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A handwritten signature in black ink, appearing to read "E. D. Ward". The signature is written in a cursive, flowing style with large, connected letters.

WAR OFFICE.

24th February, 1909.

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CONTENTS.

CHAPTER I.

THE FIGHTING TROOPS AND THEIR CHARACTERISTICS.

Sec.		PAGE.
1.	Application of general principles to the leading of troops	11
2.	The characteristics of the various arms	11
3.	Cavalry and other mounted troops	12
4.	Artillery	13
5.	Engineers	15
6.	Infantry	16
7.	Machine guns	17

CHAPTER II.

INTER-COMMUNICATION AND ORDERS.

8.	Responsibility for maintaining communication	18
9.	General rules regarding the preparation and despatch of orders, reports, and messages	19
10.	General arrangement of orders	22
11.	Standing orders	22
12.	Operation orders	23
13.	Issue of orders... ..	26
14.	Routine orders	29

(2837) A 2

SEC.		PAGE.
15.	Messages	29
16.	Reports... ..	30
17.	Means of communication	31
18.	Signal traffic	32
19.	Captive balloons	34
20.	Orderlies	34
21.	Relays	35

CHAPTER III.

MOVEMENTS BY LAND AND SEA.

22.	The strategical concentration	37
23.	The forward movement from the area of concentration ...	39

MARCHES.

24.	General rules	40
25.	March formations and distances	41
26.	Pace	42
27.	Order of march	43
28.	Second line transport and transport and supply columns	45
29.	Divisional ammunition columns and transport and supply parks	46
30.	Starting point,	46
31.	Halts	47
32.	Crossing military bridges, fords, drifts, &c.	48
33.	Rules for transport on the march	48

MOVEMENTS BY RAIL.

34.	General rules	50
35.	Duties of a commander of a troop train	51
36.	General rules for entraining and detraining	52

Sec.		PAGE.
37.	Entraining and detrainning personnel	52
38.	Entraining and detrainning horses	52
39.	Entraining and detrainning guns, wagons, and stores ...	53
40.	Defence of railways	53

MOVEMENTS BY SEA.

41.	General rules	54
42.	Embarkations	55
43.	Duties on board ship	56
44.	Disembarkations	56

CHAPTER IV.

QUARTERS.

45.	General principles and rules... ..	57
46.	Hygiene and sanitation in quarters	58

ADMINISTRATION AND DISCIPLINE.

47.	Duties of the commander of a brigade arms	60
48.	General arrangements on the arrival of the troops ...	61
49.	Discipline	61

BILLETS.

50.	General principles	63
51.	Allotment of billets	63
52.	General rules in billets	65
53.	Sanitation in billets	66
54.	Close billets	66

CAMPS AND BIVOUACS.

SEC.		PAGE.
55.	General principles	67
56.	Arrangements at the end of a march	67
57.	Watering arrangements	69
58.	Picketing	70
59.	Parking guns and vehicles	70
60.	Sanitation in camp and bivouac	71
61.	General rules in camps	72
62.	General rules in bivouacs	73
63.	Standing camps and rest camps	73

CHAPTER V.

PROTECTION.

64.	General principles	75
-----	---------------------------	----

PROTECTION ON THE MARCH.

65.	The first line of protection	76
-----	-------------------------------------	----

THE TACTICAL ADVANCED GUARD.

66.	Composition and strength of an advanced guard to a force advancing	78
67.	Advanced guard commander	79
68.	Action of an advanced guard to a force advancing	79
69.	Advanced guard in a retreat	81

THE FLANK GUARD.

SEC.		PAGE.
70.	General principles	81

THE REAR GUARD.

71.	Duties, composition, and strength of the rear guard to a retreating force	82
72.	Action of a rear guard to a retreating force	83
73.	Expedients for delaying an enemy's advance	84
74.	Rear guard to a force advancing	85

PROTECTION WHEN AT REST.

75.	General principles and rules	85
76.	Position of the outposts	87
77.	Composition of the outposts	88
78.	Commander of the outposts	89
79.	Distribution of the outposts	90
80.	The reserve	91
81.	Piquets	92
82.	Mounted piquets and vedettes	93
83.	Detached posts	93
84.	Traffic through the outposts	94
85.	Flags of truce	94
86.	Intercommunication... ..	95
87.	Readiness for action... ..	95
88.	Reconnoitring patrols	96
89.	Standing patrols	97

CHAPTER VI.

INFORMATION.

SEC.		PAGE.
90.	General principles	98
91.	Strategical reconnaissance	99
92.	Tactical reconnaissance	101
93.	Personal reconnaissance by a commander	102
94.	Tactical reconnaissance by patrols	102
95.	Balloon reconnaissance	103
96.	Reconnaissance of a position	104
97.	Reconnaissance during battle	105
98.	Transmission of information	105

CHAPTER VII.

THE BATTLE.

99.	Considerations which influence a commander in offering battle	107
100.	The offensive and defensive in battle	108

THE ADVANCE TO THE BATTLEFIELD.

101.	Action of a force on gaining contact with the enemy	109
102.	Deployment for action	110

THE ATTACK.

SEC.		PAGE.
103.	General principles	112
104.	Preliminary measures	112
105.	The general conduct of the attack	115
106.	The decisive attack	117

THE DEFENCE.

107.	General principles	120
108.	Preliminary measures	121
109.	General conduct of the battle	126
110.	The decisive counter-attack	128

THE ENCOUNTER BATTLE.

111.	General principles	129
------	---------------------------	-----

PURSUIT, RETREAT AND DELAYING ACTION.

112.	The pursuit	131
113.	The retreat	133
114.	The delaying action	134

CHAPTER VIII.

SIEGE OPERATIONS.

115.	General description of land defences	135
------	---	-----

THE ATTACK OF FORTRESSES.

SEC.		PAGE.
116.	General principles	137
117.	Masking a fortress	138

INVESTMENT AND ACTIVE ATTACK.

118.	The reconnaissance	139
119.	The investment	140
120.	Outposts in siege operations	141
121.	The active attack	143
122.	The direct attack	143
123.	The bombardment	143
124.	The regular siege	144
125.	Action on the capture of a work	149

THE DEFENCE.

126.	General principles of organization... ..	150
127.	Distribution of the garrison	153
128.	Conduct of the defence	153

CHAPTER IX.

NIGHT OPERATIONS.

129.	General principles	156
130.	The reconnaissance	157
131.	Night marches	158
132.	General rules for night marches	159

SEC.		PAGE.
133.	Guiding columns by night in open country ...	161
134.	Night advances	161
135.	Night attacks... ..	163

PREPARATIONS FOR NIGHT ADVANCES AND NIGHT ATTACKS.

136.	Preliminary measures	164
137.	Composition and formation of columns	165
138.	The advance	167
139.	Orders for night attacks and night advances	168
140.	The defence	169

CHAPTER X.

WARFARE IN UNCIVILIZED COUNTRIES.—CONVOYS.

141.	General principles	171
------	---------------------------	-----

MOUNTAIN WARFARE.

142.	General principles	173
143.	Camps and bivouacs	174
144.	The advanced guard	176
145.	Flank guards	177
146.	Rear guards	177
147.	Protection when at rest	178

BUSH FIGHTING.

148.	Characteristics of bush tribes	180
149.	Composition of columns	181
150.	Marches	181
151.	The advanced guard... ..	182
152.	Flankers	182

SEC.							PAGE.
153.	The rear guard	...	...	...	...	...	184
154.	Protection when at rest	...	...	...	...	...	185
155.	Precautions in camp and bivouac	...	...	...	...	...	186
156.	Convoy camps	...	...	...	...	...	187
157.	CONVOYS	...	...	...	...	...	188

CHAPTER XI.

AMMUNITION SUPPLY.

158.	General principles	...	...	...	...	...	190
159.	Divisional ammunition columns	...	...	...	...	...	191
160.	Brigade ammunition columns	...	...	...	...	...	192
	INDEX	...	...	...	...	...	194

CHAPTER I.

THE FIGHTING TROOPS AND THEIR CHARACTERISTICS.

1. Application of General Principles to the Leading of Troops.

1. The principles given in this manual have been evolved by experience as generally applicable to the leading of troops. They are to be regarded by all ranks as authoritative, for their violation, in the past, has often been followed by mishap, if not by disaster. They should be so thoroughly impressed on the mind of every commander, that whenever he has to come to a decision in the field, he instinctively gives them their full weight.

2. Success in war depends more on moral than on physical qualities. Skill cannot compensate for want of courage, energy, and determination; but even high moral qualities may not avail without careful preparation and skilful direction. The development of the necessary moral qualities is therefore the first of the objects to be attained; the next are organization and discipline, which enable those qualities to be controlled and used when required. A further essential is skill in applying the power which the attainment of these objects confers on the troops. The fundamental principles of war are neither very numerous nor in themselves very abstruse, but the application of them is difficult and cannot be made subject to rules. The correct application of principles to circumstances is the outcome of sound military knowledge, built up by study and practice until it has become an instinct.

2. The Characteristics of the Various Arms.

1. The fighting troops of the army are composed of cavalry, artillery, engineers, infantry, mounted infantry, and of cyclists. These arms are in certain proportions, which have been fixed as the result of experience. Each has its special characteristics and

functions, and is dependent on the assistance of the others. The full power of an army can be exerted only when all its parts act in close combination, and this is not possible unless the members of each arm understand the characteristics of the other arms.

2. Infantry depends on artillery to enable it to obtain superiority of fire and to close with the enemy. Without mounted troops the other arms are hampered by ignorance of the enemy's movements, cannot move in security, and are unable to reap effectually the fruits of victory, while mounted troops are at a great disadvantage, unless accompanied by horse artillery, which assists them to combine shock action with fire. Artillery and engineers are only effective in conjunction with the other arms, and all their efforts must be directed towards assisting the latter to secure decisive success.

3. It is then essential, except perhaps in mountainous or forest-country, that every force which takes the field against an organized enemy should be composed of all arms; that every detached force of infantry should be accompanied by a proportion of mounted men and, generally, of engineers and guns; that artillery should be attached to all large bodies of cavalry; and that the security of the artillery should always be provided for by the other arms.

3. *Cavalry and other Mounted Troops.*

1. Ability to move rapidly, and to cover long distances in a comparatively short time gives cavalry power to obtain information and to combine attack and surprise to the best advantage. The fact that it is armed with a long-range rifle has endowed it with great independence, and extended its sphere of action; for cavalry need no longer be stopped by difficulties which can only be overcome by the employment of rifle fire.

2. Mounted infantry acts by fire. When co-operating with cavalry, it assists the latter to combine fire with shock action; when co-operating with other arms, its mobility enables a commander to transfer it rapidly from one portion of the field to another, and thus to turn to account opportunities which he would be unable otherwise to seize.

3. Cyclists are especially suited for employment in enclosed country, where roads are good and numerous. They can traverse longer distances and move more quickly than horsemen. Cyclists act by fire, and can develop more fire in proportion to their numbers than other mounted troops; as they do not require horse holders. They are largely dependent on the number and condition of the roads for the development of their special characteristics.

4. *Artillery.*

1. The function of the artillery is to assist the other arms in breaking down hostile opposition. The invisibility, which smokeless powder confers, has, however, modified the extent to which artillery can assist the other arms by preparatory action. Till the enemy either discloses his dispositions by his own movements, or is compelled to do so by the other arms, artillery must usually limit its action to preparing to support the latter as soon as occasion demands it.

2. Quick-firing guns confer on a commander the power to develop a destructive fire with great rapidity, but fire of this character cannot be continuous for more than brief periods without risk of exhausting the available ammunition, and must be effectively controlled. Improved means of communication permit artillery commanders to exercise control over the fire and movements of dispersed artillery, so that concentration of guns is no longer necessary to ensure control and concentration of fire.

3. The effective combination of the fire of all the various kinds of artillery available is necessary if that arm is to develop its full power. With this object, each nature of ordnance should be allotted its special rôle, which will differ according to its mobility, range, and shell power.

4. Horse artillery is the most mobile form of artillery. It is at first employed with the mounted troops, particularly to prepare for and assist the cavalry attack by directing its fire against the opposing cavalry, but subsequently it may be required to support the combined action of the other arms in battle.

5. Field artillery is less mobile than horse artillery, but has greater shell power. It includes guns and howitzers, and forms the bulk of the artillery with a force. Its duty is to assist the infantry in every way in establishing a superiority of fire over the enemy.

6. Howitzers, by reason of the steep angle of descent of their powerful projectiles, are specially adapted for the attack of shielded guns, or of an enemy behind cover, or in entrenchments. They can fire from behind steep cover, which facilitates concealment. In supporting the final assault they can continue firing until the infantry has almost reached the objective. When using high explosive shells, buildings, head cover, parapets, and walls form their target.

7. Mountain artillery is the weakest in shell power. It is peculiarly suited for operations in close, broken or hilly country. In level country it may be moved with comparatively little exposure, owing to the facility with which it can take advantage of cover. It can therefore often be used in support of infantry at shorter range than either horse or field artillery.

8. Heavy artillery is the least mobile of all artillery used in the field; it can fire accurately at very long ranges*, and has great shell power. Its principal duty is to engage shielded artillery with

* For the purpose of the distinction of ranges the following definitions are given:—

Terms applied to ranges,	Rifle.	Field Art.	Heavy Batteries.
	Yards.	Yards.	Yards.
Distant	2,800 to 2,000	6,500 to 5,000	10,000 to 6,500
Long	2,000 to 1,400	5,000 to 4,000	6,500 to 5,000
Effective	1,400 to 600	4,000 to 2,500	5,000 to 2,500
Close... ..	600 and under	2,500 and under	2,500 and under

The width of the area of ground struck by the bullets of an effective shrapnel is about 25 yards.

The limit of the forward effect of shrapnel at effective range is about 200 yards.

The radius of the explosion of a high explosive shell is about 25 yards.

oblique fire, to enfilade cover which the lighter guns can only reach with frontal fire, to search distant localities in which supports or reserves are concealed, to destroy buildings or other protections occupied by the enemy, and in the final stage to support the assault by fire converging on the most important points.

9. Siege artillery brigades may be allotted to the field army for special duties in connection with fortress operations.

10. Garrison artillery companies are allotted to coast defences. Their armament is divided into *the guns of the fixed armament* and *of the movable armament*. The guns of the fixed armament are:—

- i. Heavy and medium guns, which are intended chiefly to encounter vessels larger than torpedo-boat destroyers.
- ii. High angle fire guns, intended by deck attack to prevent bombardment at ranges at which the side armour of ships is beyond the penetration of other heavy guns.
- iii. Light quick-firing guns for use chiefly in case of torpedo-boat attack.

The guns of the movable armament are generally allotted for the defence of land fronts or for use in case of attempted landings, but they may also be used as auxiliary to the fixed armament.

11. It is also the function of the artillery to transport small-arm and artillery ammunition from the point where it is delivered by the lines of communication, to the point where it is required by the units of the field army.

5. *Engineers.*

1. Engineer field troops are allotted to a cavalry division, to assist the mounted troops in the passage of rivers (for which purpose they carry light collapsible boats), and in the improvement of roads and other means of communication. They will also be employed in placing localities in a state of defence, and in assisting the cavalry generally in interrupting the enemy's communications by the destruction of bridges, railways and telegraphs. To enable field troops to accompany cavalry, a portion of their tools and material is carried on pack animals, whilst the remainder is carried in light vehicles.

2. Engineer field companies form part of a division; they are

not so mobile as engineer field troops. Their duties include the construction of works of defence, and the improvement and, in some cases, construction of roadways and bridges. Engineer field troops and field companies also assist in the preparation and maintenance of watering arrangements.

3. Although the other arms are responsible for the construction of their own works of defence, yet during an engagement it is necessary that field engineers should be available to execute any engineering work which may have to be undertaken, such as improving communications, destroying obstacles, and strengthening captured localities.

4. The functions of the telegraph company of engineers in a division are the maintenance of such communication as may be ordered by the divisional commander between his head-quarters and the troops under his command.

5. Wireless telegraph companies, cable telegraph companies, and air line companies, form part of the army troops, to enable the commander-in-chief to maintain communication between the various parts of the army. A wireless telegraph company also forms part of a cavalry division to enable it to maintain communication with army headquarters. Balloon companies and bridging trains are also under the direct control of the commander-in-chief, so that they may be allotted by him, where they are most needed, for purposes of observation and reconnaissance, or for the repair and construction of bridges.

6. Fortress companies are provided for special duties in connection with siege operations, and railway companies for the maintenance, construction and working of railways.

6. *Infantry.*

1. Compared with cavalry and artillery the movements of infantry are slow, and the distance that it can cover in a day is limited; but on the other hand it is capable of moving over almost any ground. Its action is less affected by darkness, it finds cover and concealment more readily, and therefore moves under fire with less loss. It can employ either fire or shock action, as the occasion may demand, and engage the enemy either at a distance or hand to

hand. It has the power of developing a rapid fire and of concentrating that fire in any direction, but the expenditure of ammunition, which rapid fire involves, makes it necessary that such fire should be used only when the occasion warrants. Fire control is then essential, if the full power of infantry is to be exerted.

2. The essence of infantry tactics consists in breaking down the enemy's resistance by the weight and direction of its fire, and then completing his overthrow by assault. Although the enemy may not await the assault, infantry must be constantly animated with the desire to close with him. Troops under cover, unless enfiladed, can seldom be forced to retire by fire alone; a decision by fire, even if possible, takes long to obtain. To drive an enemy from the field assault, or the immediate threat of it, is almost always necessary.

7. *Machine Guns.*

The machine gun possesses the power of delivering a volume of concentrated rifle fire which can be rapidly directed against any desired object. Rapid fire cannot be long sustained owing to the expenditure of ammunition involved, and it is therefore necessary that the movements and fire action of these weapons should be regulated so as to enable them to open fire immediately a favourable opportunity arises. Surprise is an important factor in the employment of machine guns, which should be concealed, and whenever possible provided with cover from fire. The massing of machine guns is likely to attract hostile artillery fire. For this reason it is usually better to employ them in pairs in support of the particular body of troops to which they belong. When an overwhelming fire on a particular point is required it can be provided by concentrating the fire of dispersed pairs of guns. The guns of two or more units may, if required, be placed under the command of a specially selected officer and employed as a special reserve of fire in the hands of a brigade commander. Machine guns are best adapted for use at effective infantry ranges, but when good cover from view and fire exists they may be usefully employed at close infantry ranges.

CHAPTER II.

INTER-COMMUNICATION AND ORDERS.

8. Responsibility for Maintaining Communication.

1. The constant maintenance of communication between the various parts of an army is of urgent importance; it is on this to a great extent that the possibility of co-operation depends. The means of communication must, therefore, be carefully organized in each command.

2. All subordinate commanders are responsible for keeping their respective superiors, as well as neighbouring commanders, regularly informed of the progress of events and of important changes in the situation as they occur. It is the duty of all commanders who are provided with means of communication, to arrange for communication with, and between, their subordinates; but this does not absolve subordinates from the duty of seeing that they are provided with the necessary means, or from responsibility for improvising the best arrangements possible when the regular means of communication are, for any reason, not available.

3. Commanders of brigades and of larger formations, of detachments, and of any other body of troops when advisable, will establish a head-quarters, where messages can be received and acted on even during their temporary absence, and will notify its position to all concerned. (Sec. 104, 5.) If a commander intends to leave the main body of his command for any length of time, he should appoint a commander, who should be provided with the necessary staff, to act for him in his absence. (Sec. 101, 4.)

4. All ranks are responsible for doing everything in their power to keep the means of communication intact.

5. The elaborate means of communication provided under modern conditions should not be used in such a manner as to cripple the initiative of subordinates by unnecessary interference.

