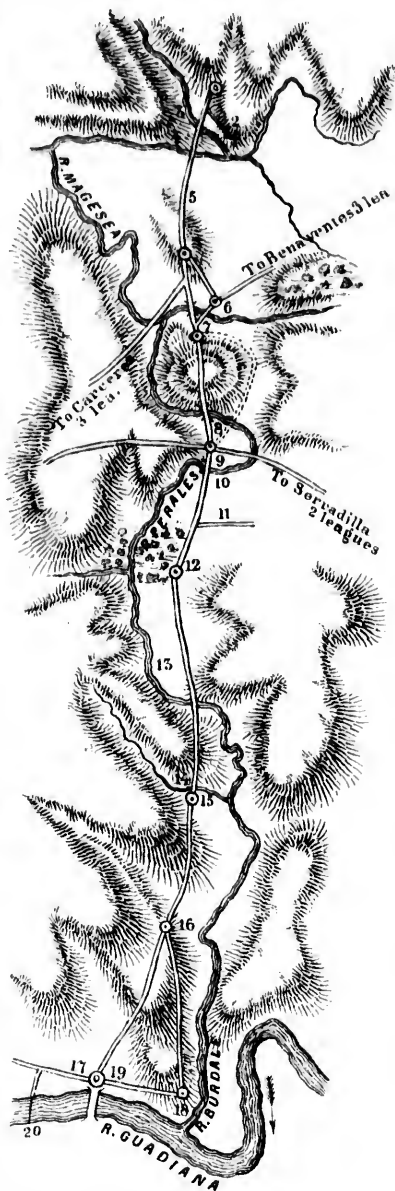
6. The purport or substance of each paragraph of the report should be briefly inserted in the blank half margin side of the paper; this enables the reader to recur to any part without trouble.

7. Military reporters should be careful in recording hearsay statements and offering opinions on surmise; and, if vague, the authorities should be quoted, and the value of the evidence stated; facts are what are required, based upon ocular demonstration.

8. In framing a report much valuable information will be found in the "Aide Memoire of the Military Sciences," under the heads of "Field Sketching," "Geology," and "Reconnoitreing." The articles on the "Passage of Rivers," the "Construction of Roads," and "River Navigation," also "Statistics," will afford valuable information to the reporter, according to the tenor of his instructions.

REPORT on the Ro

SKETCH OF THE ROAD.



PLACES ON THE ROAD, AND NEAR TO IT.	DISTANCES		No. of Horses.	AC
	Intermediate.	Total.		
	LEAGUES.			
1. TRUXILLO . . . . .	...	...	450	12
2. S ^a Anna	3			
3. Rivulet	4			
4. Rivulet	½			
5. Bad Road commences	1½			
6. S ^a Cruz de la Sierra	½	...	120	
7. PUERTO DE S ^a CRUZ	½	4	200	
8. Perales River	2			
9. Villames	½	...	60	
10. Perales River	4			
11. Road to Plasencia,	3			
12. MIAJADAS	1	4½	300	
13. Burdale River	2½			
14. Another Branch	½			
15. Venta de la Agua	4	..	1	
16. San Pedro	1½	..	30	
17. MERIDA	2	7	900	2-
18. Truxillano	2	...	10	3-
19. MERIDA	½	7½		0
20. Ford of Guadiana River	½			d

** This Report has been considerably reduced, and, on the map, numbers ha

REPORT on the Road from TRUXILLO to MERIDA, r

SKETCH OF THE ROAD.	PLACES ON THE ROAD, AND NEAR TO IT.	DISTANCES		ACCOMMODATION.					
		Intermediate.	Total.	No. of Horses.	PERMANENT QUARTERS.		ON A MARCH.		
					Men.	Horses.	Men.	Horses.	
		LEAGUES.							
	1. TRUXILLO . . . . .	...	...	450	1200	300	5000	600	1. <i>Truxillo</i> is a large town, with an abundance of fruit.
	2. S ^a Anna	3	...	...	...	...	...	...	2. <i>Sta. Anna</i> , a chapel of the same name.
	3. Rivulet	4	...	...	...	...	...	...	3. Pass a <i>rivulet</i> by a stone bridge.
	4. Rivulet	1/2	...	...	...	...	...	...	4. <i>Rivulet</i> always fordable.
	5. Bad Road commences	1 1/2	...	...	...	...	...	...	5. <i>Deep sandy road</i> for 1/2 league.
	6. S ^a Cruz de la Sierra	1/2	...	120	...	...	800	150	6. <i>Sta. Cruz de la Sierra</i> is a small town, with a <i>Sierra</i> of water; the site is very fertile. Near to it is a <i>Sierra</i> of 20,000 m.
	7. PUERTO DE S ^a CRUZ	1/2	4	200	...	...	1200	280	7. <i>Puerto de Sta. Cruz</i> is a small town, with a <i>Sierra</i> of marshy, and the road from <i>Truxillo</i> is very bad (see 5.). The <i>Sierra</i> is very high.
	8. Perales River	2	...	...	...	...	...	...	8. At one league and a half, the road intersects with the <i>River</i> , but this road is very bad, and the <i>River</i> is likewise extremely shallow, as represented in the sketch, always passing a ford, always passing a ford half a league.
	9. Villames	1/2	...	60	...	...	300	20	9. <i>Villames</i> is a very poor town, with a <i>Sierra</i> of 200 m.
	10. Perales River	1/4	...	...	...	...	...	...	10. You again cross the <i>River</i> , which is very shallow.
	11. Road to Plasencia,	3	...	...	...	...	...	...	11. <i>Road to Plasencia</i> , a very bad road, with a <i>Sierra</i> of 200 m.
	12. MIAJADAS	1	4 1/2	300	800	200	3660	250	12. <i>Miajadas</i> is a well built town, with a <i>Sierra</i> of 200 m. large olive woods, and a <i>Sierra</i> of sheltering hills, long there, it is very fertile.
	13. Burdale River	2 1/2	...	...	...	...	...	...	13. The banks of the <i>Burdale</i> are very high, and a half league, it is very fertile.
	14. Another Branch	1/2	...	...	...	...	...	...	14. <i>Another branch</i> of the road, which is very bad, and a half league, it is very fertile.
	15. Venta de la Aguia	1	...	1	100	200	200	200	15. <i>Venta de la Aguia</i> is a small town, with a <i>Sierra</i> of 200 m.
	16. San Pedro	1 1/2	...	30	...	...	300	25	16. <i>San Pedro</i> is a very poor town, with a <i>Sierra</i> of 200 m.
	17. MERIDA	2	7	900	2500	600	7000	1000	17. <i>Merida</i> is a large, well built town, with a <i>Sierra</i> of 200 m.
	18. Truxillano or	2	...	10	...	...	100	...	18. The direct road to <i>Merida</i> is very bad, and only a half league, it is very fertile.
	19. MERIDA	1/2	7 1/2	...	...	...	...	...	19. <i>Guadiana</i> River, which is very rapid, and a half league, it is very fertile.
	20. Ford of Guadiana River	1/2	...	...	...	...	...	...	20. <i>Ford of Guadiana</i> River, which is very rapid, and a half league, it is very fertile.