9. *General Rules regarding the preparation and despatch of orders, reports, and messages.*

1. Communications in the field take the form of orders, reports, and messages. They may be verbal or written, according to circumstances. The following general rules should be observed:—

- i. Orders issued by the higher commanders, reports and messages will normally be prepared in writing. When orders, reports or messages are, for any reason, issued verbally or sent by signal, they will be confirmed in writing on the first opportunity. In war verbal messages are often incorrectly delivered, especially in the excitement of an engagement.
- ii. Orders, reports, and messages must be as concise as possible, consistent with clearness. They must be precise as regards time and place, the language should be simple and the handwriting easily legible. Clearness of expression and freedom from any possibility of misunderstanding is more important than literary form. Anything of an indefinite or conditional nature such as "dawn," "dusk," "if possible," "if practicable," "should," "may," is to be avoided.
- iii. The hour of 12 will be followed by "noon" or "midnight" written in words.

A night will be described thus: Night 29/30 Sept.; or Night 30 Sept./1 Oct.

- iv. Names of places and persons will be written in block capitals, e.g., LONDON or WELLINGTON, and must be spelt exactly as given on the map in use. Great care is necessary to prevent possible misunderstanding resulting from the existence of two or more

places of the same name. Units should be described by their Army List abbreviations.

- v. In naming units from which a portion is excluded, the unit will be named and the words "less" appended, *e.g.*, 10th Hussars less one squadron.
- vi. If a map is referred to, the one used must be specified. The position of places will, as a rule, be denoted either by the points of the compass, *e.g.*, "wood, 600 yards S.E. of TETSWORTH," or, when no points of reference are available by actual compass bearings, *e.g.*, "hill 1,500 yards true bearing 272° from CHOBHAM Church," or by descriptions, *e.g.*, "cross roads $\frac{1}{2}$ mile S.W. of the second E in HASELEY," the letter indicated being underlined. A road is best indicated by the names of places on it, care being taken to name sufficient places to ensure that the road intended is followed. A position is best described from right to left looking in the direction of the enemy. The terms "right" and "left" are used in describing river banks, it being assumed that the writer is looking down stream. Except in the foregoing case, indefinite or ambiguous terms such as right, left, before, behind, beyond, front, rear, on this side of, &c., must not be used, unless it is made quite clear to what force they refer.
- vii. When compass bearings are given they will invariably be true bearings, and this should be so stated. The variations of compasses will be checked before true bearings are converted into magnetic bearings or *vice versa*.
- viii. If the order, report, or message refers to troops reaching a place at a certain time, it is assumed that the head of the main body is meant, unless otherwise stated.
- ix. The writer, having finished his order, report, or message should read it through carefully at least once, and, if possible, get someone else to read it, in order to assure himself that it is clear, and, in the case of an order, that

it is calculated to influence the recipient in the way only that is intended.

- x. An order, report, or message must be clearly signed, the rank of the sender, his appointment, and the force he is with, being stated.
- xi. A copy of all orders and messages sent will be kept by the sender, the copy and original being endorsed with the method and hour of issue or transmission, *e.g.*, "personally to general staff officers of 1st and 2nd divisions at 11.20 a.m." or "Wired to G.O.'s C. 2nd and 3rd cavalry brigades at 2.30 p.m."
- xii. The field message book (Army Book 153) and envelope (Army Form C 398) should be used when obtainable for field messages and reports.

2 An important principle, underlying the general rules given above, is that every precaution should be taken to assist the recipient of an order, report, or message in grasping his instructions with a minimum of trouble and delay.

3. The authority who despatches a communication is responsible that proper steps are taken to ensure its safe and timely delivery. Important communications should be sent by more than one means and acknowledgment of receipt should be obtained. Communications of a secret nature should usually be in cipher if there is any danger of their falling into unauthorized hands, but the advisability of departing from this rule must be considered when there is urgent reason to avoid the loss of time caused by enciphering and deciphering. It is seldom advisable to encipher* one part of a message leaving the remainder in clear, owing to the danger of the portion in clear affording a clue to the remainder and leading to the discovery of the cipher in use.

* For further instructions regarding the use of cipher see Field Service Regulations, Part II.

10. *General Arrangement of Orders.*

1. The orders of a commander usually take the form of—
 - i. Standing orders.
 - ii. Operation orders.
 - iii. Routine orders.
 - iv. Messages.

In addition to the above special orders such as "orders of the day" will occasionally be necessary; and special instructions may be required, in the case of detached forces, instead of operation orders.

2. Each class of order will be prepared and numbered separately, the heading of the order indicating the class to which it belongs.

When copies of orders are prepared and distributed, each copy will be given a consecutive number, called the copy number, in addition to the number of the order. (Sec. 12, 4).

3. Orders will be divided into numbered paragraphs each dealing with a separate subject. The subject of each paragraph should be briefly noted in the margin, to facilitate reference.

4. Only in exceptional cases should explanations be given of what is ordered.

11. *Standing Orders.*

1. The object of standing orders is—

- i. To adapt existing regulations to local conditions.
- ii. To save frequent repetitions in operation and routine orders.

2. Unless carefully revised and kept up to date, standing orders may lead to misunderstanding. For this reason they should be confined to essentials, and added to as circumstances require.*

3. The authority issuing standing orders is responsible that any alteration in them is notified to the troops, and that they are communicated to troops newly entering the command.

* For suggested headings for standing orders see *Field Service Pocket-Bo*

4. Repetition of existing regulations is to be avoided.

5. At least six copies of standing orders should be issued to each squadron, battery, or company, and one to each officer.

12. *Operation Orders.*

1. Operation orders deal with all strategical and tactical operations, such as marches, protection, occupation of quarters, reconnaissance, and battle. They include such information regarding supply, transport, ammunition, medical, and other services of maintenance, as it is necessary to publish to the troops; but detailed orders for such services, which it is not necessary for the troops to know, should be issued only to those directly concerned.

2. An operation order should contain just what the recipient requires to know and nothing more. It should tell him nothing which he can and should arrange for himself. The general principle is that the object to be attained, with such information as affects its attainment, should be briefly but clearly stated; while the method of attaining the object should be left to the utmost extent possible to the recipient, with due regard to his personal characteristics. Operation orders, especially in the case of large forces, should not enter into details except when details are absolutely necessary. It is usually dangerous to prescribe to a subordinate at a distance anything that he should be better able to decide on the spot, with a fuller knowledge of local conditions, for any attempt to do so may cramp his initiative in dealing with unforeseen developments. The expression "will await further orders" should be very sparingly used for this reason. It is necessary to train subordinates not only to work intelligently and resolutely in accordance with brief and very general instructions, but also to take upon themselves, whenever it may be necessary, the responsibility of departing from, or of varying, the orders they may have received.

3. In order to facilitate co-operation, the whole of the directions to each portion of a force taking part in a combined operation will

usually be embodied in one operation order. When, for any reason, separate orders are issued, instead of a combined order, each separate order will include such information regarding other troops as the recipient might find it useful to know.

4. It is neither necessary nor desirable that definite rules should be laid down as to the form in which operation orders should be drafted. The object of an operation order is to bring about a course of action in accordance with the intentions of the commander, suited to the situation, and with full co-operation between all arms and units. So long as this object is fulfilled, the form of the order is of little importance. At the same time, operation orders should be arranged in a logical sequence, in order that they may be clear and readily understood. With this in view, operation orders should usually be framed on the following system:—

The heading of the order will contain the class to which it belongs, followed by its number (Sec. 10), the name of the officer issuing the order, the force to which it refers, the number of the copy on the right-hand top corner, the date and place of issue, on the right-hand side, and the map to which references are made on the left-hand side:

For example:—

	Copy No. 1.
OPERATION ORDER No. 23,	
by	
Major-General X, Commanding 1st Division.	
The King's Head,	
Reference $\frac{1}{2}$ " Ordnance Map, No. 34.	Aldershot,
	10.3.08.

The general situation should be given; this will include such information about the enemy and other bodies of one's own troops, as may affect the recipient of the order. If

it is not desirable to mention the source of the information, the order should state the degree of credibility with which the issuer of the order regards it.

A brief summary of the intention of the officer issuing the order, as far as it is advisable to make it known.

After this should follow the necessary instructions for those to whom the order is issued. The actual arrangements of these paragraphs must vary with circumstances, but it should be clear, logical, and in order of importance, so that the chief essentials are brought to mind first.*

Immediately above the signature should be stated the place to which reports are to be sent, and, when necessary, the position of the commander who issues the orders.

At the foot of the order, below the signature, should be noted the hour and mode of issue and the individuals to whom issued, as well as the number of the copy issued to each.

5. The information given regarding the enemy and other bodies of one's own troops should be strictly limited to what the recipient, or recipients, of the order require to know to assist them in carrying out the tasks imposed on them.

6. The statement of the intentions of the commander must be framed with great care. Only so much should be stated as it is really necessary for those to whom the order is issued to know, for the purpose in view. It is seldom necessary or advisable to endeavour to look far ahead in stating intentions. In the case of the orders of subordinate commanders the intentions stated should be those of the authority actually issuing the order, arising out of those communicated to him by higher authority, which, normally, should not be "published for information." Alternative and conditional statements, depending on developments, are very apt to cause doubt and uncertainty and should be avoided. When

* Particular points that should be mentioned in operation orders dealing with marches, outposts, &c., are given in the chapters dealing with these operations.

considered desirable, in the interests of secrecy, intentions may be conveyed in a separate document.

7. In the body of the order instructions to fighting troops should usually come first as being most important. Orders for supply, transport,* ammunition, medical and other services should be limited as defined in para. 1 of this section. Any necessary instructions as regards the maintenance of communication should be given.

8. The detail of troops will usually be clear of the body of the order† in their order in the column of march, but if a separate commander is appointed, he should be left to arrange his own order of march, in which case the troops placed under his command will be named in order of seniority of arms and units. In allotting the rôles to the various units the sequence for marches will usually be from front to rear, whilst in attack, defence, or outposts it will ordinarily be from right to left looking in the direction of the enemy.

9. If any portion of the force is to be detached for protective or other duties, its commander will be named in the order, provided that it is possible to give such information. In the case of a detachment made up of different units the commander must always be named.

10. The subordinate commanders will, in turn, frame their own orders on receipt of the superior's order, of which only just so much will be embodied as is necessary. Their orders should, however, be sufficiently full to enable those under them to appreciate the situation properly, and to understand how they may co-operate with others.

11. The distribution by a commander to his subordinates of

* The transport of field units except that of medical, and of transport and supply units divided into two portions, one of which, termed the *First line Transport*, always accompanies the unit. The other part is called the *Second line Transport*, and marches where ordered. This division of transport is detailed in "War Establishments."

† In orders for the movement of large bodies of troops, it is often convenient to show the detail of troops in their order in the columns of march, their starting points, hours of marching, route to be followed, destination, and place from which supplies are to be drawn, in a march table issued with the order.

copies of operation orders received by him from higher authority can seldom be justified. Exceptional cases may arise when this may be permissible in order to save time, but the officer who passes on a copy of an order must realize that he is responsible for making known any information contained in it.

12. During the course of operations it will often be necessary to supplement the orders already issued by further operation orders, which may take the form either of complete fresh orders, or separate orders issued to one or more unit or command. In the latter case, should the original orders be modified to any considerable extent, all other units or commands affected by the new order should be informed of its purport.

13. Notwithstanding the greatest care and skill in framing orders, unexpected local circumstances may render the precise execution of the orders given to a subordinate unsuitable or impracticable. Under such circumstances the following principles should guide an officer in deciding on his course of action :—

- i. A formal order should never be departed from, either in letter or spirit—(a) so long as the officer who issued it is present ; (b) if the officer who issued the order is not present, provided that there is time to report to him and await a reply without losing an opportunity or endangering the command.
- ii. A departure from either the spirit or the letter of an order is justified if the subordinate who assumes the responsibility bases his decision on some fact which could not be known to the officer who issued the order, and if he is conscientiously satisfied that he is acting as his superior, if present, would order him to act.
- iii. If a subordinate, in the absence of a superior, neglects to depart from the letter of his orders, when such departure is clearly demanded by circumstances, and failure ensues, he will be held responsible for such failure.
- iv. Should a subordinate find it necessary to depart from an order, he should at once inform the issuer of it, and the

commanders of any neighbouring units likely to be affected.

14. Orders for a possible retreat should always be thought out beforehand in case of need, but they should not be communicated to the troops before it becomes necessary to do so. They may be communicated beforehand, confidentially, to the higher commanders when considered advisable, but this should be rare.

15. In the case of detached forces, not under the immediate control of the commander who details them, general *instructions* for guidance are usually more appropriate than actual orders. Confidential statements of information and intentions, under such conditions, should be full.

13. *Issue of Orders.*

1. Superior orders must be issued in sufficient time to enable subordinate commanders* in turn to frame and distribute their own orders. In the case of a scattered force this may take a considerable time.

2. Except in cases of urgency, orders will be issued through the usual official channel. If this is impossible, the officer who gives the order will inform the intermediate authority, and the recipient of the order will inform the same authority, of the action he is taking. For example, a divisional commander giving an officer commanding a battalion an order direct, will let the brigadier know of the order. The officer commanding the battalion will also inform the brigadier of the action he is taking in accordance with the order of the divisional commander.

3. If detailed orders cannot be issued till late in the evening for early operations next day great inconvenience will often be prevented by the issue of a preliminary order notifying the time of assembly or of starting. In order to avoid disturbing the rest of subordinates, it may sometimes be advisable, especially when

* A subordinate commander is any commander other than the commander-in-chief, e.g., the commander of a division, of a cavalry brigade, of an infantry brigade, of divisional artillery, of divisional engineers, &c.

the force is widely scattered, to confine the orders to sufficient instructions to enable the units to arrive in correct order at the starting point, at an appointed hour, and to issue the more detailed orders to commanders next morning. The preliminary order should state when and where the complete order will be issued.

4. Commanders must keep the heads of the administrative services and departments under them informed of so much of their intentions as it may be necessary for them to know, in order to carry out their work efficiently.

14. *Routine Orders.*

1. Routine orders are of precisely the same nature in war as in peace. They deal with all matters not concerned with operations, such as discipline, interior economy, &c.

2. Routine orders will usually be issued daily at fixed hours, the earlier the better. At these hours commanders of divisions, brigades and units will ordinarily send an officer to the headquarters of their immediate superior. The officer will not only receive orders, but will also be prepared to give any information regarding the command to which he belongs, which the superior may require. Watches will be compared on this occasion.

When a force is stationary, the fixed hour for the issue of routine orders should never be later than noon.

Routine orders not being of a confidential nature, the restrictions as to the distribution of copies of the orders of a superior (Sec. 12, 11) do not apply to them.

15. *Messages.*

1. A message will begin with the rank, name, unit, or appointment and address of the addressee, followed by the date, and the number of the sender's message, if the message is in reply to, or has reference to a message from the addressee, the number and date of that message will then be quoted. (See also Sec. 9.)

2. Messages to be sent by signal will be written whenever possible on Army Form C 2121.

3. If a signal message is to be delivered to more than one addressee, every such address should be entered in the space provided for the address, and a note should be added to the message stating to whom it has been repeated.

4. In signal messages important numbers should be written in words. The use of Roman numerals is forbidden. When letter ciphers or important words such as "not" are used they should be written in block letters, letter ciphers being arranged in groups of five letters. Authorized abbreviations only should be used. Complicated phrases are to be avoided. All ordinary signs of punctuation, inverted commas, brackets, &c., can be signalled and when used should be clearly shown in the message. Signal messages must be as short as possible consistent with clearness.

16. Reports.*

1. In reporting on an enemy, accuracy as regards times, places, the position, approximate strength, branch of the service, formation, and direction of march, &c., of the troops reported on, is of the first importance.

2. A verbal report should be given without hurry or excitement, otherwise both hearer and speaker are liable to become confused.

Reports from strategical reconnoitring detachments should usually be in writing; those from tactical reconnoitring patrols will normally be verbal (Secs. 91 and 92).

3. It is more important that the information contained in a report should be relevant and accurate, and should arrive in time to be of use, than that the report should be long or elaborate. This applies to written and to verbal reports and to sketches.

4. Common sense and a moderate capacity for sifting evidence should prevent inaccurate or misleading information being sent.

* For suggestions as to details for reports see F.S. Pocket Book.

5. In furnishing information, a distinction must be clearly drawn between what is certain, and what is presumed or inferred. The source of information should be given, and the reasons for surmises.

6. Negative information and the repetition or confirmation of information already sent are of importance. For a commander to know positively that the enemy was not or was still in a certain locality at a certain time may be of great value. It is often advisable that fixed times should be laid down for rendering reports containing information of this nature.

7. A plan or panorama sketch is a useful adjunct to a report, and it is often possible and convenient to dispense with the latter and to convey all essential information on the former. Clearness and relevancy are required, not artistic effect. Ranges in yards to conspicuous points should as far as possible be indicated on such sketches.

A plan sketch should be drawn roughly to scale, the scale being indicated both by drawing and in words.

Important points, *e.g.*, width of a road or stream, whether a railway is single or double, &c., should be described in words or figures.

The true north should always be indicated.

A table of conventional signs used in military sketches is given in the "Manual of Map Reading and Field Sketching."

The place from which such a panorama sketch is executed, and the direction in which the sketcher is looking, should be clearly indicated.

17. *Means of Communication.*

1. The communication of orders, reports, and messages in the field is effected by means of the telegraph, wireless telegraph, telephone, balloon, visual signalling, orderlies, relay^m, or the post.

2. In a friendly country all signal* work in the theatre of

* The term "signal" includes telegraphs, wireless telegraphs, telephones, and balloon or visual signals.

The postal service and the regulations for private or press signal traffic are dealt with in Field Service Regulations, Part II.

operations is subject to the requirements of the military situation. The existing civil personnel will usually carry on the work subject to military control. When necessary, telegraph and telephone lines and offices will be taken over by the army signal service.

In a hostile country the technical personnel will be provided from military sources, and all existing telegraph and telephone lines, stores, and material will come under the charge of the army signal service.

18. *Signal Traffic.*

1. No communication is to be sent by signal or orderly, when transmission by post would serve the purpose.

2. The following is the order of precedence in which messages are to be sent:—

- i. Urgent service messages affecting the working of the line.
- ii. Messages O.H.M.S. marked "Priority."
- iii. Service messages connected with the working of the line.
- iv. Messages O.H.M.S. not marked "Priority."

Should extraordinary pressure arise, the officer in charge, or, should no officer be in charge, an officer, detailed by the commander on the spot, is personally to decide the precedence of outgoing messages, adhering as far as possible to the above order.

3. No one but the commander on the spot, or an officer expressly authorized by him, is to frank a message "Priority." Authority to frank a message thus will be sparingly delegated, and the number of "Priority" messages must be kept at a minimum. The names of officers having this authority should be supplied to the local signal stations and published in local orders. In specially urgent cases officers may send "Priority" messages, but the sender, if unauthorized to employ this method, is held responsible that the urgency is sufficient to warrant such action.

Messages, other than the "Priority" messages, referred to in

para. 2 of this section, must be franked by the signature of one of the following officers :—

- i. A commander.
- ii. An officer of the staff.
- iii. The head or representative of an administrative service or department.
- iv. An officer holding a special appointment.

4. Careful arrangements must be made at signal stations for the safe custody of copies of operation orders and other communications of a secret or confidential nature. No person should be allowed within hearing distance of signal instruments, without written permission from the commander on the spot or from the Director of Army Signals or his representative.

It is for the sender to keep a copy of his message, should one be required.

5. Operators are not to be interfered with in the performance of their duties, and are not to be called upon to perform other duties except in emergencies.

Breaches of discipline on the part of signalling subordinates should not, except in urgent cases, be investigated without reference to the officer in charge.

6. On the establishment of a signal station the officer or man in charge will at once inform the senior commander or general staff officer in the vicinity. Similarly, a report will be made when communication is interrupted or delayed.

7. Commanders in districts through which telegraph and telephone lines pass are responsible for their protection and the prevention of "tapping." The ease with which telegraphs, &c., can be destroyed, requires that they should be permanently guarded by mounted patrols, or by the inhabitants, when there is a danger of their destruction. In a hostile country each locality in the neighbourhood of a telegraph or telephone line should, if necessary, be made responsible, under heavy penalties, for the preservation of a particular section of the line.

8. Telegraph and telephone officials are responsible for bringing to the notice of commanders any particular points in the line which require special protection.

9. Every interruption of a telegraph or telephone line caused by troops should be reported by them to the nearest signal station, the place, time, and description of interruption being specified.

19. *Captive Balloons.*

1. Captive balloons and kites provide special facilities for observation and the rapid communication of information. They receive their instructions through the general staff and must be closely connected by signal, preferably by telephone, with them or with the officer to whom they are to report.

2. Signal balloons can be used with advantage to put up simple signals for definite movements, *e.g.*, for a combined attack. The advantage of such visual signals is that they are visible to the troops simultaneously over large areas.

20. *Orderlies.*

1. Orderlies are complementary to communication by signal. They may be mounted on animals, motor cars, or bicycles, or be on foot. The general staff is responsible that they are distributed as required for purposes of communication.

The administrative services and departments provide themselves with orderlies from their own personnel, or by the enrolment of civilians. Should suitable civilians not be available, orderlies for permanent offices and signal stations on the lines of communication or in garrisons, will be detailed from military sources by the adjutant general's staff.

2. The bearer of a verbal order or message should repeat it to the issuer and understand its purport; whilst the recipient should commit it to writing, and request the bearer to sign it, if it is of any importance.

3. The bearer of a written order or message should know its purport, in case he loses the despatch or has to destroy it. It is sometimes advisable to give a messenger two messages, one real, the other false, the real one being concealed on his person.

4. The bearer of a message on approaching the addressee will call out "message for" and the name of the addressee in a loud tone, will then deliver his message and will see that he obtains a receipt. It is the duty of all to assist him in finding the addressee.

5. A messenger will always be given a receipt for his message. The envelope, if there is one, will serve as such. The recipient must note the hour and date of receipt on it, sign it, and return it to the bearer.

The messenger is not to be detained longer than is necessary.

6. Orderlies bringing messages from advanced bodies of troops should carry them open. Commanders of troops, whom such orderlies may pass on their way to the addressee, are authorised to read the message, which they should initial. In carrying this out it is highly important that such orderlies are not detained a moment longer than can be avoided.

7. The sender will instruct the messenger as to his rate of speed, the route he is to take, and where he is to report himself on his return. The speed is to be marked on the envelope.

8. Commanding officers will assist in forwarding messages by all means in their power, supplying a new messenger, if necessary, or replacing tired horses by fresh ones.

21. *Relays.*

1. If messages have frequently to be carried between any two points, which are a considerable distance apart, relay posts, consisting generally of a few mounted men, cyclists, motor cyclists, or motor cars, will be organized on the route by the general staff. One man of the post will always be ready to carry on a message. When motor vehicles are employed a supply of petrol should be arranged along the route.

2. The position of a post will be clearly marked by day and by night. A register of the messages forwarded will be kept at each post, the date, hour of receipt, speed enjoined, and name of messenger being noted in each case. If the inhabitants are hostile, a garrison may be necessary for the post.

3. The commander who establishes a line of relay posts must clearly lay down when and by whom they may be withdrawn, and must also appoint a commander for the whole line.

CHAPTER III.

MOVEMENTS BY LAND AND SEA.

22. The Strategic Concentration.

1. The process by which an army is brought into the theatre of operations is called the strategic concentration. This is effected by sea, by rail, by water or by road, or by a combination of these means. In the case of operations conducted outside Great Britain, the concentration must be begun by sea, whilst it may be necessary to complete it either by rail, water or road.

2. The conditions which influence the choice of points of disembarkation vary greatly with the hostility or friendliness of the country in which a landing is contemplated. In the former case the first objective will usually be the capture of a suitable harbour to serve as a base of operations, and it will, as a rule, be necessary to undertake a combined naval and military operation, and to land a force on the open beach in order to seize the port from the land side. In the case of a landing in a friendly country, the choice of the ports of disembarkation will be influenced by the plan of operations, the nature of the harbour, the amount of wharfage, and the facilities of road and rail communication towards the zone of operations.

3. When a landing is unlikely to be opposed, the order in which units are moved to the area of concentration may depend on the class of ships or of rolling stock available, as well as on the strategic and tactical requirements. The strategic con

centration must be completed without interruption from the enemy, and a suitable force to ensure this must be despatched first. This will usually be composed of cavalry, but the preparation of ships to carry large numbers of horses takes time, and in cases of urgency the first infantry brigades mobilized should be embarked with the divisional cavalry of their divisions. These should be followed by the cavalry units; the remainder of the infantry and the artillery being sent forward next. In choosing the area of concentration, it is important that the composition and duties of the force which is to cover it should be considered.

4. If a large force is to be moved a comparatively short distance, it is quicker to complete the concentration by road,* but as the distance increases it becomes more expeditious to use railway transport. In any case the movement into the area of concentration should be so made that it can be carried through without a check.

5. From the point at which detrainment takes place, units may have to march to the area of concentration. The points of detrainment should therefore be so arranged that the lines of march of the various units do not cross one another. Although marching may cause delay, it prepares men and horses for the harder work which follows. These marches should be comparatively short, to accustom the reservists to their equipment.

6. Units should usually be moved at once from the point of detrainment into the area of concentration to make room for fresh troops arriving. It may not be possible in the first instance to complete the various brigades and divisions on account of the difficulty of obtaining rolling stock to suit the various arms in the order in which they are required. During this period all available roads should be used so as to take the utmost advantage

* At a wayside station on a double line with two platforms, each 100 yards long and with good approaches, a division takes, under favourable conditions, 2½ days to entrain and 2 days to detrain, both platforms being used and civil traffic suspended. Thus, under these circumstances, a division could cover the distance between two places, about 10 miles apart, as quickly by road as by rail. On a single line these times will be increased about 30 per cent.

of the resources of the country for the purpose of billeting and subsistence. In locating troops a commander will have to consider the necessity for protection, facilities for subsistence, and the subsequent plan of operations. In the area of concentration the various brigades and divisions will be reformed, and all arrangements made to enable the force to move forward with the least possible delay.

23. *The Forward Movement from the area of Concentration.*

1. No precise rules can be laid down for the degree of readiness for action with which a force should advance. Readiness for instant action demands the deployment of the force on all available roads, within the limits of the front on which it is intended to fight. But a force so disposed loses to a great extent its power to manœuvre, for whilst it can move directly to its front or rear, it cannot easily change direction. On the other hand, although concentration may make it easier to manœuvre, it has the disadvantages that deployment cannot be rapidly carried out and that the difficulties of maintenance are increased. A judicious distribution of a force into columns enables troops to be deployed rapidly into line of battle, and, at the same time, facilitates maintenance. In making this distribution the organization of the force must be considered, so that divisions and brigades are not broken up, except when this is absolutely unavoidable. When the force is not in contact with the enemy and there is no probability of such contact, tactical considerations become of less importance in arranging marches. The force may move on a considerably wider front than it would occupy in battle, and everything must be done towards preserving its fighting strength by careful arrangement of the marches, and by seeing that the troops are adequately housed and fed. In such circumstances it is not necessary for a large force, which is confined to one road, to concentrate before or after a march, to do so would be to sacrifice marching power. Arrange-

ments should be made for the billeting of the various commands in the neighbourhood of the spot in which they may be on the completion of a day's march, and for resuming the march the next day from such points. By this means each unit will be able to carry out a full day's march, and the resources of the country in regard to subsistence and billeting utilized to the utmost.

MARCHES.

24. *General Rules.*

1. Good marching depends largely on the attention paid to **march discipline**, under which head is included everything that affects the efficiency of man and horse during the march.

2. No compliments are to be paid during a march on service.

3. Space must be left on the right flank of a column (or as in Sec. 25, 2), both when marching and when halted, for the passage of officers and of orderlies, who should take advantage of halts to pass to the front or rear. Mounted officers, motor cars, and orderlies should avoid passing and re-passing infantry more than is absolutely necessary,

4. An officer, when available, will march in rear of each squadron, battery, company, or other unit, to see that no man quits the ranks without permission, that the sections, files, vehicles and animals keep properly closed up, and that the column does not unduly open out.

5. No trumpet or bugle call is allowed on the march, the column being directed by signal. A system of rapid communication will be established throughout every column.

Where roads cross one another or bifurcate, the general staff will place orderlies to guide troops in the required direction, or the road not to be used may be blocked by some pre-arranged sign such as branches of trees, lines of stones, &c.

6. When there is much traffic which is liable to cause a block at any particular point, a representative of the general staff should be present to regulate it.

25. *March Formations and Distances.*

1. On unenclosed ground it may sometimes be advisable to march on a broader front than the normal march formation.* One march formation should not be changed for another, unless the new formation can be maintained for a considerable distance.

2. In dusty and hot weather the column may with advantage be opened out on each side of the road, the centre of the road being kept clear. It may even be advisable to increase the distances and intervals between men, but this will only be done by order of the commander of the column.

3. To prevent minor checks in a column being felt throughout its length, the following distances will be maintained :—

In rear of an infantry company	....	....	....	6 yards.
" " battalion, squadron, battery, or other unit not specified here	....	....	....	10 "
" " cavalry regiment or brigade R.A.	....	....	....	20 "
" " cavalry or infantry brigade	....	....	....	30 "
" " a division	...	...	....	100 "

4. When marching by night (Sec. 132, 8), and, by day, when an engagement is imminent†, these distances may, by order of the commander of the column, be reduced, or even omitted altogether.

* The normal march formations on a road are—

For cavalry	... ..	Column of sections or of half sections, i.e., 4 men or 2 men abreast.
" other mounted troops	... ..	Column of fours or of files.
" artillery	... ..	Column en route, i.e., guns and wagons in single file.
" infantry	... ..	Column of fours.

5. Staff officers must have, ready for reference, tables* showing the length of the body of troops with which they deal in column of route, time taken to pass a given point and to deploy, camping space required, &c.

26. Pace. †

1. The rate of marching throughout a column should be uniform. The officer who sets the pace at the head of the column should bear in mind that an irregular pace tends to produce alternate

* It may be taken that all troops, mounted or dismounted, move to the starting point at the rate of 100 yards per minute, and that including the distances in para. 25 (3), the following approximate space is occupied in column of route with 1st line transport.

Cavalry or mounted infantry in sections or fours	1 yard per horse in the ranks, + 100 yards.	
" in files." " " half sections or	2 yards per horse in the ranks, + 100 yards.	
Infantry in fours 	1 yard per 2 men in the ranks, + 200 yards.	
Each 1 or 2 horse gun or vehicle takes 10 yards	... ... ...	} including distances.
" 4 " " " " " 15 "	... ... ...
" 8 " " " " " 20 "	... ... ...
" 2 mule or pony vehicle takes 7 "	... ... ...
" pack animal (except camels) in single file takes 3½ yards	... ... ...
" camel in single file takes 5 yards	... ... ...

For tables of road spaces see F.S. Pocket Book.

† Rates of movement in the field are approximately as follows:—

Arm.	Yards per minute.	Minutes required to traverse 7 miles.	Miles per hour, including short halts.
INFANTRY—			
Usual pace... ..	99	18	3
MOUNTED TROOPS—			
Walk 	117	16	3½
Trot 	235	8	7
Gallop 	440	—	—
Trot and walk 	—	—	5

checking and hurrying, which is most exhausting to the troops, especially to those in rear of the column.

2. If mounted troops are marching independently, the quicker the march is completed within certain limits the better. The pace should be regulated to suit the ground, the men will walk and lead frequently, particularly when ascending or descending steep hills.

3. If distances are lost on the march, stepping out, doubling, or trotting to regain them is forbidden, except by order of the commander of the unit. Infantry will be ordered to quicken their pace only if a defile is to be passed rapidly or some definite object is to be gained.

4. The length of an average march under normal conditions for a large column of all arms, engaged in extensive operations, is fifteen miles a day, with a rest at least once a week; small commands of seasoned troops can cover twenty-five miles a day under favourable conditions.

5. A forced march depends rather on the number of hours during which the troops are marching without long halts, than on the pace of marching. If troops are called upon to make a special effort, they should be made to understand that it is for a specific object.

Forced marching should be resorted to only when the expenditure of fighting power thereby entailed is justified by the object to be gained.

37. *Order of March.*

1. When there is no possibility of meeting an enemy, the order of march of the main body will depend chiefly upon the comfort of the troops. When within reach of the enemy the order of march must be decided in accordance with the general situation. Units will then usually march in the order in which they would come into action, but artillery must be preceded by sufficient

infantry to afford it protection. As a rule, divisional artillery will follow the leading brigade of the main body of its division.

Artillery brigade and mounted brigade ammunition columns usually march in rear of the fighting troops of their own division or brigade, but if for any reason it is desired to keep the roads immediately in rear of the fighting troops clear of vehicles they must be allotted positions farther in rear.

2. The position of balloon, telegraph, and bridging units in the column of march must be settled by the commander of the column. At a distance from the enemy the balloon company will usually march with the heavy artillery. When in proximity to the enemy a balloon should usually be allotted to the advanced guard. The balloon should not be filled until required to make an observation, as its pace when inflated is slow and it is a conspicuous object. It can be filled and make an ascent within half an hour when packed for marching. The bridging train, if there is no chance of its being wanted for some time, may march after the supply and transport column, or even with the transport and supply park.

Spare and led horses will march in rear of the first line transport of the units to which they belong.

Those portions of the engineer field companies, which are not with the advanced guard, will be accompanied by such technical vehicles only as are immediately required, and will usually march near the head of their own division. The remainder of their vehicles will be with the second line transport.

Field ambulances* follow their own divisions unless otherwise

* A field ambulance is composed of a bearer and tent division, and with its transport and equipment is divided into three sections, A, B and C, each containing a bearer sub-division and a tent sub-division. When an engagement is imminent, a field ambulance or as many sections or parts of sections as may be necessary may be allotted to brigades and march with them. A section of a field ambulance or a part of a section, according to the size of the detachment, is normally sufficient for the service of a small temporary detachment such as an advanced guard. A cavalry field ambulance is similarly organized, but is more mobile, and is divided into two sections A and B. A cavalry field ambulance may be allotted to a cavalry brigade, and its light ambulance goes to detached regiments or smaller bodies of mounted troops.

ordered, and will usually march in rear of the brigade ammunition columns.

*28. Second Line Transport and Transport and Supply Columns.**

1. Generally speaking, the smaller the distance that intervenes between the second line transport and the main body the better, as this transport is required as soon as the troops reach their destination. On the other hand, if an action is probable, it must not follow the main body so closely as to hamper its movements.

2. The second line transport of each brigade or of divisional troops marches in the same order as the brigade, &c., to which it belongs.

3. It will sometimes be advisable, especially when an action is imminent, to let the water-carts and supply vehicles of regimental transport march grouped at the head of the second line transport. Commanders of divisions may, when they think it advisable, order the water-carts of all or of any specified units to move with the first line transport.

4. Transport and supply columns usually march immediately behind the second line transport. If the columns carry more than one day's food they should be divided into sections, the front section containing one day's food for the force, so that the work of replenishing the supply vehicles of regimental transport may be begun with as little delay as possible on arrival at the new halting-place.

5. When the second line transport and transport and supply columns are moving together, the whole will be under the command of an officer detailed for the purpose in operation orders. When they are moving separately, an officer will be detailed to command the second line transport, whilst the senior officer present with the supply columns will command them.

* The rules in Sec. 28 apply equally to second line transport.

29. *Divisional Ammunition Columns and Transport and Supply Parks.*

The position on the line of march of the divisional ammunition columns and transport and supply parks will be regulated by the general staff in accordance with the orders of the divisional commander. Their normal position will be one day's march in rear of the main body; should an engagement, however, be imminent, the position of these columns and parks may, if necessary, be regulated by army* headquarters.

30. *Starting Point.*

1. A point, termed the starting point, which the head of the main body is to pass at a certain time, is fixed in operation orders. If troops are not all quartered together each subordinate command must arrange its own movement to the starting point so as to permit its falling into its place in the column of march punctually without unnecessary fatigue to the troops, and without crossing the line of march of other commands.

2. In fixing the starting point, care must be taken that each unit reaches it by moving forward in the direction of the march.

3. Should the march begin in the dark, the starting point will usually be marked by signalling lamps, or by fires, the method of marking it being mentioned in the operation orders. If a force, which is scattered in quarters, is required to pass a common starting point in the dark, it will often be advisable to post a chain of men, at distances of about 20 yards, between the assembly grounds or brigades, &c., and the starting point, arrangements being made for collecting these men when they are no longer required.

4. During the movement to the starting point, troops with their first line transport have precedence on the road of all other trans-

* An army is composed of two or more divisions. If more than one army is formed the headquarters of the Commander-in-Chief of the whole are termed General Headquarters.

port, which should remain parked on its own ground till the fighting troops are clear, being then moved direct into its place in the column.

31. Halts.

1. On the HALT being signalled, everyone, when the force is not in contact with the enemy, will at once halt and fall out on the left side of the road. The signal for the halt will be given from the head of the main body. Commanders of protective troops will exercise their discretion as to halting at once, or moving forward to occupy a position which may be of more tactical advantage. The responsibility for protection during halts remains with the troops which have been protecting the march until they are relieved.

On the ADVANCE being signalled, troops will at once fall in and resume the march.

2. A short halt will be ordered soon after the column has started, in the case of both mounted or dismounted troops, subsequent halts being arranged at regular intervals at the discretion of the commander of the column, who should let commanders of units know how often they may expect halts and their duration.

3. Halts should be made when the head of the main body is at a distance from bridges or other defiles. They are of most use when equipment can be removed to ease the men, teams unhooked, and horses unsaddled.

4. During hot weather, on long marches or when the march is begun at a very early hour, arrangements should be made for watering animals. If a long halt is contemplated, a staff officer accompanied by an engineer and a medical officer, with sufficient police and ordonnances, should be sent forward to select halting grounds near good water. He should arrange for the methodical distribution of the water supply, and take measures for its protection until the main body arrives.

32. *Crossing Military Bridges, Fords, Drifts, &c.**

1. If a military bridge is to be passed, a river forded, or defile passed, a general staff officer or an officer selected by the general staff will be posted on the approach to give commanders of units instructions on special points that are to be observed in crossing.

2. To see that distances are not unduly opened out, to prevent unnecessary delays, and to make such arrangements as may be necessary to prevent troops in rear being checked, an officer from each unit will remain on the near side of the bridge, drift, &c., until the whole of the unit has passed it.

3. When crossing a military bridge, infantry must break step. Files or sections must not be closed up.

4. If it be absolutely necessary to halt on a pontoon bridge, the wheels of guns and wagons must be halted as nearly as possible midway between two boats.

5. If a bridge sways so as to become very unsteady, the column must be halted till the swaying ceases.

6. All horses should be dismounted when crossing a pontoon bridge and be led across, except those ridden by drivers, who should remain mounted. The pace is never to be faster than a walk. Drivers who have crossed the bridge are not to increase their pace for some distance after crossing.

33. *Rules for Transport on the March.*

Strict march discipline is quite as necessary with transport as with troops. Opening out must be constantly checked, and lost distances corrected as opportunity occurs. Pack animals should not be loaded until shortly before they are required to move off. Thirsty animals must on no account be allowed to drink when

* For further instructions regarding the passage of rivers, &c., see "Manual of Military Engineering," Ch. XIV.

passing foids unless an organized halt has been arranged for this purpose, nor should drivers be allowed to halt without special permission.

2. With mixed transport, e.g., carts, camels, mules, &c., if the situation admits of the column opening out, the fastest class of transport should start first; this course is, however, dangerous if the convoy is liable to be attacked, in which case no opening out should be permitted. Over-driving slow moving animals such as camels, to make them keep up with fast moving animals such as mules, is especially to be guarded against. In each class of transport the slowest-moving team or animal should lead.