* * This Report has been considerably reduced, and, on the map, numbers have been substituted for names of places, in order to meet the

OBSERVATIONS.

1. *Truxillo* is a large town, with two good convents, &c. &c.; situation elevated; inhabitants healthy; water may be procured of a good quality, and in abundance, from the fountains in the town.
2. *Sta. Anna*, a chapel about three miles from Truxillo, and three quarters of a mile to the left of the road.
3. Pass a rivulet by a stone bridge.
4. Rivulet always fordable; average depth in summer, 1½ feet; gravelly bottom; low banks.
5. Deep sandy road for two miles, and difficult for artillery.
6. *Sta. Cruz de la Sierra* (¼ of a mile to the left of the road) is composed of tolerably good houses; the River Perales, which runs close to it, always affords water; the situation is elevated; and the inhabitants healthy. From *Sta. Cruz* there is a road to Carceres, seven leagues, practicable for artillery. Near to *Sta. Cruz de la Sierra*, at a convenient distance from the river, is a wood of ever-green oak, which affords the materials for hutting 20,000 men. The situation is very elevated, healthy, and in every respect eligible.
7. *Puerto de Sta. Cruz* is a better village than *Sta. Cruz de la Sierra*. The houses are larger, and streets wider. The situation, however, is low and marshy, and the inhabitants unhealthy; which renders it unfit for permanent quarter. The road from Truxillo to *Puerto de Sta. Cruz*, is generally very good, and is practicable for artillery, excepting the two miles already described. (see 5.) The soil is gravel, and there is but little cultivation, except in the vicinity of the towns and villages. The chief produce is rye. There is an abundance of cattle, viz, sheep, bullocks, pigs, and goats, in this route.
8. At one league and a half from *Puerto de Sta. Cruz*, you pass the *Perales river*, by a stone bridge, and half a league further brings you to *Villames*; but this road is impracticable, in consequence of the hill which lies between *Puerto de Sta. Cruz* and the *Perales river*, being very steep, and intersected with rocks, the turnings of the road too sharp and too narrow for the axle-trees of the carriages of our guns. The banks of the river are likewise extremely difficult for artillery, being precipitous and rocky. The whole of this, may, however, be avoided, by taking the direction as represented in the Sketch. You then pass over a level country, with a hard gravelly bottom, and cross the *Perales river* by a good and safe ford, always practicable; the distance is only increased half a mile, viz, from *Puerto de Sta. Cruz* to *Perales river*, two leagues; to *Villames*, half a league. This new road has been pointed out to the *Juiz de Fora* of *Puerto de Sta. Cruz*, and men have been instructed to serve as guides.
9. *Villames* is a very poor village, and only to be resorted to on an emergency. A road to *Seradilla*, two leagues.
10. You again cross the *Perules river*, by a good wooden bridge.
11. Road to *Plasencia*, to the left, five leagues distance; very good.
12. *Miajadas* is a well built village, &c. The situation and water good; inhabitants healthy. There is a convent of Benedictines, which is capable of containing 200 men. The produce is chiefly rye; there is, however, some wheat. Wood and forage must be brought from *Plasencia*. There is a large olive wood about two miles to the right of the road, near to a small rivulet, which has always plenty of water. This olive wood is capable of sheltering 15,000 men. It is, however, nearly surrounded with hills, which prevent the free circulation of air; and, if the troops remained long there, it is probable that fevers would prevail.
13. The banks of the *Burdale river* are very steep, and difficult of ascent and descent; the current rapid; the bottom gravelly; its depth in winter, three feet and a half; in summer, one foot and a half. There is a strong position behind this river, a separate Report on which, and a Sketch, accompany this.
14. Another branch of the *Burdale river*—the road descends to it by a gradual slope, but the ascent on the other side is difficult for artillery, but practicable.
15. *Venta de la Aguilá* is a large inn. The proximity of excellent water, and the abundance of barley, make this inn a very desirable quarter for cavalry.
16. *Sin Pedro* is a very poor village, and only to be used in a case of necessity.
17. *Merida* is a large, well built town, &c. &c. &c.
18. The direct road to *Merida* is frequently rendered impassable from the rains; then you may move artillery by *Truxillano*; this road is always passable, and only two miles round.
19. *Guadiana River*. This large river has a bridge across it, of masonry, with sixty arches. From the first week in July to the beginning of December, this river is fordable in many places. Its general breadth, in its course from *Merida* to *Budajoz*, is 130 feet; its bottom gravel. There is a ferry-boat which plies during the winter, at two miles above the bridge. This boat is capable of containing 50 men, or 6 horses and 20 men. 1000 men may be conveyed across in two hours and forty minutes. At the distance of a quarter of a mile from the right bank of the river, wood may be obtained for forming a flying bridge; and workmen and tools may be procured at *Merida*. The current of the *Guadiana river*, in winter, is very rapid; in summer, slow, and nearly stagnate in some places.

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9. The application of ground to military operations, whether offensive or defensive, for strategical or tactical purposes, may be considered the most difficult of tasks to a military reporter, and few opinions should be given, except those formed from incontrovertible facts; and assertions that a river is impassable, a country inaccessible, place impregnable, and roads impassable, should only be offered on most accurate information; and, if not from personal inspection, the authority must be given. To suggest that particular sites afford good positions for offensive or defensive tactical operations, or that they are well suited for intrenched camps, posts, or positions for strategical operations, should be given hypothetically, if not based upon a thorough acquaintance with the country, and some knowledge of the art of war.

10. Finally, in arranging the report, the classification of matter under different heads should be attended to, and subjects separated, keeping the descriptive, statistic, political, and military parts distinct, as well as other points unconnected with each other.

PASSAGE OF RIVERS.

Temporary bridges are made with piles, trestles, boats, pontoons, casks, and other materials.

Pile bridges are more especially applicable for rapid and shallow rivers, in which boats or floating bridges cannot be made use of; but they are very liable to be destroyed by a sudden rising of the water. Napoleon erected two bridges on piles, from the Island of Lobau to the right bank of the Danube in 1809; one was 430 yards long, and the other 273.—Piles are generally merely used as supports or pier abutments, when deep or wide rivers are to be crossed. Pile engines form part of the French field equipments.

Trestle bridges are exceedingly useful in establishing communications across shallow rivers, when other means cannot be obtained, on account of their easily being made of rough materials; but the bed of the river must be sound and firm and the current moderate. Trestle bridges are especially liable to be destroyed by any swelling of the water.

Boat bridges consist of boats placed at certain intervals from one another and connected by balks; the whole being planked over. When it is decided that a river is to be crossed by means of a bridge of boats, parties of light cavalry are sent to reconnoitre along the banks of the river, or of any stream running into it. This operation requires great celerity and secrecy; all the boats that can be found are brought to some appointed spot, where a guard of infantry is placed for their protection.

As it might happen that the enemy had destroyed all the boats on a river, or collected them on that side of which he is master, it is usual for armies at the present day to take with them into the field a bridge equipment.

The principle upon which these bridges are constructed is, that the weight which a floating vessel bears is equal to the weight of the fluid displaced by the part immersed, deducting the weight of the vessel; hence the desideratum is, to displace as much water with as little weight as possible, by which means buoyancy is combined with portability.