3. All non-commissioned officers and men not belonging to the transport personnel, who for any reason may accompany the transport will march together by units and will be at the disposal of the commander of the escort or in his absence of the senior transport officer. All followers and non-combatants will be allotted a definite position, and must not be allowed to leave it.

4. When pack mules or camels are used, each driver must lead his own animals (usually three in number). The practice of tying animals in long strings is prohibited. On rough hill tracks mules go best if they are not tied together.

5. No one other than the driver is to ride on any cart, wagon, or transport animal without a written order from a transport officer.

6. Some empty wagons or spare animals should be in rear of the column to replace casualties.

7. Broken-down wagons disabled animals, or thrown loads must at once be removed from the roadway, so that the transport in rear may not be checked.

8. A short halt should be made after the first half-hour's marching, and others at intervals according to the nature and state of the roads. Halts are of most value when teams can be unhooked.

9. Transport arriving close to a village, bridge or other defile at the end of a march should usually be encamped on the further side. It is easier to pass such places whilst still in march forma-

tion than to do so, possibly in the dark, at the beginning of the next day's march. Local or tactical considerations may, however, affect this question.

MOVEMENTS BY RAIL.*

34. *General Rules.*

1. Railway control officers who may be recognized by a badge marked "R.C.O." worn on the left arm form the channel of communication between the troops and the railway service. †

2. Trains are divided into troop trains and freight trains. The latter contain only animals and stores.

3. Each unit or formed body of troops should be despatched as complete as the supply of rolling stock permits. Guns or vehicles should be in the same trains as the teams, and horses should not be separated from the men who ride or drive them. The mixing of units in the same train is always to be avoided, provided train accommodation is not thereby sacrificed.

4. When large bodies of troops are moved by rail, staff officers with representatives of units and administrative services usually precede the troops, or travel in the first troop train, with a view to making arrangements at the destination of the force before the troops arrive.

5. The following points should be observed in drawing up orders for the despatch of troops by rail :—

- i. Date, place of entraining, destination, and railway route to be followed.
- ii. Time of departure of the trains, hour at which troops are to reach the entraining place, and if necessary, the road they are to use.
- iii. Arrangements for feeding troops and watering animals *en route*.
- iv. Places of assembly near entraining and detraining stations.

* Instructions as to the administration and organization of railway transport are contained in F.S. Regs., Part II.

6. Troops are not to occupy railway buildings or use the water supply without authority from a railway control officer. They are on no account to appropriate to their own use or interfere with railway property. Even damaged material may be required for the repair of the line,

35. Duties of a Commander of a Troop Train.

1. An officer must be sent ahead to the place of entraining to ascertain from the railway control officer the nature of the preliminary arrangements, which he communicates to the commander before the troops reach the station.

2. A guard must be detailed for every troop train to take charge of prisoners, treasure, &c., and to find sentries, as required, at entraining and detraining stations, and at stations *en route*.

3. A commander of a troop train should have with him, or should send by the officer referred to in para. 1 of this section, a copy of the order authorizing the move and a field state of the troops entraining. The order for the move will be retained by the commander.

4. He is responsible that the regulations of the railway service and any special instructions on railway matters which he may receive from the railway control officer are observed. Except in case of actual or threatened attack by the enemy, he is not to interfere in the working of the railway service. If attack is anticipated, an officer should ride on the engine to inform the driver when it is desirable for tactical reasons to stop the train.

5. If animals and vehicles accompany the troops, the commander arranges for forage, and obtains lashings, &c., from the railway service with which to secure the vehicles on the railway trucks.

6. At stations *en route* he decides, after consulting the railway control officer, whether the troops may leave their carriages. If they are to do so, he first takes precautions for preserving order and safeguarding places which are prohibited to the troops.

7. At the place of detraining, he ascertains the arrangements for detraining and moving off before the troops leave the carriages, and takes measures to ensure order in and around the station.

36. *General Rules for Entraining and Detraining.*

1. The operations of entraining and of detraining must be carried out systematically, each separate step being conducted under the orders of the commander. Quietness and rapidity are essential.

2. The entrainment or detraining of horses (including officers' chargers), guns, wagons and stores, should be conducted simultaneously. Animals, vehicles and *matériel* should be loaded up before the entrainment of the men is commenced.

3. For short journeys horses should usually remain saddled and harnessed. For journeys over six hours in length, horses should be unsaddled or unharnessed, and the saddlery or harness packed in vans, unless an attack is anticipated.

37. *Entraining and Detraining Personnel.*

1. Previous to entrainment, the men are to be formed up on the platform opposite to the carriages which they are to occupy, and told off into sections corresponding to the capacity of the compartments provided. Once entrained, no man is to leave his carriage without the permission of an officer.

2. Formed bodies of troops are not to remain at an entraining or detraining station or on the approaches to it, a moment longer than is necessary. Feeding, bridling, or saddling up must be carried out elsewhere. On detraining, troops will march clear of the station at once.

38. *Entraining and Detraining Horses.*

1. At the entraining station, after stirrups have been crossed, girths slackened, and traces secured, or saddlery and harness

removed, the horses are led on to the platform in single file, a quiet horse leading in each case, each alternate horse being placed at an opposite end of the truck. The closer horses are packed, the quieter they travel. Their heads should, as a rule, be left free. Restive horses should be backed, or dragged in by a surcingle, rope, or blanket placed round the hind-quarters.

2. The entrainment should be so arranged that the horses heads face away from the other lines of rail.

3. To prevent delay at places where horses are to be fed, nose-bags should be refilled *en route*. Hay or straw should be loaded up separately for fear of fire.

4. After detraining, riding horses are led at once to the place of assembly, draught horses being taken to their guns or wagons, which are then to be taken to the place of assembly.

39. *Entraining and Detraining Guns, Wagons, and Stores.*

1. Guns should be entrained fully equipped, and wagons with their loads in them. They must be arranged compactly on the trucks, and it should be possible to quickly unload them from either side.

2. Vehicles must be securely fastened on the trucks to prevent movement during transit.

3. Material for emergency ramps, which is provided by the railway service, must be loaded so that it is immediately available.

4. If inflammable stores are carried in open trucks, risk of fire must be guarded against. They should be placed at the rear of a train.

40. *Defence of Railways.*

1. The protection of a railway and of working parties on it rests with the commander of line of communication defences concerned. In this matter the responsibility of the railway service is confined to bringing to the notice of the commander such points on a railway as specially require protection.

2. When armoured trains are utilized, they and their garrisons form part of the troops allotted to the defence of the railway. Commanders of armoured trains should work in co-operation with the railway service so that railway traffic may be interrupted as little as possible.

Detailed orders as to their movements should not be issued to commanders of armoured trains. The object to be attained should be stated, and the method of operation be left to the commander.

3. Armoured trains are unsuited for reconnaissance independently of or ahead of other troops. When used to reconnoitre, the security of the line in rear of the train should be provided for.

4. Armoured trains should not be exposed to artillery fire. Against rifle fire the train should usually be divided, the guns with one armoured truck as escort being stationed out of rifle range, while the remainder of the train engages the enemy at close quarters with rifle and machine-gun fire.

5. With the above limitations armoured trains are a valuable means of providing for the security of a line of railway. They may be employed to connect detached posts and to patrol sections of the line, which are liable to attack at irregular intervals.

MOVEMENTS BY SEA.*

41. *General Rules.*

1. The control and provision of the sea transport of an army and the protection of that transport while at sea are undertaken by the Admiralty.

2. Previously to the despatch of an overseas expedition the naval and military authorities must decide certain questions which will vary with the object of the expedition, the strategical conditions, the distance of the objective, and the local conditions involved. These are :—

- i. The strength and composition of the force and the size of the transports.

* Instructions for embarkations and disembarkations in the presence of an enemy are in preparation.

- ii. The land transport which will be required. This must be adapted to the object in view and to the local conditions, and largely dependent on this will be :
- iii. The fittings and landing appliances required in the transports.
- iv. The strength of the covering force and of the first reinforcements ; the distribution of both of these in the transports.
- v. The ports from which the expedition should start.

3. At the point or points of embarkation and disembarkation both the naval and military authorities will be represented by one or more officers called, respectively, the naval transport and military landing officers.

42. *Embarkations.*

1. The embarkation and despatch of oversea expeditions will in some respects be the same whether the intended landing is to be effected on a friendly or a hostile shore, but in the former case, as the troops would probably disembark at a suitably equipped port, the provision of horse-boats and other special landing appliances may be unnecessary.

2. The process of embarking troops will generally be similar to that of entraining, except that special arrangements will be necessary for the shipping and stowing of animals, vehicles, and stores.

3. The order of embarkation of an army and its distribution on board ship will be governed by its tactical application on landing, and the order in which its component parts will be required on shore. (Sec. 22.) The probable sequence of disembarkation should therefore be determined beforehand. Provided space is not unduly sacrificed, units will be embarked complete with their animals and *matériel*, but if special rapidity of disembarkation is important, mounted troops should be divided up by squadrons, batteries, &c., amongst the transports instead of being conveyed in a few separate vessels ;

otherwise mounted troops should be accommodated by themselves in cattle ships.

4. Gun and small-arm ammunition and explosives will be taken on board and stowed in the magazine, and the guns, wagons, &c., will then be prepared for embarkation. All small gear will be collected, tied together, labelled, and stowed away. Vehicles of all arms of the service need not, as a rule, be taken to pieces, but will be hoisted in loaded and without being dismounted.

The height to which military vehicles should be loaded will in no case exceed 8 feet 6 inches from the ground. Poles of wagons should be lashed to them.

43. *Duties on Board Ship.*

The interior economy and duties of troops on board ship are similar in war and in peace and will be governed by the King's Regulations on the subject.

44. *Disembarkations.*

The process of disembarking troops at a friendly port will be carried out in a similar manner to embarkations and be regulated by the naval and military commanders respectively as required.

CHAPTER IV.

QUARTERS.

45. General Principles and Rules.

1. Quarters take the form of Billets, Close Billets, Bivouacs, and Camps.

Billets are the usual form of quarters in civilized countries, when not in immediate proximity to the enemy. They allow of proper rest, and give shelter from the weather, but usually cause dispersion of the troops. This disadvantage may be partially overcome by resorting to Close Billets, when as many men as possible sleep in houses, the remainder bivouacking.

Bivouacs give concentration and readiness, but are trying to the health of men and horses, and should only be resorted to when tactical considerations make it imperative to do so.

Camps admit of concentration, and are more healthy than bivouacs, but will only be used on service by troops engaged on field operations under exceptional circumstances. Huts may replace tents if a force is likely to remain halted a long time, as for instance in a siege or blockade.

2. In the presence of an enemy, tactical considerations, *e.g.*, favourable ground for defence in the event of attack, concealment, facilities for protection, and economy in outposts are of the first importance. Under these circumstances, the time which it will take to get the troops under arms, and in position to meet the enemy, determines the form of quarters to be adopted. Thus

it will often be possible to billet the main body of an army, its covering force being placed partly in close billets and partly in bivouac. When not in proximity to the enemy, the health and comfort of the troops are the first considerations.

3. If an engagement is anticipated, the larger units should be distributed in the order from front to rear in which they will come into action, provided that when liable to attack infantry is placed in the more exposed positions; cavalry and other mounted troops in the less exposed. Artillery, transport and supply columns, ammunition columns, and medical units should always be covered by the other arms.

4. The following rules will be observed in distributing troops:—

- i. Depôts should be near good roads.
- ii. Dismounted units should be nearest the water supply.
- iii. Staffs and hospitals have the first claim on buildings.
- iv. When shelter is limited, cavalry and then other mounted troops have precedence of dismounted troops.
- v. Hospitals should be given a quiet spot and the most sanitary position.
- vi. Staff and telegraph offices should adjoin each other, if possible, and should be clearly marked.*
- vii. Officers must be close to their men.

5. If a column is halted for a single night only, the troops composing it should not be quartered at a greater distance than from 1 to 2 miles from their line of march next day.

46. *Hygiene and Sanitation in Quarters.*†

1. Every officer is responsible that all orders affecting the health of an army are rigidly carried out by the troops under his command. Neglect of sanitary precautions inevitably results in great loss of life and efficiency.

* For distinguishing flags and insignia, see F.S. Pocket Book.

† For special sanitary measures in billets, see Sec. 5, and in camps and bivouacs, Sec. 69.

2. Men must get as much rest as possible. If an early start is contemplated, no man should stir till ordered to turn out. Preliminary arrangements for breakfast should be seen to overnight.

3. As the health of a force depends largely on the purity of the water provided, everything possible must be done to ensure an ample supply of pure drinking water. For this purpose a certain number of specially trained N.C.Os. and men of the Royal Army Medical Corps are attached to each unit. Men must be prevented from drinking water that is not pure and must be trained to economize the contents of their water-bottles. Water is best rendered safe for drinking purposes by being boiled, or by the use of sterilizing filters, which must be kept clean, as otherwise they become dangerous. (See "Manual of Military Engineering.")

The filter usually provided for field service is the filter water tank which will sterilize about 200 gallons in an hour. The water must always be cleared first, or the filter may become clogged.

4. Whenever filters, sterilizers, or other means of purifying water are available, two men per company or corresponding unit should be specially detailed for the purpose of providing pure water. Vessels or tanks in which drinking water is stored are to be carefully covered, to keep out dust, &c., and they should be raised off the ground and provided with taps. A dirty tank or water-bottle may easily be a source of danger to health. The necessity of frequently cleaning them out or scouring them with boiling water or chemicals provided for the purpose must be borne in mind. Water tanks and water-bottles must be frequently inspected by a medical officer.

5. Milk (other than sterilized or condensed) should be boiled before use.

ADMINISTRATION AND DISCIPLINE.

47. *Duties of the Commander of a Brigade Area.*

1. The area allotted for quarters to each cavalry or infantry brigade, to the divisional troops of a division, and to any improvised organization approximately equal to a brigade, will normally form a command, termed a *brigade area*, for purposes of discipline and administration in quarters.

If, however, brigades or similar organizations have to be broken up, or a force is much scattered, it may be more convenient to fix areas, the limits of which do not coincide with the limits of the quarters occupied by brigades and similar organizations. In this case commanders, who will perform the duties here laid down for the commander of a brigade area, will be appointed by the authority who defines the area.

2. A commander of a brigade area is responsible for all internal arrangements in his area. He allots areas to his units; fixes their alarm posts, and the alarm post for his command; takes steps to have extra communications opened out, if they are required; in billets, takes precautions against fire or a rising of the inhabitants; and settles police and sanitary measures.

3. In choosing alarm posts and wagon parks, care must be taken that main communications shall not be blocked, in the event of troops having to turn out suddenly, possibly in the dark. Alarm posts should be so situated that the ground to be defended in case of attack can be quickly reached from them. The alarm post for artillery is invariably its gun park.

4. The commander will take steps to ensure that the direction of all principal roads and the position of all important points in his area, *e.g.*, brigade staff office, post and telegraph office, &c., are clearly indicated by means of improvised sign boards, or by flags, or lamps (Sec. 45, 4, footnote).

5. In each brigade area a place for a market will, if necessary, be selected and a tariff of prices arranged in conjunction with

commanders of other areas. All persons coming into the district to sell articles of any kind must be confined to this place

48. *General Arrangements on the Arrival of the Troops*

1. Before the troops are dismissed, all necessary defensive precautions must be taken, guards mounted, police posts established, and water, fuel, and forage parties detailed. The arrangements of the brigade area, the boundaries of the unit's area, and other matters of a similar nature will also be explained to the men.

2. Units, on their arrival, should be halted on their alarm posts. Everyone must be made clearly to understand what he has to do in case of alarm, and should know the names of all prominent features of ground near the area, and where roads in the immediate neighbourhood lead to. Names should be invented for such features if none exist.

3. No troops, other than orderlies and parties for water, wood, forage, &c., under proper control, are to quit their areas until leave has been given by the commander of the brigade area.

4. Each commander of a unit will, without delay, send an orderly who knows the position of the unit's head-quarters to report himself at the brigade office.

5. If a state of *constant readiness* is ordered, troops will remain accoutred and will sleep with their arms handy, and it may even be necessary that horses should be kept always saddled and harnessed. In billets, lights must in this case be kept burning in houses, stables, and streets; and doors must be kept open.

49. *Discipline.*

1. The daily duties mount, as a rule, immediately a new halting place is reached. When a force remains halted for some time, and in standing camp, the hour for duties to mount will be notified in orders. A field officer of the day, with a medical officer and a

quartermaster to assist him, will be appointed in each brigade area; and in each regiment, brigade of artillery, battalion, or similar unit, an officer of the day will be detailed. In each squadron, battery, and company, an orderly non-commissioned officer will be appointed.

2. A staff officer, or representative, is always to be present at the staff office of an area. A brigade adjutant of the day will be appointed to act for the staff officer of the area in his absence.

3. The field officer of the day is responsible that the orders of the commander of the brigade area for the preservation of good order, the sanitation and the internal defence of the district are observed. Regimental officers of the day report to him.

4. Regimental officers of the day, and orderly non-commissioned officers, fulfil similar duties as far as their own areas are concerned.

5. Inlying piquets are mounted under the orders of the commander of the brigade area, when required for internal security, or they may be ordered by the commander who appoints the commander of the outposts to act as a reserve to the outposts. In the latter case the piquet stands to arms one hour before sunrise. (Sec. 80.) Should the inlying piquet be required to leave an area its commander should at once notify the fact to the field officer of the day, with a view to a fresh inlying piquet being mounted.

6. The "Alarm" will be sounded only by order of the commander of a brigade area or of superior military authority, unless an actual attack is impending, when it may be sounded on the responsibility of any officer or of the commander of a guard.

7. On the "Alarm" sounding, troops fully armed and equipped fall in by squadrons and companies on the alarm post of their unit, draught animals are to be at once harnessed in and pack animals saddled up, and an officer from each unit is to be sent for orders to the brigade office.

BILLETS.

50. *General Principles.*

1. In the case of large bodies of troops (*e.g.*, two or more divisions), when tactical considerations admit, and roads are available, the divisions should be billeted on parallel lines, each being distributed on a narrow front, and in depth. This arrangement admits of each division being closed up on the front more readily than when divisions are billeted in echelon, and is economical of time and labour when a force is marching from day to day (Sec. 23).

2. In allotting areas, units should be kept together as far possible under their own commanders, but in order to make full use of stabling it may be necessary to mix the arms.

3. On the line of march, the utmost possible use should be made of buildings on or near the roads by which the force is marching.

51. *Allotment of Billets.**

1. Whenever possible, billets will be allotted in advance. Billeting areas may be allotted to armies or divisions, in the first instance on a basis of population. But the capacity of areas varies greatly with their character; *e.g.*, whether urban or rural, agricultural or industrial, rich or poor, and with the season of the year. Data as to the capacity of an area should therefore be collected beforehand, if circumstances permit. In the absence of such data it may be taken that ordinary billets with subsistence can be provided by an area for a force about equal to twice its total population for one week. Billets without subsistence can be provided at the rate of about 10 men per inhabitant in rich agricultural districts, and at the rate of about 5 to 6 men per inhabitant in town or industrial districts. No data can be given for close billets, in which men for whom no shelter can be provided must bivouac. In the case of large units (divisions), billeting parties will be sent ahead

* For data as to accommodation in billets, see P.S. Pocket Book.

for the purpose of making arrangements with the local authorities. These parties will be in charge of an officer of the quartermaster-general's staff, and will include representatives of the brigades and divisional troops. They should move with the protective cavalry if possible.

2. As soon as billeting areas have been approximately allotted, the representatives of brigades, &c., will inform the billeting parties of units, which should move with the main body of the advanced guard, where they may be met. The billeting parties of units will then proceed forward, so far as tactical considerations admit, and take over their areas, when they will, in turn, send back to meet and guide their units to their billets.

They will clearly mark with chalk on the door the names of officers, the number of men and of horses the building is to hold, and the command, *e.g.*, squadron, battery, or company to which it is allotted, official abbreviations being used. The marks must invariably be removed, before marching off.