The bridge equipment in use in the British service consists of tin cylinders, divided inside into partitions, so that they do not fill and sink

from a shot striking them, or from scraping on a rocky bottom. These cylinders are termed pontoons, and are of two dimensions: the larger with hemispherical ends, is 22 ft. 3 in. in length, and 2 ft. 8 in. in diameter; the smaller with conical ends, is 15 ft. in length, and 1 ft. 8 in. in diameter.

A pontoon bridge is laid down in the same manner as a boat bridge, viz.: pontoons placed at certain distances, connected by balks, and the whole planked over.

One carriage will contain two large or five small pontoons, with their appurtenances.

The French and Austrians make use of flat bottomed boats, about 30 feet long, each boat requiring a separate carriage for its transport.

When it is proposed to form a lodgement on the opposite bank, to protect the formation of the bridge, the troops intended for this purpose are pushed over in "flying bridges," rafts, and row-boats.

Flying bridges are of two kinds, the swing and trail. The swing flying bridge consists of a large boat, or raft, anchored in a river, usually at a bend of it, by a cable which should measure at least once and a half the width of the river. It is carried from bank to bank by means of the current.

A "trail flying bridge" consists of a hawser, or chain, stretched across a river, to which is attached, by ring or traveller, a boat or light raft.—The boat is moved across by men warping on the rope.

Bridges of this description are generally used on rivers where a more permanent structure would be objectionable, either on account of its impeding the navigation or from certain military points of view.

Rafts are made use of in mountainous countries, where it may be impossible to convey bridge equipages; and even in flat countries, when the localities admit of it, and there are no other means of passage. The greatest objection against rafts is their low degree of buoyancy, and general manageability; but they are easily constructed, and cannot be sunk by artillery fire. The best wood for rafts are poplars, firs, and pines.—Rafts ready constructed are found in many rivers of the French frontiers and the neighbouring countries, where timber is a great article of commerce.

The Liere and the Drome convey the fir trees of the Hautes-Alps to the Rhone; the Moselle and the Saone, those of the Vosges; the Aragon, the Segre, and the Cinca receive the firs of the Hautes-Pyrenees, and take them to the Ebro; the Rhine receives the green timber of the Black Forest; the Mein, that of the Spessart; the Elbe, the pine-trees of Bohemia and Saxony; the Po and the Adige, those of the Julian and Tyrolese Alps.

Common row-boats are often employed for pushing over troops to form a lodgement. At the passage of the Adour, in 1814, by the left wing of the Duke of Wellington's army, under Lieut. General Nidderly, in 48 hours, from the evening of the 22d of March to that of the 24th, 6,000 men, and a small body of cavalry were ferried over in row-boats and in pontoons used as row boats. The horses were made to swim over, led from the sterns of the pontoons, and some light pieces of artillery were transported upon pontoon rafts. Though these are the means generally used for crossing rivers, a determined body of men will always devise some expedient when these cannot be obtained.

In the retreat of the Anglo-Spanish army across the Duero, in the month of October, 1812, the regiment of Brunswick Œls was detached to destroy the bridge of Tordesillas; it was done in time, and a tower behind the ruins was occupied by a detachment, while the remainder of the Brunswickers took post in a pine wood at a distance. The French arrived and seemed for some time at a loss; but very soon after, 60 French Officers and Non-Commissioned Officers, headed by a Captain Guingret, a daring man, formed a small raft to hold their clothes and arms, and then plunged into the water, holding their swords with their teeth, and swimming and pushing their raft before them. Under the protection of a cannonade, they thus crossed this great river, though it was in full and strong water, and the weather very cold; and having reached the other side, naked as they were, they stormed the tower. The Brunswick regiment then abandoned its position, and these gallant soldiers remained masters of the bridge.

Methods of constructing temporary bridges of rough timber or trees, without using nails, or employing fine workmanship, will always be found of signal use on service; and officers of all arms, and all ranks, would do well to study resources of this kind. Light troops in particular should be acquainted with expedients so necessary to facilitate the operations of the army with which they may be acting, or to favor their own desultory enterprises, in a country where timber is abundant.

If, for instance, a body of infantry either acting singly or forming the advanced guard of an army, should be brought to check by a narrow, unfordable river, where boats cannot be obtained; and if trees long enough to span it are growing on the banks, a communication may easily be made, by felling a tree into the water, confining the trunk to the bank, and letting the current force the head round to the opposite side, against which the branches of the tree will be jammed with such force as to bear weight by its strength and its buoyancy.

If the river be too wide to be spanned by one tree, and that two or three men can anyhow get across, let a large tree be felled into the water on each side, and placed close to the banks, opposite to each other with their heads upwards. Fasten a rope to the head of each tree—confine the trunks—shove the heads off to receive the action of the current, and ease off the ropes, so that the branches may meet in the middle of the river, (fig. 13,) in an angle pointing upwards; the branches of the trees will be jammed together by the force of the current, and so be sufficiently united to form a tolerable communication, when a few of the upper branches are cleared away. If insufficient, towards the middle of the river, to bear the weight of men crossing, a few stakes, (C. D., fig. 15,) with forks left near their heads, may be thrust down, through the branches, to the bottom of the river, and hitched to the main branches of the trees; or the force of the current may be made to yield vertical support to the communication, by applying a few planks, forming a plane, (A. B., fig. 15,) inclined to the surface of the current in an angle of about 50° , by which that power which, in the flying bridge, acts horizontally may be obtained vertically, in a manner that will greatly add to the stability of the rough structure.

If no communication can be established with the further bank, fell two large trees, and one of middling size, and place them in the water. Take one of the former, and place it as represented by a A. B. in fig. 14, and confine it in that position by a rope to the bank C.; press the heel (A.) of the first tree down in the water, by placing two or three men on it, in order to raise the head as much as possible during the following operation: Lash one end (D.) of the small tree (D.E.) upon the tree A. B., at about a fourth of its length from the top, the end (E.) abutting upon its bank; float the remaining tree downward, and place its heel upon the second tree at a few feet with its junction with the first, by keeping down the end (E) in the water; then shove off the third tree, till the current catch it on the near side, and it will be forced round, and jammed with so much force under and among the branches of the first trees, as to form a practical communication; this may afterwards be supported from the bottom, or by the current, by the means recommended in the preceding cases.

Figs. 7, 7 b and 8, are bridges formed of four or six rough trees, secured at their crossings by the cross pieces (slots in carpentry) A.B.—Fig. 7, and A., B., C., D.,—figs. 7 b and 8, which are so explanatory of the principle, that description is unnecessary. To support the beams till their ends are crossed, and the slots put in, or to move the bridge ready made to its place, a pair of carriage wheels and an axle may be of great

service, either by lodging the end of the bridge upon the axle, and so draw it over entire (fig. 17); or by lowering the frames to their bearings upon the slots in the manner represented by fig. 16. Thus, suppose one end of a frame (A. B., fig. 16,) fastened to an axle, which should be lengthened if possible to give the bridge a wider base, and C. D., another frame, bolted or pinned to the first in E, and moveable about it. Set up the two frames on the edge of the river, (fig. 16)—haul or push the wheels towards the other side, till the frames come down to their proper bearing upon the slots,—and the bridge is laid. The frames may be supported in the middle by a prop F., (fig. 17,) on each side, standing perpendicularly upon a surface of boards, or set in the axle-hole of a wheel having a few boards nailed or lashed to the faces of the spokes, so that in either case the support stand upon a large surface of soil.

Figs. 18 and 19 are representations of a very ingenious bridge composed of a few beams and a pair of wheels, invented by the late Lieutenant General Sir Wm. Congreve, of the Royal British artillery. It is very light, and consequently may be constructed at a distance from the river, or ditch, which it is intended to pass, and rapidly run up by hand for instant application. The ends of two beams (A. B., C. D., fig. 18,) are fastened to the axle-tree, and the other ends attached to the beams, A. D.: the opening (A. G. D.) is regulated according to the known breadth and width of the impediment, and the beams supported in the middle by a post (G. H.); the floor is formed of a few light planks. This bridge may be thrown across a small river, or a considerable ditch, in a very few minutes, without previous indication of the part to be attempted, and may be quickly formed of cart, or any other carriage wheels, and a few light spars.

The purpose for which the late Sir William Congreve designed this expedient was, to accompany columns of attack, in the assaults of field works. The beam A. B., (fig. 20,) having a light floor on the part B. C., is supported, during the advance, by ropes,—the beams C. D. are attached to A. B. in C., the other ends, D., rest upon A. E. To cross a wet ditch, the machine is run up and pushed into the ditch until E., the end of the beam A. E., rests on the edge of the counterscarp; the beam A. B. is then let fall, when a bridge will be formed as represented in fig. 21.

This machine may also be found useful in passing deep, dry ditches, by facilitating the attempt; forming a passage over palisades, chevaux-de-frize, &c.; or serving as scaling ladders to ascend a rampart: or by means of carriage bridges upon this principle, deep, narrow ditches may be crossed, without descending into them, if the beams A. B. (figs. 22, 23), be made long enough to reach to the crest of the exterior slope, or escarp, before

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Fig. 2.

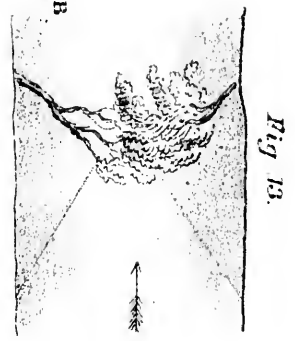


Fig. 13.

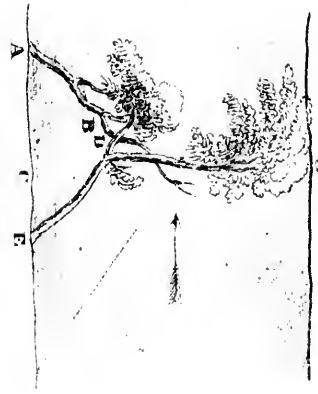


Fig. 14.

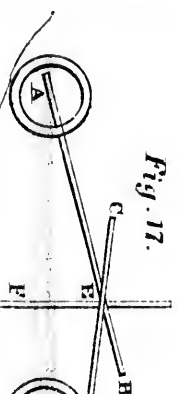


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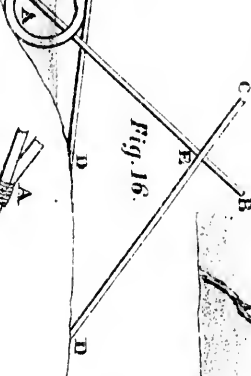


Fig. 16.



Fig. 15.



Fig. 19.

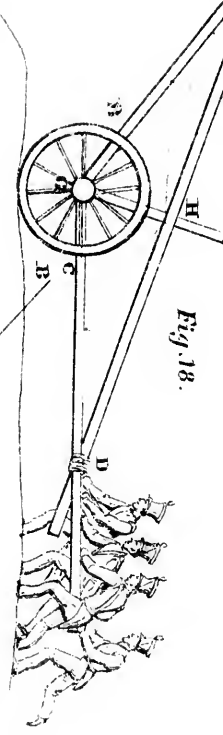


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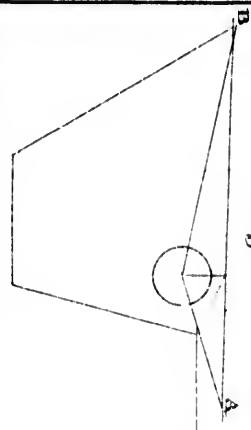


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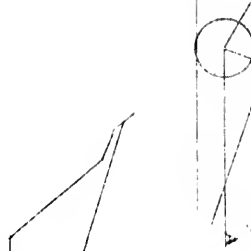


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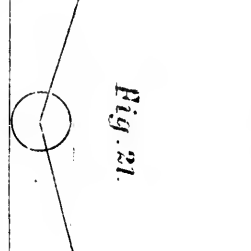


Fig. 21.

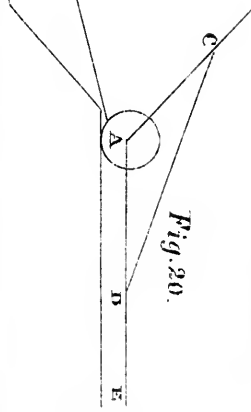


Fig. 20.



the wheels quit the edge of the counterscarp. As the ditches of field works are commonly defended by caponniers, and reverse fire from casemated counterscarps, to make up for the want or deficiency of flank fire from the parapet, so any expedient by which a ditch, so protected, can be crossed at the top, is deserving of favourable consideration and adoption. But these expedients can only be resorted to when the ground in front of the work is clear from local expedients or artificial obstacles, so that several carriage bridges may be run up in time. If the ground be soft, such machines would occasion but little noise in their movement; and by nailing leather on the wheels, using leather washers, and other precautions, noise might be almost entirely prevented. Expedients of this nature may undoubtedly be of service, either in the assault of works, or to cross any ditches, canals, or other impediments by which the approaches to the works may be covered. And, although attempts by such means may be difficult, yet the losses attending them will not, in general, be so great as to fill up ditches, inundations, &c., by materials carried by hand, under a heavy and protracted fire.

Space will not admit of entering into continued details of the expedients that will present themselves to determined men on service, but from among many others may be mentioned the facility with which sometimes can be formed (in the absence of other materials) rafts of casks and scaling ladders, for crossing wet ditches; as also of "fascines" for a similar purpose.

The following extracts are added as showing the value of inventions such as that of Sir. Wm. Congreve, which has been described above and the purposes to which they may be adapted.

In General Niel's report to the Emperor, under date "Sebastopol, Sept. 11,"—in describing the attack on the "Malakoff Fort," by the French army, he says :

"In order to cross these ditches, which were very deep, we had invented a kind of bridge, which could be thrown across in less than a minute, by an ingenious manœuvre, in which our men had been exercised, and these bridges were very useful to us."