3. When time does not permit of detailed arrangements, areas will be roughly assigned to the larger units, and these will in their turn allot certain streets or groups of houses to their units.

4. In allotting billets, regard will be had both to the comfort of the men and the interest of the inhabitants. Billets may have to be readjusted after the troops have settled into them.

The following points should be observed in addition to those given in Sec. 45, 4:—

- i. Staff offices should be on main communications, and easily found.
- ii. Mounted men must be near their horses, guns, and wagons; and staff officers near their offices.
- iii. Both sides of a street should be allotted to the same unit to prevent confusion in case of alarm.
- iv. Roads and communications must never be blocked. Guns and vehicles must, if necessary, be parked outside towns and villages. If parked on the sides of roads, the first and last gun or vehicles should be marked with a light.

52. *General Rules in Billets.*

1. Officers will visit the billets of their men and their horses' stables at irregular intervals, at least once by day and once by night.

2. If necessary, the inhabitants should be disarmed and forbidden to leave their houses after a certain hour; the streets should be patrolled to see that this order is obeyed. It may be necessary to take hostages for their good behaviour. Inhabitants who have leave to be out after dark should carry lights.

3. From the moment the advanced billeting parties enter a village or farm, precautions must be taken to prevent the inhabitants conveying information to the enemy. The local telephone system must be at once controlled. All ranks should be warned against talking on military matters in the presence of inhabitants, against leaving letters or papers about, and of the importance of taking every possible precaution against any leakage of information.

4. Military tribunals should be established to deal with any infractions by the inhabitants of the orders issued concerning them, and with any offences committed against the troops.

All houses where liquor is obtainable must be placed under control.

5. In every house occupied by the troops at least one man must be specially detailed to guard the arms. Arms are not to be piled or left outside.

6. As a precaution against fire, and also to prevent signalling to the enemy by means of lights, directions should be issued controlling the use of fires and lights, both by the troops and by the inhabitants. It may sometimes be necessary to establish special fire piquets.

7. When the enemy is within striking distance, the villages in the front line should be prepared for defence against surprise, and a portion of the troops in them kept in a state of constant readiness (Sec. 48) so that the defences may be rapidly occupied.

8. As troops in billets are usually dispersed over a wide area,

an alarm signal should be arranged for use in the event of the troops being required to turn out suddenly.

9. Cover is all that officers and men have a right to expect in billets on active service, unless the inhabitants also provide subsistence. If either bed or furniture is supplied, it is a matter of civility on the part of the owner and must be received as a favour and not as a right.

10. Staff officers must, immediately on arrival, communicate their addresses to the head-quarters office of the district in which they are billeted.

53. *Sanitation in Billets.*

The local authorities should usually be required to take such sanitary measures as may be needed, but it may be advisable to give them assistance, particularly in close billets, in which the construction of additional latrines, watering and washing places will often be necessary. Billeting parties should invariably ascertain the source of the local water supply, the measures which may be necessary to guard it from pollution, the sanitary system of the place, and should make enquiries as to the existence of infectious diseases. Sentries should be posted at the first opportunity over houses, where infection exists, and over any other houses in which it is not desirable to quarter men. When the same billets are to be used by successive bodies of troops, it is of the utmost importance that they should be left scrupulously clean. In such cases arrangements should be made to supervise and, if necessary, assist the local authorities in this work after the departure of the troops.

54. *Close Billets.*

In close billets as many men and animals as possible are billeted, and the remainder bivouac.

Close billets are adopted when a greater state of readiness is required than is possible in ordinary billets. For this reason,

tactical considerations invariably have precedence over considerations of comfort in close billets, and arms and units should never be mixed.

In allotting close billets, every form of shelter should be fully utilized. It should be remembered that a bad billet is preferable to the best bivouac. Close billets will, normally, be used for short periods only, and it is not therefore necessary to consider the interests of the inhabitants to the same extent as in ordinary billets. Where close billets have to be occupied for any length of time, as in the case of sieges, it is advisable to remove the inhabitants, and accommodate them outside the immediate *rayon* of operations.

In other respects the instructions for billets apply to close billets.

CAMPS AND BIVOUACS.

55. General Principles.

1. The site for a camp or bivouac should be dry, and on grass if possible. Steep slopes must be avoided, but gentle slopes facilitate drainage. Large woods with undergrowth, low meadows, the bottoms of narrow valleys, and newly turned soil are apt to be unhealthy. Clay is usually damp. Ravines and water-courses are dangerous sites, as a sudden fall of rain may convert them into large streams. Sites of old camping grounds should, if possible, be avoided.

2. A good water supply is essential, but considerations of safety may necessitate a camp, or bivouac, being placed at some distance from it. Other points to be considered are the facilities which a site offers for obtaining shelter, fuel, forage, and straw.

56. Arrangements at the end of a March.

1. A staff officer, usually accompanied by some mounted police, will be sent forward to select, in conjunction with an engineer and

a medical officer, and with due regard to tactical considerations, water supply, &c., the ground where the force is to pass the night. He will make all necessary arrangements for the reception of the troops on their arrival.

2. When the column arrives within two or three miles of its destination, staff officers of brigades, &c., accompanied by representatives of their units will ride ahead, receive instructions concerning arrangements for the night, lead their units on arrival direct to the ground allotted to them, and explain the arrangements to commanders of units. The commanders of second line transport, of the transport and supply columns, and of the rear guard will report personally to the commander of the column as soon as they have reached their destination.

3. Officers in charge of the second line transport of brigades and of units which are not brigaded will, on arrival, report to their own commanders.

4. Each unit is to make arrangements to have its second line transport met, and guided to its destination. Animals on arrival should be relieved of their loads and girths loosened as soon as practicable.

5. When ground is allotted, each commander must be informed of any localities or depôts outside his own area on which he may draw for water, fuel, forage, straw, and other supplies. If grazing is necessary, grazing grounds will be allotted and arrangements made for their protection by the authority allotting them.

6. It must also be made clear to each commander which roads he is at liberty to use, and what special defensive, police, or sanitary measures he is to take.

The place to which dead animals are to be dragged, and how they are to be disposed of, must also be described.

7. Where bodies of troops are camped or bivouacked close together, the general position of the latrines and kitchens of each area will be settled by superior authority, in consultation with the senior medical officer; that is to say, it will be decided whether they are to be in front, at the rear, or on the flank of an area.

8. Special care is necessary to prevent troops from the various areas crossing one another in proceeding to ground which they may have to defend in case of attack.

57. *Watering Arrangements.*

1. The military police, or in their absence the first troops to arrive at a halting ground, will mount sentries on all water likely to be required for use, with such orders as will prevent any form of pollution. These sentries will not be withdrawn until permanent water guards are detailed.

2. The water supply will always be selected in conjunction with the sanitary or other medical officer, who will satisfy himself as to its fitness for use.

3. If water is obtained from a stream, horses will be watered below the place where troops obtain their drinking water, but above bathing and washing places. Patrolling by mounted men will often be necessary for some distance above the spot where the drinking water is drawn.

4. The water supply will usually be marked with flags by the advanced party of engineers (Sec. 66, 4):—

White for drinking water.

Blue for watering places for animals.

Red for washing or bathing places.

5. If running water is not available, a rough barbed wire fence, or some other form of fencing should be placed round the water supply, to keep out animals, which should in this case be watered by bucket or nosebag. Washing should be allowed only at some distance from the water supply, empty biscuit tins, or other receptacles, being used to draw water for this purpose.

Similar precautions are often necessary with running water, if other bodies of troops are halted lower down the stream.

6. If many animals have to be watered and the frontage is small, hours for watering and the route to and from watering

places will be laid down for each unit. Three to five minutes may be taken as the average time for watering an animal.

An officer will invariably accompany watering parties of more than 20 animals.

7. A daily average of 1 gallon per man is sufficient for drinking and cooking purposes. A horse, bullock, or mule drinks about $1\frac{1}{2}$ gallons at a time. In standing camps, an average allowance of 5 gallons should be given for a man, and 10 gallons for a horse.

58. *Picketing.*

1. Horses should be picketed in lines facing away from the prevailing wind if possible.

2. A horse, when picketed, requires a frontage of about 2 paces and a distance of 5 paces from picket line to heel peg. When horses are fresh from stables, it may be necessary at first to increase the frontage.

3. A gangway of 2 paces will be maintained between two horse lines, and between a horse line and the nearest building, wall, &c., or the pegs of the nearest tent.

4. Saddlery and harness will as a rule be placed in the gangways in rear of the heel pegs; forage at the rear ends of the horse lines.

5. Head ropes will be fastened at such a length as to be just slack when the horse is standing naturally.

6. If horses are unaccustomed to picketing, the men should be kept as much as possible among them.

59. *Parking Guns and Vehicles.*

1. In parking vehicles, the following distances should be kept clear in front of guns or vehicles which should be parked with the units to which they belong:—

Heavy gun (8 horses)	....	....	....	16 yards.
6-horse gun or wagon	....	....	....	12 "
4-horse vehicle	....	....	....	3 "
1 or 2-horse vehicle	....	....	....	5 "

Mechanical transport vehicles will require special arrangements.

2. A minimum interval of 1 yard should be left between guns or transport vehicles.

If space admits, guns should be parked at half interval ($9\frac{1}{2}$ yards).

60. *Sanitation in Camp and Bivouac.*

1. Latrines should be constructed to seat, if possible, five per cent. of the troops, one yard per man being allowed.

The trenches must be narrow and deep, to prevent the contents being blown about. (See "Manual of Military Engineering.")

Where natives are employed, special latrines for them are necessary.

The supervision of latrines is absolutely necessary in order to ensure excreta being at once covered up. Disease may be easily spread if latrines are not carefully attended to.

2. Urine may spread infection. Men are on no account to urinate elsewhere than in the latrine trenches, or in urinals or pits set apart for the purpose. Receptacles, such as empty biscuit tins, should be placed at convenient spots close to the tents at night, to be used as urinals, to prevent pollution of the ground.

3. Latrines, urinals, refuse pits, cattle lines, &c., must be situated at least 100 yards from, and when practicable to leeward of, the water supply and kitchens. They must never be placed in or near gullies which, when it rains, discharge into the water supply, nor in any situation the drainage or filtration from which may possibly reach, and so pollute, the water supply.

4. The contents of latrine trenches should be covered with earth as often as possible, and at least twice daily. For general use as disinfectants, cresol solution and chloride of lime are the most efficacious. To use cresol mix $1\frac{1}{2}$ ounces of cresol solution with 1 gallon of water.

61. *General Rules in Camps.**

1. The shape and the size of a camp or bivouac will, subject to the following general rules, be determined by the ground.

2. In brigade and larger encampments, one main centre and one main cross street will run the entire length and depth of the camp.

Units should not be cramped for space more than is absolutely necessary. On the other hand the dimensions of a camp or bivouac must not be increased unduly, as a straggling camp entails extra fatigue duties and delay in circulating orders.

3. The usual interval between units is 10 yards. Between squadrons of the same regiment, and between the component fractions of an artillery brigade, the interval may be reduced to 1 yard; and between the companies of a battalion to 3 yards.

4. A trench should be dug immediately under the curtain of a tent and the excavated earth banked on the outer edge of the trench. The curtain should then be pegged to the inner slope of the trench, the canvas thus draining into it. Surface drains should be constructed to prevent rain-water lodging in the trenches. Half-an-hour's work on the first wet day, when the natural run of the water can be seen, will do more to keep the camp healthy than a day's work in dry weather.

5. Tent flies are to be looped up the first thing every morning, in wet weather on the leeward side only. In a standing camp, tents will be struck periodically, and the ground underneath well swept and left exposed for some hours at least, the tents being eventually replaced on their former sites. Tents should never be pitched for occupation in the intervals.

6. Tent doors should generally face away from the prevailing wind; in mounted units they should face the horse lines.

7. A light is never to be left burning in an unoccupied tent.

8. If rain or heavy dew is likely, tent ropes must be slackened.

9. If a camp is pitched in or near long dry grass or heather, special precautions must be taken against fire.

* For details as to tents, sizes of camping grounds, &c., see F.S. Pocket Book.

10. No mounted officer or man riding or driving inside the camp is to go out of a walk except when on duty, and with special orders as to pace.

62. *General Rules in Bivouacs.*

1. Mounted men bivouac in the gangways in front of their horses.

2. By day, infantry pile or ground arms on the alarm post, articles of equipment (except haversack and water-bottle) being laid by the arms. By night, men will invariably rest with their arms and equipment by them. In some cases men must sleep fully equipped. (Sec. 87.)

68. *Standing Camps and Rest Camps.*

1. When laying out a standing camp, tents, at the required intervals and distances, should be dressed both from the front and flank; main and cross streets should be maintained for the purposes of communication.

2. A system of surface drainage should be constructed.

3. Care should be taken to prevent the pollution by latrines or refuse pits of ground within 100 yards of the encampment, or any possible extension of it. An improvised pail system of removal should be established if possible.

4. Cinerators for burning dead animals, refuse, &c., should be constructed. Horse and cattle lines should be cleaned regularly, dung removed, and special precautions taken to prevent ground in the neighbourhood of kitchens and washing places becoming fouled. Flies are a constant source of disease, and great care is necessary to prevent them from breeding in dirt and refuse, and from coming in contact with food.

5. Notice boards should be put up showing the position of offices, depôts, hospital, veterinary hospital, watering places, latrines, urinals, refuse pits, &c., and a plan of the camp should be on view

at the Commandant's office. All parties, on arrival, should have the arrangements, including those for defence when necessary, and the rules of the camp fully explained to them.

6. Camping grounds should be definitely allocated for mounted troops, dismounted troops, and convoys, respectively. Infantry camping grounds should not be used by mounted troops.

7. The arrival at, and departure from, a rest camp or post on a line of communication, of any body of troops, will be reported by its commander to the commandant of the camp or post.

Detached officers will write their names in a book provided for the purpose, stating the duration of their stay and the duty on which they are travelling.

CHAPTER V

PROTECTION.

64. General Principles.

1. Every commander is responsible for the protection of his command against surprise. A force can only be regarded as secure, when protection is furnished in every direction from which attack is possible.

2. The method of protecting troops is the same at all times and in all circumstances. Detachments are thrown out by the commander of the body to be protected; these detachments provide for their own safety by furnishing detachments from themselves, the same process being repeated in turn by each body that is thrown out, until eventually a series of small groups is reached.

3. The commander of each protecting detachment, wherever situated, must keep his command at all times ready for action.

4. The commander of a protecting detachment is responsible that connection with the force protected is maintained, except in warfare in uncivilized countries (Sec. 146). In the event of attack, he must at all risks and at any sacrifice gain time for the body he immediately protects, to prepare to meet the attack.

5. The fact of cavalry being in advance does not necessarily afford security to the troops in rear. If the enemy be enterprising and strong in mounted troops, he may find an opportunity of avoiding the protective cavalry and suddenly attack the columns in rear. Local protection can, therefore, never be dispensed with.

6. At the end of a march, the troops that have covered the march remain responsible for the protection of the main body while at rest, unless other arrangements are made by the commander of the force; and, *vice versâ*, when the march recommences, outposts must

not be withdrawn till the troops detailed for the protection of the march are in position.

7. In the following pages, the protection of a force of all arms is chiefly considered. The principles laid down are of general application, and hold good for mounted troops or infantry, acting independently of the other arms.

PROTECTION ON THE MARCH.

65. *The First Line of Protection.*

1. The mounted troops of an army form the chief means at the disposal of its commander for obtaining information and for protecting his advance. They are divided according to the nature of their duties, into three distinct bodies :—

- i. The independent cavalry.* (Sec. 91.)
- ii. The protective cavalry.
- iii. The divisional cavalry.

The fundamental principle in the distribution of cavalry is that the commander-in-chief in order to gain full value from that arm must clearly determine what he requires of it, and group his units accordingly in a suitable manner and in sufficient strength. Circumstances may, therefore, require the reinforcement of the independent cavalry by the protective cavalry and *vice versa*.

The protection of the army against hostile enterprises is, to a certain extent, secured by the defeat of the enemy's cavalry, but in order that the independent cavalry may not be tied to the army, the duty of covering the main columns is normally entrusted to the protective cavalry, which thus furnishes the first line of protection; local protection on the march being afforded by *Advanced, Rear and Flank Guards*, and when at rest by *Outposts*.

* The independent cavalry is "independent" only in the sense that it is at the immediate disposal of the Commander-in-Chief and is not charged with the direct protection of any slower moving body of troops. It co-operates with other troops in giving effect to the will of the Commander-in-Chief, as much as any other formation.

2. The protective cavalry, which will usually be accompanied by mounted infantry and horse artillery, will, subject to the above principle of distribution, act under the direct orders of the commander of the army to which it belongs (Sec. 92).

The divisional cavalry acts under the direct orders of the divisional commander. Its duty is to assist the infantry in the immediate protection of the division by supplying mounted men for patrolling in connection with advanced guards, flank guards, rear guards, and outposts; to maintain connection with the protective cavalry and neighbouring columns; to furnish escorts, orderlies, despatch riders, and facilitate inter-communication generally.

3. When the opposing forces are at a distance the duties of the protective cavalry are:—

- i. To afford the commander of the force it may be covering timely information regarding the enemy's approach.
- ii. To furnish information regarding tactical features, resources, and roads of the country in advance of the main body.
- iii. To oppose hostile enterprises and prevent the enemy obtaining information regarding the movement of the columns in rear.

The protective cavalry may also be employed to seize and hold positions in front of the slower moving infantry and deny their occupation to the enemy until the main body arrives.

4. These functions of the protective cavalry will entail principally defensive action, and will necessitate extension over a considerable front, but the commander must dispose his force in sufficient depth to enable it, with the assistance of the advanced guards of the columns in rear, to check any attempt to break through and surprise the main body.

5. When the opposing forces are within striking distance of each other, it becomes the duty of the cavalry to clear up the tactical situation. This will usually involve offensive action and be the work of the protective cavalry, assisted by the independent

cavalry and other advanced troops as the general situation permits. The protective cavalry best assures the safety of the force it covers by keeping the enemy continuously under observation when contact with him has once been gained (Sec. 92).

6. The protective cavalry is normally organized into mounted brigade. When it is desired to strengthen the first line of protection, for example, in order to cover the advance of a number of columns through difficult country, one or more mounted brigades may be attached to a division, or a mounted brigade may be temporarily strengthened by the addition of field artillery and infantry. The body so formed is called a strategic advanced guard; a commander for it is appointed, and its composition and duties are determined by the authority who orders its formation. A strategic advanced guard is normally formed for a specific purpose, and its composition is not changed daily as is usually the case with a tactical advanced guard (Sec. 66).

THE TACTICAL ADVANCED GUARD.

66. *Composition, and Strength of an Advanced Guard to a force Advancing.*

1. Every body of troops advancing through a country in which it is possible that an enemy may be encountered, will be preceded by a tactical advanced guard. When at a distance from the enemy, a force may for facility of subsistence and for the comfort of the troops be divided into a number of columns and march on a broad front (Sec. 23). It is then convenient for each column to provide for its own protection. When approaching the enemy, unity of action becomes important, the force moves on a narrower front, and a single advanced guard detailed from a complete unit is there usually preferable for the protection of the larger units (divisions, &c.).

2. The strength of the advanced guard will be proportionate to the strength of the main body. It may vary from a fourth to an eighth of the whole force, but should be sufficient to enable the advanced guard to carry out its duties (Sec. 68).

3. An advanced guard is divided into a van guard and a main guard. As it has to reconnoitre and fight, it will usually be composed of all arms. The proportion of each arm will depend chiefly on the character of the country. In an open country, the proportion of mounted troops and guns may be much greater than in a close or mountainous country.

4. The special duty of the van guard is reconnaissance. It will, therefore, generally be composed of the advanced guard mounted troops, with or without a body of infantry as a support. By day, when the country is open and the advanced guard is strong in mounted troops, infantry will not as a rule form part of the van guard. Field artillery will seldom accompany it, but a party of engineers should usually be added.