In allusion to the attack on the great Redan by the British army, of the same date, as published in the English newspapers, the following observations were made :

"There is a deep ditch at your feet, some 20 or 22 feet deep, and 10 feet broad. See! here is the place where the French crossed,—here is their bridge of planks; and here they swarmed in upon the unsuspecting defenders of the Malakoff. They had not 10 yards to go. We had 200—and were then out of breath. Were not planks better than scaling ladders? See how easily the French crossed!"

OF FLYING BRIDGES.

The principle of the Flying Bridge, should be well understood by all classes of Officers, particularly Staff; as it may be applied either wholly or partially, to boats or rafts of any kind, and on every scale, for passing small as well as large rivers.

A Flying Bridge is formed by anchoring a floating body in a river so as to receive the action of the stream obliquely: by which a force is derived from the current to move the vessel across the river.

The force that urges the boat, C. G., (fig. 8), in the direction C. B., depends upon the obliquity of the vessel to the current; and is a maximum when the side C. E. makes with it an angle of 54° , 44.

The force of the current upon E. G., the end of the boat, acts against the force, L. P., and therefore floats for flying bridges should be long and narrow; and flat headed boats should not be used unless they are very much of this shape.

The boat A. (fig. 9), fastened to a cable by a buoy, B., securely anchored, will, in crossing from C., soon come into the line of direction of the current B. D.; and if she be steered in the proper degree of obliquity, she will pass through the ascending part of the arc to the bank E, whence she may be made to recross to C., in the same manner.

The manœuvre will be more easily executed with a long than with a short cable, for it will be in the arc of a larger circle. If a short cable, B. G., were used, the boat would have to ascend from G. through a space equal to G. H., to arrive at S., and consequently suffer great resistance from the action of the current. Also resolving B. S. into B. H., H. S., we see that the force, B. H., supports the boat against the stream, whilst it is held to the centre, B., by the greater force, H. S. The movement, therefore, should not be made in a longer arc than 90° ; and when this is observed, the angle A. B. E., never being above 45° , the force E. O. will never be greater than O. B.

Whenever a long service of cable is used it should be floated by intermediate buoys 1, 2, 3, (fig. 14.)

When a river is too wide for a simple flying bridge. the boats may be sheered across the current by warps to two or more buoys—or the boat

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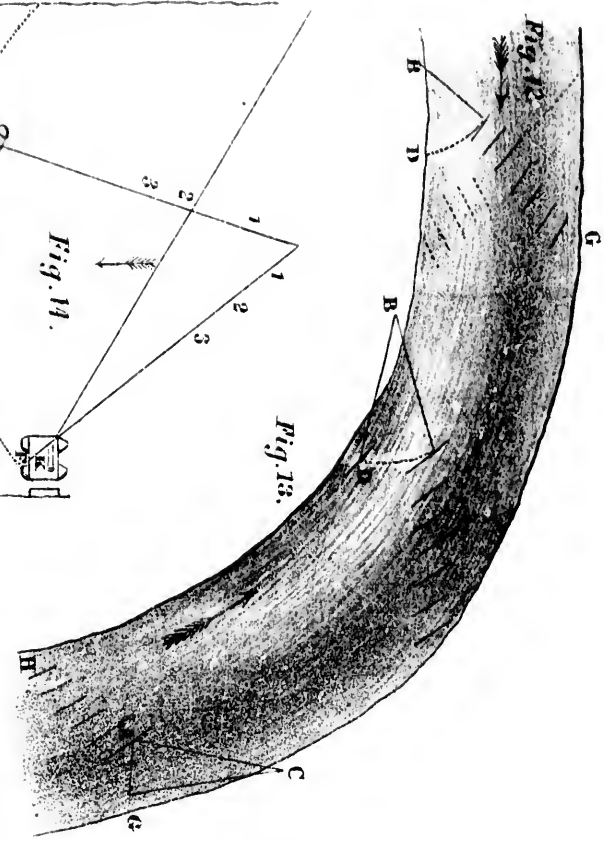
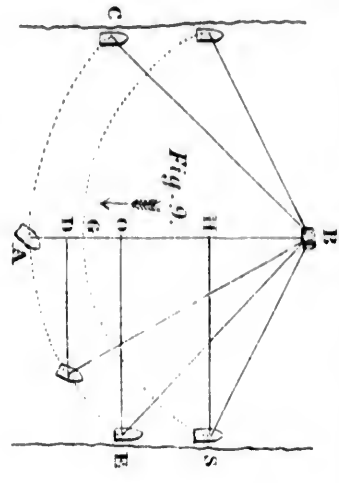
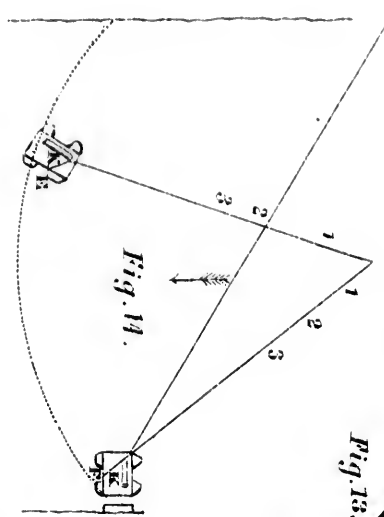
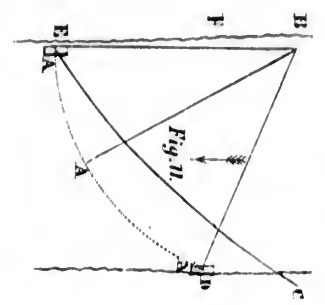
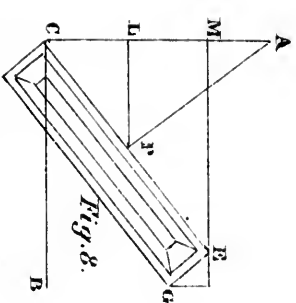
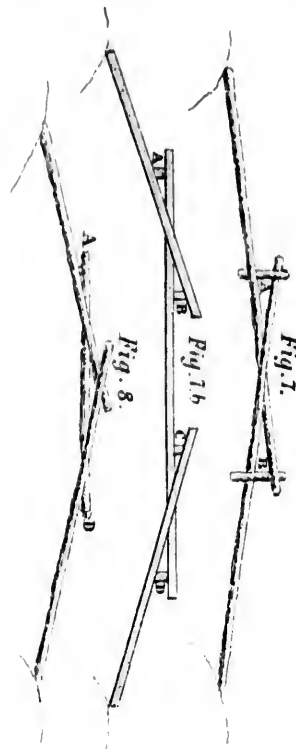
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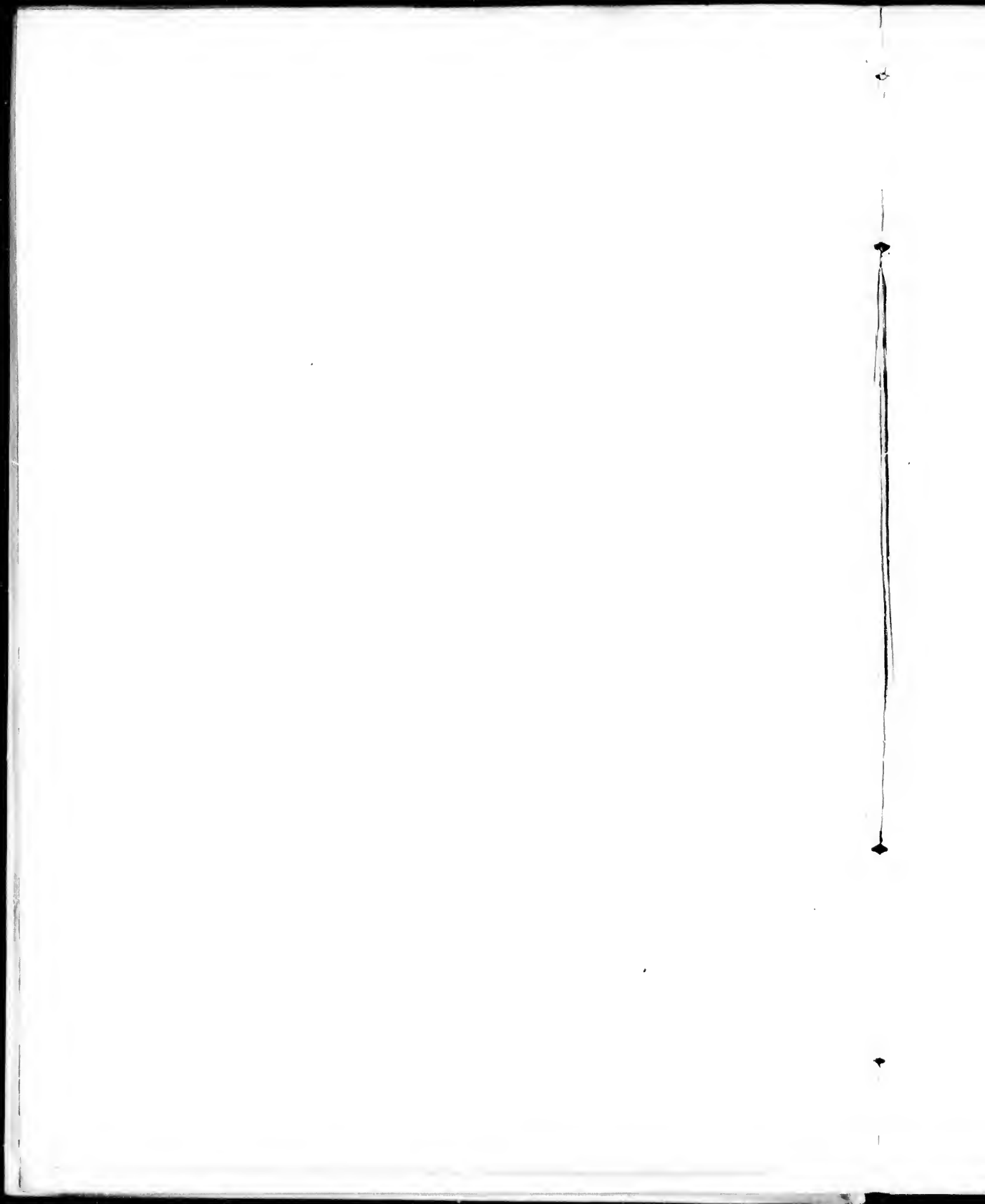
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A. (fig. 10,) attached to a block running on a cable, stretched across the river, and kept in an oblique position, will move across the river on the cable B. C.

If a triangular raft (fig. 10) having the angle $F. G. P. = 54^\circ$, 44, be attached to the warp B. C., and one side, G. P., be placed in the direction of the current, and consequently not acted upon by it, the force upon the other side F. G., in the direction B. C., will be a maximum, and the float will proceed to C., suffering only the ordinary resistance of the water displaced. If at C., the position be altered to 2, 2, 2, to receive the action of the current on the side G. P., the float will recross the river to B.

In a rapid current the resistance against a flying bridge in the ascending part of the arc, may sometimes be too great to be encountered with safety: to avoid this, two ropes may be used, and the passage made in a descending arc. Thus the boat A. (fig. 11) crosses to the bank E., through a descending arc D. E., taking with her the rope A. C., by which she recrosses from the point F. to which she must be hauled up, from E., when close to the shore.

Partial applications of the flying bridge may thus be of great service, in enterprises of a bold, desultory character, when anchors cannot be laid, or there might be danger in attempting to use them. Let the boat be sheered off from the bank D, (fig. 12), by a cable fastened to B., until, from the impetuosity of the current, it becomes necessary to let go; if the float be kept in the proper degree of obliquity, by oars, the current will set her to the other side as she descends, and she will reach the bank as at G.

Whenever a current is so strong as to render it difficult or unsafe to sheer a boat across with cables, it will be absolutely necessary to steer it with a long oar because a rudder cannot control the sudden impulses of a powerful eddy, or an irregular current.

In this case it will be better to attempt the passage of a river at a curved part, because the rapidity of the stream on the concave bank occasions an eddy upwards towards the point B., (fig. 13) which will carry the boat to D., where, assisted by a rope, she may again take the stream obliquely, and easily reach the other side. To return, the rope A. C., should be used to sheer her out to A., whence, if a proper obliquely be maintained. She will fall into the eddy at H., and easily regain the point B.

A flying bridge, or rather a ferry bridge was established on the Tagus at Villa Velha, by stretching a hawser across the river, and attaching to it by ring or traveller, a raft formed of a platform laid upon two boats.— This double vessel or raft was worked backwards and forwards, by detach-

ments of twelve men, relieving each other at regular intervals. This principle of warping across is very commonly used for ferries, and is an expedient that may be adopted with convenience and advantage in small rivers, whose current does not exceed two miles an hour; but beyond this the flying bridge principle should be either fully or partially followed.

In the most celebrated attempts to force the passage of rivers, both in ancient and modern times, the first footing has generally been effected by surprise, with desultory means, such as row boats, rafts, &c., and a feint to disguise the real intention. Such attempts have almost invariably been attended with success, and generally with little loss.



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MEMORANDA.

The Company is formed for Set up Drill, at close order, the files lightly touching to a flank. The Commander then orders, "Front rank two paces to the front," "Rear rank two paces to the rear," "March;" "the right files two paces to the front," "March;" "the whole right half face." The words of command simply are the numbers over each figure. A whole battalion may be exercised in a similar manner.

CLUB DRILL.

It is desirable that the recruit should be practiced in the use of the Clubs, together with Extension Motions, for at least half an hour every morning before drill, until he is perfectly suppled and fixed in the true position of a soldier, as directed section first, part first, Field Exercise and Evolutions.

The recruit being placed in the position of attention, with a club in each hand, pointing downwards :—

Words of Command.

Part First.

"One."

At the word "one," the club in the right hand is slowly carried round the head, until the hand arrives in a perpendicular line above the shoulder, with the large end of the club pointing in a diagonal direction to the rear.

"Two."

The club in the left hand is raised in a similar manner and carried over that in the right hand till it reaches a corresponding position.

"Three."

The hands are carried slowly to the right and left, until they become in a true horizontal line with the shoulders, the large ends of the clubs still remaining in the rear.

"Four."