The main guard comprises the troops of the advanced guard not allotted to the van guard.

67. *Advanced Guard Commander.*

1. The advanced guard commander, on taking over his duties, should be informed of what is known of the enemy, of the strength and composition of the advanced guard, and of the intentions of the commander. He should receive clear instructions as to engaging the enemy, if he is met in any force (Secs. 68 and 111).

2. On receipt of his instructions, the advanced guard commander will issue his orders. In these he will explain the general situation, the route to be followed, the composition of the van guard and main guard, the order of march, and the hour of starting.

3. He will take steps to ensure that connection is maintained between the different parts of the advanced guard, and also with the main body.

68. *Action of an Advanced Guard to a force advancing.*

1. The advanced guard must protect the main body from the moment the march of the latter begins. The advanced guard commander will therefore decide the hour at which the advanced guard will clear the starting point and the distance at which it will

precede the main body. This distance will vary with the nature of the country and the tactical situation. It should be sufficient to enable the main body to deploy should the enemy be met in force, and to admit of minor opposition being brushed aside without checking the main column.

2. It is most important that when an enemy is met the commander of the force should have information on which to base his plans and time to put them into execution when they are formed. The first troops to be met will be the enemy's advanced troops and until these have been brushed aside nothing definite can be known. It is the duty of advanced guards to assist the mounted troops, when necessary, in driving in the enemy's covering troops.

If the commander of the force has decided on offensive action the advanced guard commander should secure any tactical points which may assist the development of the attack of the main body. To effect this it is justifiable for him to deploy on a broader front than would be advisable for a force of the same size entering on a decisive action, for every moment brings the main body closer. It is important that the advanced guard artillery position should be chosen with a view to the subsequent action of the artillery of the main body. Should the commander of the force wish to avoid being drawn into a decisive engagement, the advanced guard commander will use all means at his disposal, short of committing the main body, to delay and hamper the enemy and to discover his dispositions. If the advanced guard commander is in any doubt as to the intentions of the commander of the force, he must act on his own initiative, remembering that by driving in the enemy's advanced troops at once he will usually assist the commander of the force in coming to a decision and that this will rarely interfere with the latter's liberty of action, while hesitation and delay may do so by allowing the enemy to seize the initiative.

3. The van guard is responsible for protecting the main guard against surprise. In open country mounted patrols should seldom

be less than four or five miles in front of the main body. In any case all ground within effective field artillery range must be searched. The advanced guard mounted troops should always keep in communication with the protective cavalry, and with columns moving on parallel roads. If constant connection between two columns is difficult to maintain, arrangements should be made between them for communicating at stated places or intervals of time during the march.

69. *Advanced Guard in a retreat.*

1. It is always advisable to have a small advanced guard to a retreating force. Its special duty is to clear away obstacles that would delay the march. But it should observe all precautions against surprise, and should be invariably accompanied by some mounted men for scouting purposes. A party of engineers should be attached for the removal of obstacles, or the preparation of bridges, &c., for demolition after the rear guard has passed.

2. Should it be possible for the enemy to intercept the head of the retreating column, a strong advanced guard of all arms will be required.

THE FLANK GUARD.

70. *General Principles.*

1. If there is any possibility of a column on the march being attacked in flank, flank guards should be detailed. They will usually be furnished by the main body, but may sometimes be dropped by the advanced guard.

2. The strength, composition, and dispositions of a flank guard and its distance from the main body are governed by the principles which apply to all protecting detachments. The flank guard may either move parallel to the main body, or ~~take~~ take up a position on the threatened flank. A flank guard may be required to hold its own without support until the main body and transport have passed.

3. Should the main body change direction so that the march

becomes a flank march (*i.e.*, a march across the enemy's front), it will generally be advisable to use the old advanced guard as a flank guard, and to form a new advanced guard from the main body.

THE REAR GUARD.

71. *Duties, Composition, and Strength of the Rear Guard to a Retreating Force.*

1. The first requirement of a defeated force is to be relieved from the pressure of pursuit. This is effected by detaching a portion of the force, the strength of which will depend on the situation, as a rear guard to impede the enemy's advance. The remainder of the force is thus enabled to move in comparative safety, and to recover order and *moral*.

2. A rear guard to a force retreating is essentially a fighting force of all arms. It will usually be very strong in artillery and mounted troops. Artillery, by reason of its long range, is able to force the enemy to deploy at a distance, whilst mounted troops, on account of their mobility, can hold a position considerably longer than infantry, and prevent the flanks from being turned. A rear guard should be lightly equipped, and should usually be accompanied by a strong detachment of engineers provided with demolition equipment. The troops detailed for the rear guard will, as a rule, be those which have been least severely engaged.

3. The commander of a rear guard is appointed by the commander of the force to be protected. He should receive instructions as to what extent he is at liberty to break down bridges, burn villages, and destroy railways, with a view to impeding the enemy's progress.

4. When the pursuit is not close, the disposition of a rear guard on the line of march will resemble that of an advanced guard reversed; a *rear party*, usually composed of mounted men, having been formed, the remainder of the troops, when not engaged, generally move as a main guard, in the order in which they can most readily come into action.

72. Action of a Rear Guard to a Retreating Force.

1. The conduct of a rear guard, more perhaps than any other operation in war, depends for its success on the skill and energy of the commander.

2. A rear guard carries out its mission best by compelling the enemy's troops to halt and deploy for attack as frequently, and at as great a distance, as possible. It can usually effect this by taking up a succession of defensive positions which the enemy must attack or turn. When the enemy's dispositions are nearly complete, the rear guard moves off by successive retirements, each party as it falls back covering the retirement of the next by its fire. This action is repeated on the next favourable ground. All this consumes time, and time is what is most needed by a retreating force. A rear guard may also effectively check an enemy by attacking his advanced troops as they emerge from a defile or from difficult country.

3. In occupying rear guard positions it is important: i., to show as strong a front as possible to the enemy; ii., to make sure of good lines of retreat.

4. The manner of occupying a rear guard position differs from that of occupying a position meant to be resolutely defended, in that the greater part of the force should be in the fighting line from the outset, a proportionately small part being retained in reserve, and as great a display of force as possible being made.

5. Mounted troops should usually be employed wide on the flanks, so as to watch the country by which the enemy might advance, and to be able to forestall any attempt to pass between the rear guard and the main body.

6. The first consideration in selecting a position for the artillery is, that it shall be able to open fire on an enemy at long range, and thus compel his infantry to assume an extended formation at the greatest possible distance. The second is that it should be possible to withdraw without difficulty.

7. A point of great importance to the commander of a rear guard

is to judge accurately the proper time to retire. He must constantly bear in mind the difficulty of withdrawing infantry that has once become engaged. If he retires too soon he is only partly carrying out the work required from the rear guard; on the other hand if he falls into the error of trying to dispute every inch of ground he may become seriously involved and run the risk of being cut off from the main body, or oblige the latter to halt and reinforce him.

8. When a rear guard halts to fight, every moment separates it further from the main body, whereas with a pursuing force every moment brings its reinforcements closer; in regulating the distance of the main guard from the main body the chance of the enemy interposing between the two must be considered.

The distance, however, must be sufficient to prevent the main body being shelled by the enemy. This is especially important during the passage of a defile.

The commander of the main body should periodically keep the commander of the rear guard informed of his progress, and *vice versa*.

9. It is always advisable to send an officer to the rear to note the next favourable position for defence on the line of retreat. The lines of retirement from position to position should not converge.

The positions should be sufficiently far apart to induce the enemy, after seizing one, to reform column of route before advancing against the next.

10. Before withdrawing from a position, arrangement should be made to cover the retirement of the portion of the rear guard which is still engaged, by the disposition of the troops that have already retired.

73. *Expedients for Delaying an Enemy's Advance.*

1. With a view to delaying the enemy's advance, the following expedients may be resorted to:—

- i. Narrow roads, &c., can be blocked by locking together several wagons and removing one or more of the wheels, or by felling trees across them.

- ii. Fords may be rendered impassable by throwing in ploughs, harrows, &c.
- iii. Boats may be removed to the side of the river further from the enemy and sunk or burnt.
- iv. Villages, woods, heather, scrub, &c., if the circumstances demand it, may be set on fire by the rear party, so as to conceal the movements of the rear guard and impede the enemy's advance.

2. Skilfully laid ambushes will cause the enemy to move with caution in pursuit.

74. Rear Guard to a Force Advancing.

1. If there is any chance of the rear of an advancing column being exposed to the enemy's attacks, the rear guard may be composed of all arms and must be sufficiently strong to meet all emergencies.

If it is to be employed only in collecting stragglers and keeping off marauders, it is usually composed of infantry with sometimes a few mounted troops added for watching the flanks.

2. If the main body, second line transport, and transport and supply columns march without any considerable distance between them, one rear guard will usually suffice for the whole; but if for any reason there is a considerable distance, the rear guard will follow the main body, and special arrangements will be made for the protection of the transport.

PROTECTION WHEN AT REST.

OUTPOSTS.

75. General Principles and Rules.

1. Every body of troops when halted will be protected by outposts, in order that it may rest undisturbed.

2. If the enemy is close at hand and battle imminent, or if the battle ceases only at nightfall to be renewed next day, the whole

of the troops must be in complete readiness for action. There may not even be room for outposts, and the troops will have to bivouac in their battle positions, protected only by patrols and sentries. In such cases, the firing line practically takes the place of the outposts.

3. It will often occur, under these conditions, that no orders can be issued as to measures of protection by superior authority; and, in any case, nothing can relieve the commanders of the advanced battalions and companies of the responsibility of securing themselves from surprise, and, unless circumstances forbid, of keeping touch with the enemy by means of patrols.

4. The duties of the outposts are :—

- i. To provide protection against surprise.
- ii. In case of attack, to gain time for the commander of the force to put his plan of action into execution.

5. If an enemy is so continuously watched that he can make no movement without being observed, surprise will be impossible. The first duty, therefore, of the outposts is reconnaissance.

6. All partial attacks must be warded off, and the enemy's troops must be prevented from approaching within effective field artillery range of the ground on which the main body will deploy if attacked. The second duty therefore is resistance.

7. Outpost duty is most exhausting. Not a man nor horse more than is absolutely needed should be employed.*

8. To see without being seen is one of the first principles of outpost duty. All troops on outpost must, therefore, be carefully concealed.

9. No compliments will be paid and no bugle or trumpet call is to be sounded.

10. Detachments in close proximity to the enemy must be careful to avoid useless collisions. Attempts to carry off detached posts, sentries, &c., unless with some special object in view, are to

* If more than one-sixth of the force is employed, the efficiency of the troops will suffer.

be avoided, as they serve no good end, give rise to reprisals, and tend to disturb the main body.

11. All bodies of troops on outpost must observe the rules laid down for the sanitation of camps and bivouacs (Sec. 60). Latrines and refuse pits must be prepared. The extent of the sanitary arrangements will depend on the time the outpost position is likely to be occupied.

76. *Position of the Outposts.*

1. When there is any possibility of a force coming in conflict with an enemy, its commander should, when halting for the night, first decide on his dispositions in case of attack, and then arrange the quartering of his command and the position of the outposts accordingly.

2. It is an advantage if an outpost position includes commanding ground from which a wide extent of country can, in clear weather, be kept under observation by day. Facilities for observation, however, are of less importance than facilities for protracted resistance, provided the ground in front be well patrolled. The distance of the outpost position from the main body is regulated by the time which the main body requires to prepare for action, and by the necessity of preventing the enemy's artillery from interfering with the freedom of movement of the main body. Commanding ground is advantageous, but by no means essential.

3. Command, co-operation, and intercommunication will be facilitated by placing the advanced troops along well-defined natural features, such as ridges, streams, the outer edges of woods, &c., or in the vicinity of roads, but this must not be allowed to outweigh the necessity for making the best tactical dispositions possible.

4. In enclosed country and at night, the movements of troops are generally confined to the roads, and tracks, which should be carefully watched.

5. If the outpost position is extensive, it may be divided into sections, each section being allotted to a certain number of companies, sections being numbered from the right. The extent of a section depends upon the amount of ground which can be supervised conveniently by one commander.

The extent of frontage to be allotted to each company will depend on the defensive capabilities of the outpost position; and, where they exist, on the number of approaches to be guarded.

6. The outpost position will invariably be strengthened and communications improved where necessary. Piquets and supports will do this without waiting for definite orders.

77. Composition of the Outposts.

1. In the case of large forces, or when a force is scattered, the outposts are usually furnished from each division or brigade in the front line. The commander of the force divides the ground to be covered between his subordinate commanders, who detail the commander of the outposts and the outpost troops for their portion. Under other circumstances the commander of the force may decide to detail the whole of the outpost troops, in which case he will also detail the commander of the outposts.

2. The outposts of a force of all arms consist of *Outpost Mounted Troops, Outpost Companies*, and, when necessary, *The Reserve*. Machine guns will generally be included and sometimes artillery.

Outpost mounted troops are usually provided by the divisional cavalry (Sec. 65) and may be attached to sections of the outposts or to outpost companies for reconnoitring purposes, and to keep touch with the protective cavalry by day; but economy must be exercised in employing mounted troops for outpost duties.

3. When stationary, the duty of local protection by night will fall almost entirely on the infantry, most of the outpost mounted troops being withdrawn, their place in this case being with the reserve, if there be one. In certain cases, however, standing mounted patrols may be left out at night with advantage.

4. Artillery may be usefully employed with outposts if they occupy the ground which the main body is to hold in case of attack ; if there is limited ground over which the enemy must pass ; or if it is important to prevent the enemy from occupying artillery positions within close field artillery range of the outposts. Except when the outposts occupy the battle position mere guns should not be employed than can be easily and rapidly withdrawn. Artillery will be withdrawn at night, except when with the reserve.

Machine guns with outposts may be employed to sweep approaches, and to cover ground which an enemy in advancing may be compelled to pass or occupy.

5. When a force is on the march the troops for outpost duty should be detailed before the march is completed.

78. Commander of the Outposts.

1. The commander of the outposts, who will be detailed in accordance with (Sec. 12, 9), should be told, before the force has halted, what is known of the enemy, and of other bodies of our own troops ; the intentions of the commander, who appoints him, if the enemy attacks ; where the force to be covered will halt ; the general position to be occupied by the outposts ; whether there are other outpost troops on his flanks ; the composition of the outposts, and the hour at which they will be relieved. *Reserves if required para 200) or in line highest*

2. As soon as he has received his instructions he will give out either verbally or in writing such orders as are immediately necessary for the occupation of the outpost line. He will supplement these by detailed orders on the following points as soon as possible :—

- i. Information of the enemy and of our own troops so far as they affect the outposts.

- ii. General positions to be occupied by the outposts; division into sections, if necessary; frontage, or number of roads, allotted to each outpost company, or to each section; and situation of the reserve.
- iii. Disposition of the outpost mounted troops (Secs. 88 and 89).
- iv. Dispositions in case of attack. Generally the line of resistance, and the degree of resistance to be offered.
- v. Special arrangements by night.
- vi. Smoking, lighting fires, and cooking.
- vii. The hour at which the outposts will be relieved.
- viii. His own position.

3. As soon as the outposts are in position he will inform the commander who appointed him, and furnish him with a rough sketch showing his dispositions.

||| 79. Distribution of the Outposts. *important*

1. The commander of the outposts will assign a definite part of the outpost position to each outpost company.* Should it be necessary to divide the outpost position into sections, the commander of the outposts will appoint commanders of sections, who will, in that case, divide their sections among their outpost companies. The limits of ground allotted to sections of the outposts or to outpost companies should be marked by some distinctive feature, such as trees, cottages, streams, &c. Each company should know what roads it is expected to guard, and the exact limits of the ground it is to patrol. Outpost companies provide piquets or detached posts and their supports.

* In the following sections, companies only are referred to. The principles are equally applicable to outpost squadrons, if squadrons have to do the work laid down for outpost companies, as would happen with mounted troops acting independently, or employed in front of the main outpost position.

2. The commander of an outpost company, having received his orders, will move his command with the usual precautions to the ground allotted to it, where the company will be halted under cover, the covering troops holding a line a short distance in advance of the most suitable position for the piquets.

He will then examine the ground, decide on the number and position of the piquets, and on the position of the support, which should, as far as possible, be composed of a complete command, *e.g.*, a half-company, or section. These will then be moved into their allotted positions, and the necessary groups and sentries posted and patrols sent out, after which the covering troops will be withdrawn.

He will give instructions to the commanders of piquets and detached posts, and will make arrangements for a protracted resistance by selecting a good defensive position which should, if possible, correspond with the piquet line; it should support, and be supported by, the companies on either hand.

He will send out patrols to examine the country in front, and will communicate with the companies on the flanks of his position. He must ascertain the dispositions of those companies so as to ensure no ground being unprotected.

80. The reserve.

1. A reserve will be used only when the outpost force is large, or when the outposts hold the ground to be occupied by the main body in case of attack.

2. If required, it will be detailed by the commander who appoints the outpost commander and should always be formed of a complete unit, with mounted troops and generally some guns attached.

3. It may often be advisable to divide the reserve into two or even more parts, when, for instance, the outpost position is very extensive or the country intersected or difficult.

4. If no reserve is specially detailed, an inlying piquet of the necessary strength will be found by the command which furnishes the outpost troops (Sec. 49).

51. Piquets.

1. As soon as a piquet commander has received his orders he will explain them to his piquet and will satisfy himself that every man knows the direction of the enemy, the position of the next piquets and of the support, what he is to do in case of attack by day or by night, whether there is any cavalry in front, and the line of retreat; and that sentries know in addition, the position of the sentries on their right and left, the position of the piquet and of any detached posts in the neighbourhood; the ground they have to watch; how they are to deal with persons approaching their posts; the names of all villages, rivers, &c., in view, and the places to which roads and railways lead.

2. Sentries in the front line are posted in groups,* which consist of from three to six men, under a non-commissioned officer or the oldest soldier, and should be relieved every 8 or 12 hours. In open country one man is posted as a sentry, while the remainder lie down close at hand; but if the country is close, or special precautions are necessary, the sentry post may be doubled. A sentry post, as a general rule, should not be more than about a quarter-of-a-mile from the piquet. Sentries should be placed so as to gain a clear view over the ground in their front, whilst concealed from the enemy's view.

3. A sentry will immediately warn his group of the approach of any person or party. When the nearest person is within speaking distance the sentry will call out "*Halt*," covering him with his

* If it is desired to retain more men with the piquet, sentries may be posted in pairs, the men of each pair being close to or within speaking distance of each other according to the ground. There should be three reliefs for each double sentry, one on duty while the other two are with the piquet. This system has the disadvantage of causing more movement in the line of sentries, and of entailing more fatigue on the men.

rifle. The group commander will then deal with the person or party according to the instructions received by him. Any person not obeying the sentry, or attempting to make off after being challenged, will be fired upon without hesitation.

82. *Mounted Piquets and Vedettes.*

In addition to the principles laid down in Secs. 75 to 81 the following apply to mounted troops:—

- i. Cossack posts are equivalent to sentry groups (Sec. 81, 2). They consist of three to six men (including the vedette), under a non-commissioned officer or senior soldier. The vedettes, as a rule, dismount. The reliefs of the vedette always dismount, and remain as close to the vedette as possible.
- ii. By night the vedette should be doubled and the post increased accordingly.
- iii. Cossack posts never off-saddle; the horses must never be unbridled, and everything must be ready for instant action.
- iv. Cossack posts are relieved every 6, 12, or 24 hours, according to weather, shelter, water, &c.
- v. Feeding and watering are to be carried out by one-third of a piquet or detached post at a time. Horses that are to be fed must be taken a short distance away from the others.
- vi. The horses of a piquet or detached post are never to be unsaddled or unbridled at night. During the day, when matters seem quiet, girths should be loosened, and saddles shifted, one-third at a time.

83. *Detached posts.*

1. Detached posts from an outpost company are sometimes unavoidable, but as there is always the danger of their being cut off, they should not be employed except in case of necessity.