The hands are brought slowly to the first position; care must be taken that the recruit does not stand with a hollow back during this and the succeeding practice.

Second Part.

"One."

Raise both hands to the front, bringing them close together in a horizontal line with the shoulders, clubs being held perpendicular, the large ends upwards.

"Two."

With the body well pressed forward, separate the hands, and carry them to the right and left in line with the shoulders, the large ends of the clubs still remaining upwards.

"Three."

With the heads well kept up and the clubs turned over, till they point in a diagonal direction to the rear, the hands still remaining in a line with the shoulders, the wrist turned up.

"Four."

The hands are brought slowly down to the first position.

Third part.

"One."

Commence swinging the club with the right hand, the arm at full extent over the shoulder; body kept square to the front.

"Two."

The left club as No. One.

"Three."

Both clubs as No.'s One and Two.

N. B.—At the word "Attention" they cease swinging the clubs.

NOTE.

The following note, explanatory of the position of the several armies at the commencement of the present war, is inserted as illustrative of the strategical points, and principles, of military tactics, which guide the operations of armies on an extended scale.

1. It is a principle in military tactics, that the "base" of operation of an advancing army, and of the enemy, should run parallel.

2. If the troops move too far from the basis, a new one should be formed. The Russians, in 1792, were almost destroyed at Valmy, from neglect of this principle; so, also, Jourdan, in 1796; and Napoleon on his advance on Moscow and Liepsic. The Russian "line" of operation, at the commencement of the present war, extended from Fokchany to Kalafat, (300 miles.) and while it rested on that base it was in constant danger of being broken by perpendicular attacks from the Turkish front.

The Turkish line of defence extended from Kalafat and Widdin to Hirschova (250 miles), thence along Trajan's Wall (36 miles) to Kustenji.—Principle points: Kalafat, Widden, Nicopolis, Rustchuk, Turtukai, Silistria, and Trajan's Wall (fortified). In the rear of this line moveable columns were stationed at Plevna, Tirnova, Osman, Bazar, Rasgrad and Bazardjik. By means of these columns, on the principle of "*triangular concentration*," support could be readily given to the advanced line. In the rear of this line were Shumla and Sophia—the great reserve points. The maritime fortress of Varna covered the right.

The maritime base of the Allies extended from the mouth of the Danube to Kustenji, Varna, Burgas, Sizeboli, Midia and the Bosphorus.

Adrianople supported the advanced base. (the Balkan.) and was in itself the apex of a triangle, resting on Enos, and the maritime base of Midia, having Rodosto on the sea of Marmora, as an intermediate reserve point.

The Russian line of communication was of great length (300 miles), and parallel with, not perpendicular to the Turkish front.

The Russians must have assailed (said "an English officer" at that time) either on the right centre, or left.

1st. On the right—They must have forced the Danube; captured the

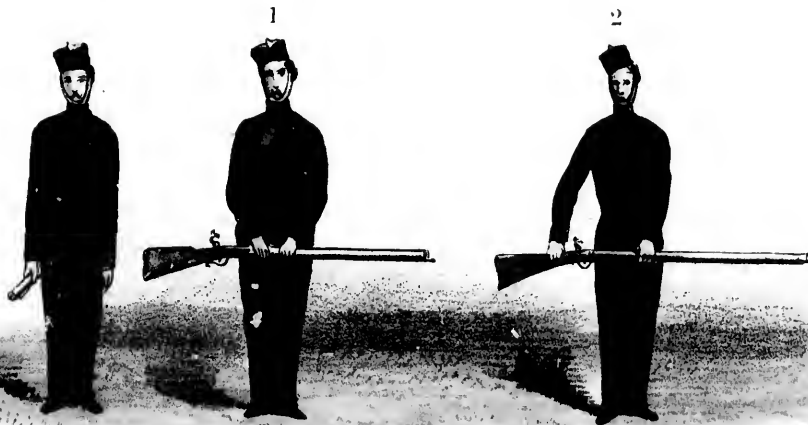
Fortresses in the Dobrudja, behind Trajan's wall, and advanced by Bazardjik: the strong fortress of Silistria in right rear, the Allied fleets on left flank, Varna, &c., in front.

2nd. Centre—Rustchuk must have been taken: Silistria on left, Nicopolis on right flank, Shumla and main Turkish army in front, through which the Russians must have forced their way to the Chipka Pass, to be met by an Anglo French force from Adrianople.

3rd. On left—By Kalafat, which together with Widden. must have been stormed and taken, to Sophia, through Trajan's Gate Pass, on Tatar Bazardjik, and Phillipopolis. The Russian line of operation (450 miles long to the Pass) rested on Bessarabia, through Widden or Rahova, by Krajova or Karakal, Slatina, Bukharest, Brailow, Galatz or Fotkehany, and was open to perpendicular attacks from the Turkish forces, unless the Russians could have formed a new base on the Danube, and at that time in the uncertainty of Austria, they would have been exposed to great danger from the operations of a force debouching from Transylvania or Servia to take them in reverse: the Allied fleets in their rear within 36 miles of the Danube, at Kustenji: and in their front an Allied army in the Valley of Maritza.

(EXTENSION .)

NOTE.—These “ Extension Motions ” are not intended to supersede any now in practice, they are designed rather as an addition to them, and are sketched under the sanction of the motto which heads the paper; they comprise an exercise which, though simple in itself, has been found productive of great benefit in attaining that important desideratum in a soldier’s instruction—“ his sitting up.”



The Recruit falls in with trailed arms.

Bring the Firelock across the front of the thigh, seizing it at the same time with the left hand close to the right.