2. They usually consist of from six to twelve men under a non-commissioned officer or officer, but may be stronger. Such posts may be placed in front of or in rear of the extreme flank of the outpost position, to watch some particular place or road by which the flank might be turned, or they may be placed in advance of the sentry line to watch some spot where the enemy might collect preparatory to an attack, or which he might occupy for purposes of observation.

3. They should act in the same manner as laid down for piquets.

84. *Traffic through the Outposts.*

1. No one other than troops on duty, prisoners, deserters, and flags of truce will be allowed to pass through the outposts either from within or from without, except with the authority of the commander, who details the outposts, or of the commander-in-chief. Inhabitants with information will be blindfolded and detained at the nearest piquet pending instructions, and their information sent to the commander of the outposts.

2. No one is allowed to speak, otherwise than as directed in Sec. 81, 3, to persons presenting themselves at the outpost line except the commanders of the nearest piquet and outpost company, who should confine their conversation to what is essential, and the commander of the outposts. Prisoners, and deserters, will be sent at once, under escort, through the commander of the outpost company, to the commander of the outposts.

3. In civilized countries, when, for tactical reasons, no piquet is posted on a main line of traffic, a detached post should be posted specially to deal with traffic through the outposts. Such detached posts will be detailed by the commander of the outpost company in whose section the main line of traffic lies.

85. *Flags of Truce.*

1. On the approach of a flag of truce, the sentry, or more if at hand, will advance and halt it at such distance as to prevent any of

the party who compose it overlooking the posts ; he will detain the flag of truce until instructions are received from the commander of the outpost company.

2. If permission is given for it to pass the outposts, the individuals bearing it must first be blindfolded, and then led under escort to the commander of the outposts. No conversation except by his permission is to be allowed on any subject, under any pretence, with the persons bearing the flag of truce.

3. If the flag of truce is merely the bearer of a letter or parcel, the commander of the outpost company must receive it, and instantly forward it to headquarters. The flag of truce having taken a receipt, will be required forthwith to depart, and no one must be allowed to hold any conversation with the party.

86. *Intercommunication.*

Communication must be maintained at all times between all parts of an outpost position, and between the outposts and the main body. Communication may be by signal or by orderly (see Ch. II.).

The commander of the outposts is responsible for communication with the main body ; supports will keep up communication with their piquets, with the supports on either flank and with the reserve. Piquets or detached posts will maintain communication with the piquets or posts on either flank. Commanders of piquets will satisfy themselves that sentries are alert and understand their duties, but should limit, as much as possible, any movements in the line of sentries which might be visible to an enemy.

87. *Readiness for Action.*

1. The commander of the outposts will decide whether the reserve is to occupy quarters or to bivouac, and whether the supports or reserves may take off accoutrements, off-saddle, unhook and unharness teams, &c.

2. Piquets will invariably be ready for action. The men must never lay aside their accoutrements. Mounted men attached to an infantry piquet should, whenever possible, off-saddle; but one man should always be ready for instant action.

3. Not more than a few men should be allowed to leave the piquet for any purpose at one time. They should never be allowed to move about in or in front of the sentry line when seeking water, fuel, forage, &c.

4. The outposts will stand to arms one hour before sunrise, and remain under arms until the patrols, which should be sent out at that time, report that there is no sign of an immediate attack. Care should be taken that these patrols remain out till after daybreak. When the outposts are relieved in the morning, the relief should reach the outposts half an hour before sunrise. The troops relieved will not return to camp until the patrols report all clear.

89. Reconnoitring Patrols. *on* *must have a fixed duty and*

1. Reconnoitring patrols are sent out from the outposts with the object of searching the country in front of the outpost position, or of watching the enemy if the opposing forces are in close touch. Their strength may be from two to eight men, under a non-commissioned officer. They may consist of mounted men, cyclists or infantry.

2. When mounted patrols are employed they should move out before daylight and patrol all approaches which an enemy might use, within distant field artillery range of the position. When the opposing forces are in close touch, mounted patrols should maintain constant touch with the hostile force. When ordered to remain out in observation in front of the outposts they become *standing patrols* (See 89).

3. In a country where the roads are good, cyclists may replace mounted patrols, and by night they are especially suited for this work.

4. If mounted troops from the outpost line are patrolling to the front, it should seldom be necessary to send out infantry patrols by day, unless the country is very thick or the weather misty. At night the duty of patrolling will, as a rule, fall on the infantry. Such patrols should move along tracks or roads in the direction of the enemy for about a mile, and should search all ground where the enemy's scouts might conceal themselves. It may occasionally be advisable to leave out standing infantry patrols (Sec. 89) to watch certain points in front of the outpost position, instead of sending out patrols at stated periods.

5. An outpost patrol, when going out, informs the nearest sentry of the direction it is taking. In the event of a patrol not returning when expected, another should be immediately sent out. If a force halts for more than a day in one place, the hours at which the patrols go out (except those before sunrise), and also the direction of their route, should be changed daily.

89. *Standing Patrols.*

Standing patrols are formed by two to eight mounted men or cyclists under a non-commissioned officer sent well in advance, to watch either the principal approaches, or some particular points where the enemy could concentrate unseen. Their positions are fixed, and they remain out for several hours. They are of the utmost value, especially at night, and spare the horses, as they are not constantly in movement. The rules for Cossack posts regarding off-saddling apply to standing patrols (Sec. 82). Occasionally standing patrols are employed by infantry (Sec. 88).

The commander of the outposts will issue orders as to the employment of standing patrols. *Fighting position of main body.*

CHAPTER VI.

INFORMATION.

90. *General Principles.*

1. Timely information regarding the enemy's dispositions and the topographical features of the theatre of operations is an essential factor of success in war. Systematic arrangements must always be made to ensure that every possible source of information is fully utilised, that all information received is immediately transmitted to the proper quarter, and that it is carefully sifted before any conclusions are formed. This is the duty of the general staff.

2. Information in war may be obtained from maps and reports prepared in peace, by reconnaissance, by means of special agents, from statements of inhabitants, by tapping telephones or telegraphs, from newspapers, letters, telegraph files, and documents found in the area of operations, from statements of deserters, prisoners, and sick or wounded left behind by the enemy.

3. All documents captured from the enemy, or found in places recently occupied by the enemy, or by a hostile population, and any information obtained which may be of value, should be forwarded without delay to the nearest general staff officer. Should the captor or finder be unable to forward the documents immediately, he should make arrangements for their preservation and forward them as early as possible. The statements of inhabitants, deserters, and other persons bringing in information, should be taken down and similarly forwarded and the persons themselves sent on as soon as possible.

4. Reconnaissance is the service of obtaining information with regard to :—

- i. The topographical features and resources of a country.
- ii. The movements and dispositions of an enemy.

In the latter case it may be strategical, tactical, or protective.

5. *Strategical reconnaissance* is required before the opposing armies are within striking distance of each other for the purpose of locating the hostile columns, ascertaining their strength and direction of march, and thus affording the commander-in-chief information on which to base his strategical plan of operations.

Tactical reconnaissance of the enemy is required when two forces are within striking distance of each other, for the purpose of discovering the tactical dispositions of the opposing force, and thus furnishing the commander with information on which to base his tactical plan of operations.

*Protective reconnaissance** is required by every force at all stages of the operations, whether at the halt or on the move, to ensure the security of the force against hostile enterprises and prevent the enemy gaining information.

6. Whatever the nature of the reconnaissance may be, touch with an enemy, when once obtained, must never be lost without orders from superior authority.

91. *Strategical Reconnaissance.*

1. To obtain for the Commander-in-Chief the information he requires, is the first duty of the independent cavalry, which will push into the zone separating the two armies in the direction in which it is desired to reconnoitre. In this area the hostile cavalry will usually be operating; and until it has been disposed of, the independent cavalry will find it difficult to obtain satisfactory information regarding the enemy's columns (Sec. 101). When the enemy's cavalry has been defeated, the independent cavalry will be free to concentrate its efforts upon breaking through the hostile covering troops and discovering the dispositions of the

* Protective reconnaissance is dealt with in Chapter V, "Protection."

enemy's main forces. Other special tasks may also be assigned to the independent cavalry, such as intercepting the enemy's movements, raiding his communications, and seizing important strategical points. As much cavalry as possible should be detailed for these strategical missions, whilst for other purposes the number of squadrons should be reduced to what is actually necessary (Sec. 65).

2. The commander of the independent cavalry will receive from the Commander-in-Chief definite instructions as to the rôle he is to fulfil, but should be allowed complete freedom of action in accomplishing it.

It may be advisable for the independent cavalry to avoid a collision with the hostile cavalry when the latter is in superior force, provided such a course is compatible with the fulfilment of its primary duty, which is to obtain and communicate information as to the hostile main columns. In such cases the cavalry may sometimes be supported by detachments of infantry with advantage.

3. To obtain the requisite information, the independent cavalry commander will despatch such strategical patrols as he may consider necessary towards the probable lines of the enemy's advance, and towards any places where signs of the enemy may be found. The number and strength of these detachments will vary with the circumstances of each case. The most suitable unit for actual reconnaissance and for maintaining touch is a patrol of from ten to twelve strong; larger units will find it difficult to escape observation.

When reconnoitring detachments have to proceed to considerable distances, and touch has to be maintained continuously for several days, it will be necessary to employ one or more contact troops or contact squadrons to provide the patrols their reliefs and despatch riders. These units will also serve as havens of refuge for patrols, and as collecting stations for information. While the commander of a reconnoitring detachment must use every endeavour to ensure the timely arrival of his information at headquarters, the commanders of larger units following in his rear must assist him by pushing forward connecting posts or other detachments as the situation demands (Sec. 98).

4. In country which is very enclosed or otherwise unfavourable to the employment of cavalry, detachments composed of infantry and cavalry will often give good results. The infantry is able to assist the cavalry in the actual fight, and affords the cavalry freedom to reconnoitre, even while its infantry is actually engaged with the enemy.

5. To enable commanders of detachments employed on this reconnaissance to distinguish between what is important and unimportant, they should be given all available information regarding the enemy, and be told the intentions of the superior commander.

62. *Tactical Reconnaissance.**

1. Tactical reconnaissance is one of the most important duties of the protective cavalry, who when touch with the enemy is gained will assume a vigorous offensive, drive in the enemy's advanced troops, and discover his dispositions and intentions. It may be necessary for the protective cavalry to concentrate to carry out this duty, in which they will be supported by the advanced guards of columns. The extent to which the independent cavalry will be able to co-operate with the protective cavalry in breaking through the enemy's covering troops at this stage, or when the opposing armies are drawing near each other, will depend upon the situation and the commander's plans. It will often be advisable to support the protective cavalry with infantry and artillery, in addition to the support which it is the duty of the advanced guards of columns to render (Sec. 68), in order to tear aside the screen with which an enemy may have surrounded himself.

2. While the advanced troops are engaged with the enemy, information may also be obtained—

- i. By personal observation on the part of a commander.
- ii. By general staff or other officers, patrols, or scouts.
- iii. By observations from balloons.

* See Sec. 104. For the tactical reconnaissance by cavalry acting independently see Cavalry Training.

The success of each of these forms of reconnaissance will depend to a great extent upon the thoroughness and energy with which the protective cavalry and the advanced guards have acted on coming in contact with the enemy. Reliable information as to the enemy's main forces will rarely be obtained without fighting.

3. Though reconnaissance has been here considered chiefly from the point of view of the cavalry, it is equally the duty of infantry when in touch with an enemy, to obtain all the information possible, both of the enemy and about the ground over which it may have to act.

93. *Personal Reconnaissance by a Commander.*

1. The extent of ground occupied by a large force will often prevent its commander from personally reconnoitring the whole of the ground on which his troops may be engaged. When this is the case it may often be advisable that the personal reconnaissance by commanders should be limited to commanders of divisions and smaller units, and that the commander of the force should rely upon reports which have been rapidly transmitted from the front and prepared for him by his general staff. A personal reconnaissance which can only be partial may result in too much importance being attached to what has been seen at the expense of what has not been seen. A motor car will often enable a commander to reconnoitre rapidly an extended front, and a commander even of a large army should rarely omit to reconnoitre personally if it is possible for him to obtain thereby data for a comprehensive review of the situation.

2. Time spent in reconnaissance is seldom wasted; and unless the situation demands instant action, a commander of a division or of a smaller unit should never commit his troops to an engagement until he has made a personal survey of the ground before him.

94. *Tactical Reconnaissance by Patrols.*

1. As the commander of a force will form his plan of action on the result of the tactical reconnaissance, officers and scouts

employed on it must be highly trained, have considerable technical knowledge, be quick and intelligent observers, be possessed of judgment and determination, and, if belonging to mounted arms, be well mounted.

2. The increased range of modern firearms compels scouts to keep further away from an enemy than formerly, thus making it more difficult to see and reconnoitre; whilst the introduction of smokeless powder makes it difficult to locate him, even when his fire has been drawn. But if patrols have been in touch with the enemy during his march (when the number, strength, and distribution of his columns can be more readily ascertained), it should be possible, by comparing their reports with those of the scouts engaged in the tactical reconnaissance, to form a fairly accurate idea of the enemy's preliminary dispositions for battle.

3. General staff officers should be detailed to accompany the advanced troops in order to assist in the tactical reconnaissance, and provide the commander with such information on special points as he may require. Commanders of divisional artillery or their representatives should take part in this reconnaissance.

4. When the opposing forces are near each other, and particularly when the country is close, infantry may often be employed with advantage to attract the enemy's attention by means of surprise attacks, and so enable patrols to pass through his covering troops at other points. Cavalry should be used for these patrols when the country is suitable and mobility can be turned to good account. If the conditions are unsuited to the employment of cavalry, infantry patrols and scouts should take its place.

95. *Balloon Reconnaissance.*

1. The technical balloon officer should be told what information is desired to obtain and given as free a hand as possible as regards time and place of ascent. The observers should be fully acquainted with the situation and provided with the best maps and glasses procurable.

2. Captive balloons and kites may be employed :—

- i. To obtain information of the enemy's position and of the movements of any considerable bodies of troops, when in such close touch that the cavalry can no longer make progress.
- ii. To obtain targets for and direct artillery fire.
- iii. To ascertain the position of our own troops on the field of battle.
- iv. To ascertain the nature of the ground to the front or to a flank.

3. The radius of action of a balloon under normal conditions of ground and weather may be taken as from five to six miles. For extended reconnaissances a balloon should not ascend within three miles of the enemy's artillery. For short observations, however, it may even ascend close to the most advanced troops. The detachment working the balloon must always be screened from the enemy's view ; and there must be cover from view for the balloon when close to or on the ground. Good observation of artillery fire can usually be made at distances of 7,000 yards, or further in the case of heavy artillery (Secs. 19 and 27.)

66. Reconnaissance of a Position.

1. In reconnoitring a position with a view to attack, information should be obtained on the following points regarding the ground:—
 - i. The extent of the position.
 - ii. The weak parts of the position.
 - iii. Any point or points the capture of which will facilitate the development of a searching enfilade or reverse fire against a large extent of the position, and thus render it untenable ; and to what extent such point or points have been strengthened.
 - iv. The best line of attack, and the tactical points of which the possession will favour the development of an effective fire against the weak parts of the position.
 - v. Localities from which covering fire can be directed.

2. When it is intended to occupy a defensive position, the chief points to be noted are :—

- i. The best line to be occupied by the infantry, and the means of protecting the flanks.
- ii. The positions for the artillery.
- iii. The positions which the enemy may endeavour to seize in order to develop an effective fire against the position.
- iv. The probable positions of the enemy's artillery.
- v. Any points the possession of which might exert a decisive influence on the issue of the fight.
- vi. The most favourable lines of attack.
- vii. The most favourable ground for the counter-attack.
- viii. Ground to be occupied by the general reserve, by the cavalry, and by the other mounted troops.
- ix. Positions to be occupied in case of retreat.

97. *Reconnaissance during Battle.*

When two forces are engaged the reconnaissance must be continued throughout the entire action, arrangements being always made for continuous observation of the enemy's movements and for the rapid transmission of reports. In addition to patrols working round his flanks and rear, to the work of infantry scouts, and to the cavalry action on the flanks, general staff officers, acquainted with the commander's intentions, should be posted at commanding points on the field of battle to communicate intelligence to headquarters.

98. *Transmission of Information.*

1. The value of information depends to a great extent on the length of time that has elapsed since the events occurred to which it relates. It is of the first importance that information should be communicated with the least possible delay to the commanders for whose benefit it is intended. The authority sending out reconnoitring detachments of any kind must therefore see that the

means of communication are so organized as to ensure the rapid transmission of any information which those detachments may obtain.*

An officer of the general staff with the independent cavalry should be specially charged with the duty of maintaining communication, under the direction of his commander, between the independent cavalry and Army Headquarters. But to save delay, arrangements should be made to transmit all really important information direct from the reconnoitring detachments to Army Headquarters as well as through the usual channel. It will often be found convenient to arrange for relays from the divisional cavalry for the conveyance of information from the protective cavalry (Sec. 21).

* For the methods of transmitting information, see Chapter II.

CHAPTER VII.

THE BATTLE.

99. Considerations which Influence a Commander in offering Battle.

1. **Decisive success in battle can be gained only by a vigorous offensive.** Every commander who offers battle, therefore, must be determined to assume the offensive sooner or later. If the situation be unfavourable for such a course, it is wiser, when possible, to manœuvre for a more suitable opportunity; but when superiority in skill *moral* or numbers has given a commander the initiative, he should turn it to account by forcing a battle on the enemy before he is ready. Superior numbers on the battlefield are an undoubted advantage, but skill, better organization, and training, and above all a firmer determination in all ranks to conquer at any cost, are the chief factors of success.

2. **Half-hearted measures never attain success in war, and lack of determination is the most fruitful source of defeat.** A commander, who has once decided either to give or to accept battle, must act with energy, perseverance, and resolution.

3. Time is an essential consideration in deciding whether an opportunity is favourable or not for decisive action. A commander who has gained a strategical advantage may have to act at once in order to prevent the enemy bringing about conditions more favourable to himself. On the other hand, ample time may

be available before any change can occur in the strategical conditions, and it may then be more effective to act deliberately or to aim at manœuvring an enemy out of a strong position with a view to forcing him to fight under conditions which admit of more certain or more decisive results.

100. *The Offensive and Defensive in Battle.*

1. Both opposing forces may endeavour to seize the initiative, or one may await the attack of the other. In the latter case, if victory is to be won, the defensive attitude must be assumed only in order to await or create a favourable opportunity for decisive offensive action. The original attacker may be thrown on the defensive at any time by a vigorous counter-attack; or it is open to both to fight a defensive action in one part of the field while endeavouring to force a decision by offensive action elsewhere. Thus each commander may employ defensive or offensive action to suit his requirements; the defensive being resorted to when and where it is desired to delay a decision, the offensive where it is desired to obtain one.

2. The defensive implies loss of initiative, at least for a time, and is usually the consequence of inferiority of some description. The commander of a superior force may, however, see his way to gain a decisive success by awaiting an attack before assuming the offensive, especially if he has been able to choose and occupy deliberately a position in which he can induce the enemy to attack him. Such a position has its true value as a pivot of manœuvre. Once battle is joined the liberty of manœuvre which the initiative has conferred on the assailant is limited to what he can do with his general reserves. The defender should be able to retain equal liberty of manœuvre, if he makes skilful dispositions, resists the temptation to subordinate his movement to those of the enemy, and strikes on the first favourable opportunity. It is in the difficulty of doing this that the weakness of the defensive lies.

3. In the following pages the action of the two forces which meet in battle is considered under the headings, "Attack" and "Defence." It is not intended by this to imply that one force invariably attacks, and that the other invariably occupies a defensive position. Under the heading "attack" is considered the action of that force which has gained the initiative and assumes the offensive first. Under the heading "defence" is considered the action of that force which postpones the assumption of the offensive and awaits attack in the first instance. The action of a force which is content with warding off the enemy's blows, is not considered as an aspect of the battle. The methods of delaying an enemy, without seeking a decisive result, are considered under the heading "delaying action."