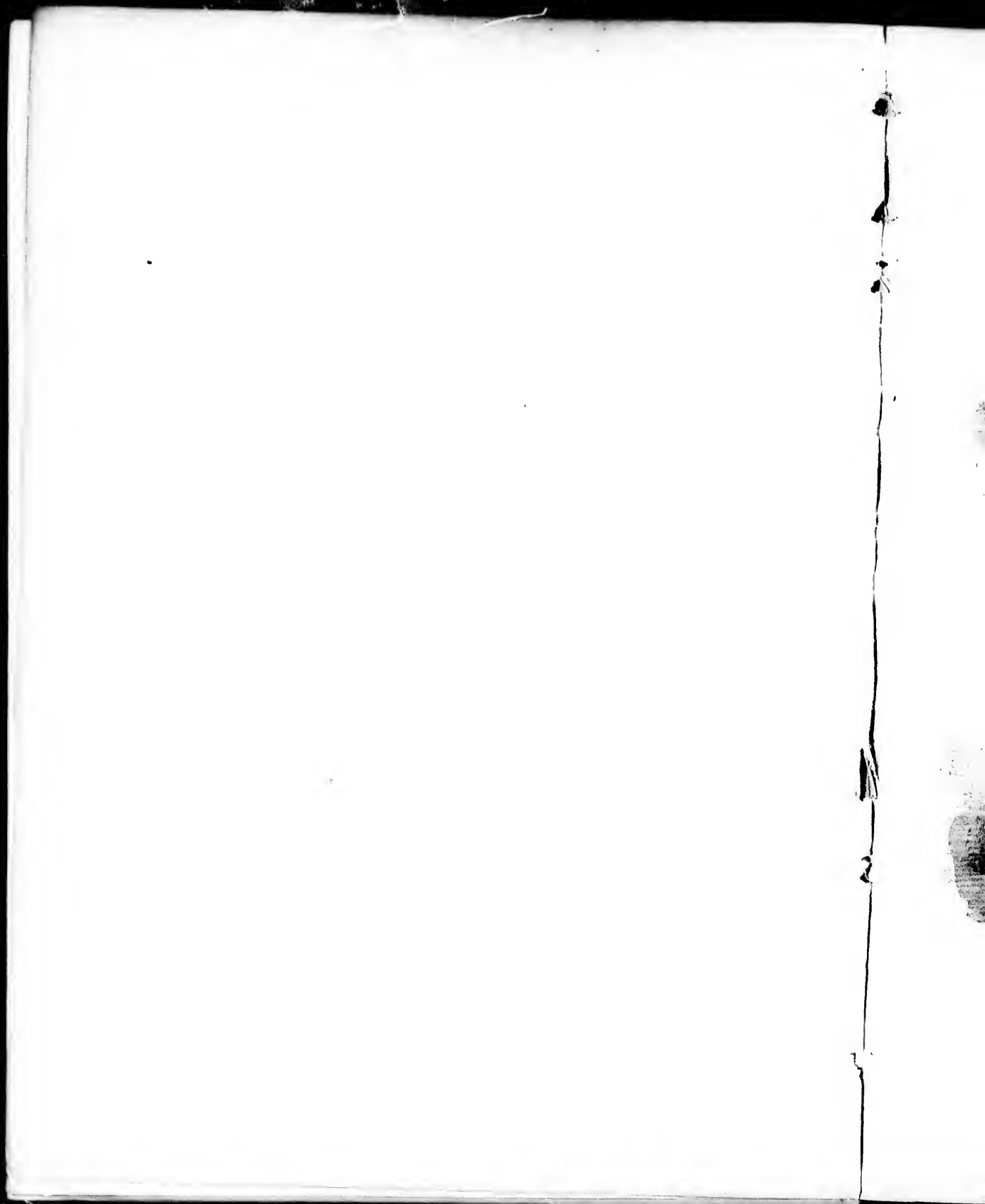
Grasp the Firelock with the right hand at the small of the Butt, retaining the hold with the left.



Pass the left hand along the sling till it reaches near the upper swivel.

Raise the Firelock with arms extended till it is directly over the head.

Pass the Firelock to the rear, and lower it as far as possible on the back without shifting the hands.



Dumb Bell Drill.

2nd PART.

1



*Palms of hands
to front.*

2



*Bring the
hands smartly
out to the front
in line with the
chin.*

3



*Bring the hands
smartly to the
right & left, palms
of the hands up-
permost.*

3rd PART.

1



*Bring the hands
smartly to the
front, thumbs up-
permost, in a line
with the chin.*

2



*Bring the hands smartly to
the rear in a line with the
shoulders, palms of the
hands uppermost; then to
the front, and so on, judg-
ing their own time.*

*The
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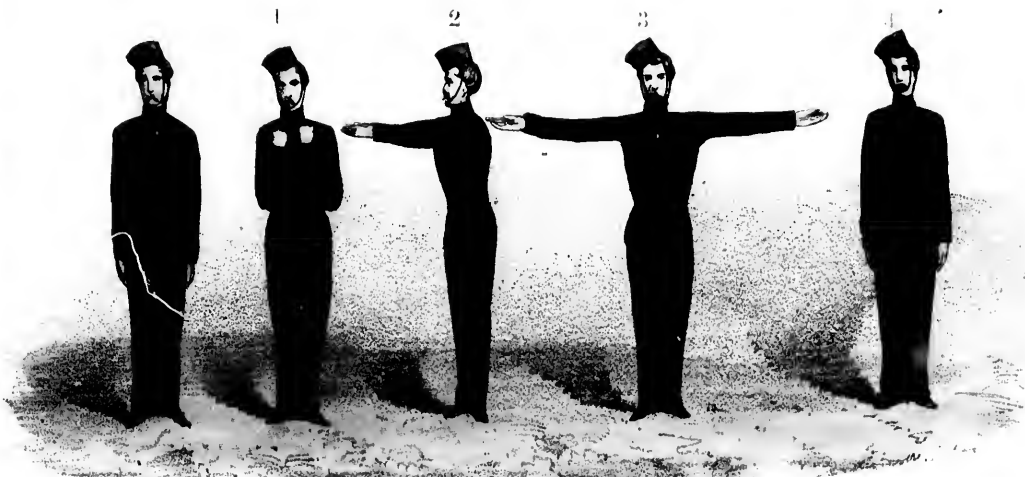
*The Rec
stands at
tion—pal
hands to f*

MEMORANDUM.

The Words of Command are simply the numbers over each Figure, (1, 2, 3, 4, 5.) From position '5' Trail Arms is resumed by reversing the words of command, (4, 3, 2, 1, Trail Arms.) From 3 to 4, and 4 to 5, (particularly the latter,) the Firelock should be moved very slowly, and the change from 4 to 5, and 5 to 4, should be frequently repeated before returning to Trail Arms. Care is to be taken that at the word 'Fire,' the head is not bent, and that the Firelock is pressed well to the rear without touching the Forage Cap. A whole Battalion may be exercised in these "Extension Motions" by stepping back the Rear Rank six paces, and the left File three paces more; the whole then standing in four Ranks, should be half faced to the right or left, which will afford room for each to exercise freely.

Dumb Bell Drill.

1st PART.



The Recruit stands at attention—palms of hands to front.

Being the hands smart in under the chin, back of the hands to the front, and fingers clinched

Hands smart out to the front.

Hands separated, and in line with each shoulder.

Slowly drawn to each side.

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ADDENDA.

It may not be inappropriate, in a work compiled for practical purposes, to add, with reference to the paragraph on "Baking," the following instructions for making "*Yeast*" and which may be useful where the material itself may be deficient, and where the substitute recommended, "American Powder," is not to be obtained:

Boil 2 oz. of hops in four quarts of water, for half an hour. strain it, and let the liquor cool down to new milk warmth; then put in a small handful of salt and half a pound of brown sugar; beat up one pound of flour with some of the liquor, and then mix all well together.

Forty-eight hours after add three pounds of potatoes boiled and then mashed, to stand 24 hours,—then strain it, and put it into bottles, and it is ready for use. N. B.—It must be stirred frequently while it is making, and kept near the fire.

Before using shake the bottle well up. It will keep for two months, and is best at the latter part of the time.

This yeast ferments spontaneously, not requiring the aid of other yeast; and if care be taken to let it ferment well in the earthen bowl in which it is made, you may cork it up tight when bottled.

The quantity produced by the foregoing receipt would fill about four Seltzer water bottles: and during several months that it was under trial it afforded light bread and suffered no failure.

 FOR BREAD.

One quarter of Flour, three table-spoons full of yeast, a pint of water milk warm, two oz. of butter with the water. Let it stand two hours to rise.

However puerile to casual observers such receipts may appear, the practical Soldier will understand their value.