THE ADVANCE TO THE BATTLEFIELD.

101. *Action of a Force on gaining Contact with the Enemy.*

1. An army usually advances covered by its tactical advanced guards, and by the protective cavalry, or by a strategic advanced guard, of which the protective cavalry may form part (Sec. 65, 6), while the independent cavalry carries out its strategic mission (Sec. 91). The dispositions of the arm, in approaching the enemy will be much influenced by the success or failure of the cavalry when it meets the enemy's mounted troops. A successful cavalry will retain for a commander the initiative he has gained, or regain it for him if it has been lost; it will gain him strategic liberty of action, and will thereby enable him to act with certainty and impose his will upon the enemy. The defeat of the hostile cavalry is, however, only a means towards the destruction of the enemy's main force on the battlefield. Should the enemy's cavalry not have been found during the forward movement, it may become the duty of the independent cavalry to expose and hamper the dispositions of the hostile columns rather than to seek it out.

3. So soon as the cavalry, assisted, if necessary, by the other arms (Sec. 92), has driven in the enemy's advanced troops, the information thus obtained, combined with information received from other sources, should enable the commander of the force to review the strategical situation, and to decide whether to manœuvre to gain time, avoiding an engagement; whether, to attack the enemy; or whether to await attack.

4. When an encounter with the enemy is anticipated, it is advisable that commanders of columns should be well forward, usually with their advanced guards. They will then be in a position to obtain earlier and more accurate information regarding the enemy and the tactical features of the ground, to make the most rapid and suitable dispositions to meet tactical situations as they occur, to influence effectively the action of the advanced guard in accordance with the intentions of the commander of the force, and, in the case of a general engagement, to carry out the deployment with the least delay.

102. *Deployment for Action.*

1. When the commander has decided to accept battle, the various columns composing the force will be directed, while still in their march formations, towards the area in which they are to act. A force when deployed loses much of its power to manœuvre as a whole; as a rule, therefore, the columns should not leave their march formations until the commander has formed his plan of battle, or until the action of the advanced troops shows that deployment is necessary.

2. Before deploying it will usually be desirable for each column to close up and assume a formation of assembly. When time presses it may be necessary to move units directly from the line of march into their position in the deployed line, but the occasion must be very urgent to justify a commander in abandoning the advantages, which systematic arrangements for a concerted advance

confer. It is important that the deployment should be concealed from the enemy by the action of the advanced troops.

3. The principles upon which the deployment is made will depend upon the commander's plans. The first object of a commander who seeks to gain the initiative in battle is to develop superiority of fire as a preparation for the delivery of a decisive blow. In the case of very large armies, or of an army which possesses a decided superiority in power over its antagonist, the development of fire effect is usually facilitated by aiming from the outset at the envelopment of one or both of the enemy's flanks. This may be done by continuously extending the front as the enemy's dispositions are discovered until his line is overlapped, or by a converging movement of two portions of the army, so timed as to bring both simultaneously to the battlefield. Few methods are more effective than the latter, when successful, for it combines the advantages of enveloping attack on the battlefield with a convenient division of the army before the battle (Sec. 23). Converging movements, however, demand the most skilful timing and complete arrangements for inter-communication, for any failure may lay the divided parts of the army open to the risk of defeat in detail by an enterprising enemy. In neither of these cases is it usually possible for the commander to keep a large force in his own hand after he has once decided on his plan of battle and issued his orders. He therefore has little further control when once battle is joined, but he influences the general course of the action by his preliminary dispositions, which determine the direction of the decisive attack, and the force with which it is to be delivered.

4. A commander may also decide to obtain the decision of the battle by manœuvre on the battlefield with a large general reserve which he has retained in his own hand. By keeping a considerable part of his force under control, he is in a position to take advantage of an enemy's mistakes and to choose his own moment for striking, but, if his method is to be successful, the size of his army must allow him to keep in close touch with the course of

events on the battlefield, and to strike with his reserve at the right place and time. This method will usually be most suited to the circumstances of our army, and has been chiefly considered in the succeeding sections

THE ATTACK.

103. *General Principles.*

1. It is seldom either possible or desirable to attempt to overwhelm an enemy everywhere. To concentrate superior power at the decisive point, a portion of the force must be held in readiness to deliver the decisive attack, while the remainder is employed to develop the attack, and to wear down the enemy's power of resistance. The term decisive attack does not imply that the influence of other attacks is indecisive, but rather that it is the culmination of gradually increasing pressure relentlessly applied to the enemy at all points from the moment when contact with him is first obtained.

2. A commander should consider what parts of an enemy's force can be attacked with most prospect of success, and choose as the objective of the decisive attack that part the defeat of which will give the greatest results. This will usually be one or other of the enemy's flanks. The moral effect of an envelopment which threatens an enemy's line of retreat, and enfilades his front, is always great.

3. The objective of the decisive attack should be struck unexpectedly and in the greatest possible strength.

104. *Preliminary Measures.*

1. It will frequently happen that a suitable objective for the decisive attack will be discovered only after long and severe fighting. For this reason systematic arrangements for obtaining, sifting, and transmitting information throughout the battle are

important. The information upon which the commander of the force will base his plan of battle will usually be obtained by preliminary reconnaissance (Sec. 92), though it may be possible to obtain sufficient data as to an enemy's strength and intentions to enable the commander to decide on an enveloping movement before any tactical reconnaissance has been completed.

2. The commander of the force and subordinate commanders will be guided by the following principles in framing orders for an attack :—

- i. A definite objective or task should be assigned to each body of troops, the actual limits of frontage being specified as far as possible.
- ii. The direction of the attack to be made by each body of troops should be distinctly stated.
- iii. Most careful arrangements should be made to ensure that attacks intended to be simultaneous should be so in reality.
- iv. The choice of the manner in which the task assigned to each body of troops is to be performed should be left to its commander.

Each commander who issues orders should assemble his subordinate commanders, if possible, in view of the ground over which the attack is to take place, explain his orders, and satisfy himself that they thoroughly understand their respective tasks.

3. The conditions which affect the question of the frontage to be allotted to the various parts of an attacking force must vary with the circumstances of each battle. Ground, time conditions, the information available, the relative value of the opposing troops, the possibility of gaining a surprise, are some of the inconstant factors to be weighed. It is, therefore, neither possible nor desirable to give more than general indications as to how the problem is to be solved. The general principle is that the enemy must be engaged in sufficient strength to pin him to his ground, and to wear down his power of resistance, while the force allotted to the decisive attack must be as strong as possible. The higher

the fighting qualities of the enemy are estimated, the more closely must he be engaged. It may be taken that against an enemy of approximately equal fighting value, where the attacking artillery is slightly superior, a force fully equal to that of the enemy holding the position* (excluding the probable general reserve), is the least that will suffice for this purpose. Such a force, which should ordinarily be divided into firing line and supports, with local reserves, would be disposed in unequal strength along the front, according to the nature of the ground, the frontage varying from one man to three or more men per yard. The decisive blow must be driven home. The latest experience goes to show that a smaller force than from three to five men per yard on the front on which the decisive attack is to be delivered, will rarely prove sufficient, this force being distributed in such depth as circumstances make advisable.

4. As the opposing forces draw near, the cavalry will be unable to remain in the front line; it will therefore be allotted one or more positions of readiness, where the ground is favourable to cavalry action, and where it can best act in accordance with the commander-in-chief's plan. Artillery should be so distributed that every available gun is ready to come into action without delay when required to support the infantry. Where artillery forms part of a unit allotted to the general reserve it will usually be given a special rôle by the commander-in-chief, except when the general reserve is required to carry out or complete a wide enveloping movement, when it will be accompanied by its complement of artillery.

5. During an engagement the position of a commander will depend a great deal on the size of the force he commands. With a small force it may be possible to exercise personal supervision, but with very large forces the commander-in-chief should usually be well in rear, beyond the reach of distraction by local events, and in signal communication with his chief subordinates (Sec. 17). Subordinate commanders should take up positions where they can

* This force may be roughly estimated from the data given in Sec. 108.

obtain a good view of the area in which their commands are operating, and which admit of easy communication with their immediate superior and the units under their command. Should a commander leave the position to which he has directed that reports are to be sent, a staff officer must be detailed to receive and forward all reports and orders that may come in.

105. *The General Conduct of the Attack.*

1. Under the protection of the advanced guard, the artillery will take such preparatory steps as will enable it to open fire as soon as a target is presented. In the early stages, while the infantry are deploying and developing the attack, fire should not be opened with more guns than are necessary to accomplish the task in hand, the remainder being kept in positions of readiness.

2. Artillery will generally be protected by the distribution of the other arms. When, however, guns are in an exposed position, an escort should be detailed, and if this has not been done, it is the duty of the artillery commander concerned to apply to the commander of the nearest troops, who will provide an escort. This escort, whose duty it is to protect the guns from surprise, should consist, when possible, of mounted men in the case of field artillery, and of infantry in the case of heavy and mountain artillery.

A superior officer who orders guns into action is responsible that they are provided with a suitable escort if the situation demands it. The senior officer present will issue the necessary instructions to the escort, but the commander of the escort will be given a free hand in carrying them out.

3. Artillery commanders must closely watch the advance of the infantry, and direct their fire against what is, for the time being, the most important target, always remembering that the object of their fire is to assist the infantry advance.

The attainment of superiority of fire over the enemy requires the closest co-operation between artillery and infantry. Quick-firing guns cannot maintain a rapid fire throughout a battle. Artillery should, therefore, use rapid fire when the infantry firing line is

seen to be in need of assistance to enable it to advance; infantry should take advantage of periods of rapid artillery fire to gain ground.

4. The advance of the firing line must be characterized by the determination to press forward at all costs. In order to prevent the enemy from thinning his line so as to reinforce the point against which he expects the decisive attack will be directed, and to force him to use up his reserves, it will be absolutely necessary for the troops to whom the rôle of wearing down the enemy's resistance is allotted to act with vigour. No half-measures will succeed. The enemy must be deceived, and this will call for as much self-sacrifice and devotion on the part of these troops as will be required from those taking part in the decisive attack. When once the firing line comes under effective fire, its further advance will be greatly assisted by covering fire from the rear, and by the mutual support which neighbouring units in the firing line afford one another. All leaders, down to those of the smallest units, must endeavour to apply, at all stages of the fight, this principle of mutual support. Aided in this way the infantry will fight its way forward to close range, and, in conjunction with the artillery and machine guns, will endeavour to gain superiority of fire. This will involve a gradual building up of the firing line in good fire positions, usually within close infantry range of the enemy. Here it is to be expected that there will be a prolonged and severe fire fight, during which each side will try to exhaust the enemy's power of endurance and force him to use up his reserves, while keeping its own intact.

5. The attack on each tactical point will constitute a distinct engagement in itself, and may require a large number of men and guns. Thus the attack, more often than not, will resolve itself into a series of distinct engagements, each raging round a different locality, and each possibly protracted over many hours. All important tactical points, such as suitable buildings, small woods, &c., should, when gained, at once be put in a state of defence, so that attempts on the part of the enemy to recapture

them may be defeated, and they may be made to serve as supporting points to the attack. Local reserves will often find opportunities for strengthening localities or fire positions, which have been gained by the firing line, and to assist them in this, detachments of engineer field companies may be attached to them with advantage. Machine guns will be specially valuable in bringing a sudden fire to bear from such positions, both in order to cover a further advance and to assist in defeating counter-attacks. Machine guns can normally support an attack most efficiently from well concealed positions provided with good cover, and within effective infantry range of the enemy. Occasionally, when good opportunities for a concealed advance present themselves, they may be established within close infantry range of the objective.

6. During the process of establishing a superiority of fire, successive fire positions will be occupied by the firing line. As a rule, those affording natural cover will be chosen, but if none exist, and the intensity of the hostile fire precludes any immediate advance, it may be expedient for the firing line to entrench itself. This hastily constructed protection will enable the attack to cope with the defender's fire, and thus prepare the way for a further advance, but entrenching by infantry during an attack, when it involves any diminution in the volume of its fire, is only to be employed if further progress has become impossible, and an energetic advance must be resumed at the first possible moment. Artillery should usually be entrenched when unable to find natural cover.

106. *The Decisive Attack.*

1. The development of the battle should enable the commander to make up his mind when and where to deliver the decisive attack, if he has not done so before. The general reserve will accordingly be moved into position, as secretly as possible. The launching of the general reserve in the attack will be the signal for the application of the greatest possible pressure against the enemy's whole

front; every man, horse, and gun, whether belonging to the general reserve or not, must co-operate in completing the enemy's overthrow.

2. As the crisis of the battle approaches, and the enemy becomes morally and physically exhausted, the chances of successful cavalry action increase. For effective intervention the concentration of as large a part of the cavalry as possible is required, the rest depends chiefly upon the cavalry commander, who should be where he can best watch the progress of events, keep in touch with other commanders, and carry out the instructions of the commander-in-chief, with whom he should be in signal communication (if possible by telephone). When a favourable opportunity for cavalry action arises, it must be seized at once; but it is important that the result should promise to have a direct influence upon the decision of the battle, and that cavalry should not be exposed to heavy losses and horses be exhausted on minor enterprises. The attacking infantry should take immediate advantage of the results of the cavalry action.

3. In selecting the objective of the decisive attack, a commander must consider whether he can develop the full power of his artillery against it. An objective which may appear at first sight easy of access to the infantry, may prove in the end costly to attack, if it does not lend itself to the application of the concentrated fire of artillery; and *vice versa*, localities which present difficulties to the infantry alone may, if the converging and enfilade fire of artillery is brought to bear on them, be carried with comparatively little loss.

The principle of the employment of artillery in the battle is that the greater the difficulties of the infantry, the closer must be the support of the artillery. As the infantry advance to the decisive attack, every available gun will be concentrated against its objective, and artillery fire will be continued until it is impossible for the artillery to distinguish between their own and the enemy's infantry. The danger from shell bursting short is more than compensated for by the support afforded, if fire is maintained

to the last moment ; but in order to reduce this danger, it is the duty of artillery commanders to keep themselves informed as to the progress of their infantry, and to discontinue fire against the objective of the assault when the infantry is getting to close quarters if such fire cannot be readily observed and controlled. A portion of the artillery must be pushed forward to witain close artillery ranges, so as to be rble to deal with possible counter-attacks, and to give the infantry immediate assistance, when the fluctuations of the fight make this necessary.

5. The climax of the infantry attack is the assault, which is made possible by superiority of fire. The fact that superiority of fire has been obtained will usually be first observed from the firing line ; it will be known by the weakening of the enemy's fire, and perhaps by the movements of individuals or groups of men from the enemy's position towards the rear. The impulse for the assault must therefore often come from the firing line, and it is the duty of any commander in the firing line, who sees that the moment for the assault has arrived, to carry it out, and for all other commanders to co-operate as soon as possible.

Should it be necessary to give the impulse for the assault from the rear, all available reinforcements will be thrown into the fight, and as they reach the firing line, will carry it with them and rush the position.

6. It will often happen that opportunities for closing with the enemy will arise at other points of the battlefield than where the decisive attack is being delivered. Such an opening should be seized at once, and a local assault delivered. The result of effecting a lodgment in a portion of the position will be to weaken the defender's hold on the remainder, and may even force him to fall back along his whole line. Troops who have thus penetrated the line of defence must at once prepare to meet a local counter-attack, for the enemy will probably endeavour to recover the ground which has been lost.

7. If, during the attack, the enemy attempts to counter-attack, the troops threatened should hold on defensively and endeavour to

gain time. As a rule the most effective counter-measure will be to press the decisive attack with renewed vigour, for success at the vital point will mean ultimate success at all points.

8. It may be found impossible during one day to establish a sufficient superiority of fire to justify an assault being delivered. Should this be the case, the night should be employed in bringing artillery forward and providing cover for the guns, whilst the firing line should be re-organized, or relieved by fresh troops if possible, its cover improved, and, if necessary, a further advance made with a view to a resumption of the fight under more favourable conditions at dawn (Sec. 134). In continuous operations of this nature, the powers of endurance of the troops must be considered.

9. After a successful assault the troops should occupy the position that has been seized, pursue the enemy with their fire, and re-form in readiness either to follow up the retreating enemy or to repel an attempt to retake the position. As much artillery as possible should be sent rapidly forward to the capture position in order to break down any resistance that may be offered from a second position, to support the pursuit, and to resist counter-attacks. Field companies of engineers should also be moved forward to strengthen the position against counter-attack or improve the communications in case of necessity.

THE DEFENCE.

107. *General Principles.*

1. It will depend largely upon the strategical situation how a commander who decides to await the enemy's attack, with a view to creating a favourable opportunity for offensive action, will be able to give effect to his decision. Where the nature of the theatre of war so narrows the possible lines of operation that the enemy's movements can be foretold within definite limits, positions may be prepared long in advance. Again, a commander may manoeuvre so skilfully as to be able to occupy deliberately a position which

the enemy is forced to attack, or he may lose the initiative unexpectedly, and be compelled to deploy his troops to meet attack on whatever ground is to hand.

2. Whatever may be the strategical situation, the underlying principles of defensive action which aims at decisive results are constant. No natural or artificial strength of position will of itself compensate for loss of initiative when an enemy has time and liberty to manœuvre. The choice of a position and its preparation must be made with a view to economizing the power expended on defence in order that the power of offence may be increased.

108. *Preliminary Measures.*

1. The first requisite is information. The cavalry must discover the direction of march and the strength of the hostile columns, and until the former is known the force should not be deployed, even when the enemy's line of advance may be foreseen. A force which is kept in hand covered by the necessary protective troops is able to assume the offensive at once if a turn in the tide of events makes this advisable.

2. The amount of preparation possible depends on the time available, which in turn depends mainly on the strategical situation. The preliminary measures should be based upon as thorough a reconnaissance as is possible of the area which the plan of operations makes most suitable for accepting battle. Though the extent of ground actually held, when the direction of the enemy's advance is definitely known, must be strictly limited by the numbers available, the extent of ground reconnoitred and prepared for occupation may be much larger, and should admit of various alternative distributions of the force to meet the various courses of action open to the enemy. If the frontage occupied in battle is so great as to reduce the force kept in hand for the ultimate assumption of the offensive much below half the total force available, the position may be considered too extended to be held with a view to decisive action.

3. The influence of ground upon the effect of fire must be one of the first considerations in selecting a position. A clear field of fire, and ground on which artillery and infantry can act in combination, are of great importance, but this importance is relative to the ground over which the enemy must move; thus it is better for the defence to have moderate facilities for the co-operation of infantry and artillery fire, and for the attack to have none than for the defence to have good ground, but the attack better. The most favourable ground for counter-attack is that which lends itself most to the co-operation of all arms, and especially that which allows the advance of the counter-attack to be covered by artillery and infantry fire. Ground from which any portion of the front or flanks of a position can be enfiladed is dangerous to the defence.

4. The defence must have freedom of manœuvre, which demands sufficient depth in the position and good covered communications behind it. Concealment and cover from fire are important factors in defensive operations. The cavalry, supported by the other arms when necessary, may do much to screen the main position, to mislead the hostile commander as to its exact situation and extent, to induce him to deploy prematurely, and to fatigue his troops in groping for skilfully covered flanks, while his uncertainty will be prolonged if the troops occupying the main position are carefully concealed and withhold their fire until the last possible moment.

5. The troops will be divided into two main portions, one for the defence of the position, the other for the decisive counter-attack. The mounted troops will, as already described, be employed at first either in seeking out the enemy or in covering the main force. The artillery should be posted so as to command the enemy's lines of approach and his probable artillery positions. When the enemy's artillery is known to be very superior, guns should usually be dispersed and concealed so that a converging fire can be brought against the probable lines of advance. Under these circumstances it will often be advisable to avoid an

engagement with the enemy's artillery during the opening stages of the battle. The infantry allotted to the defence of the position will be divided into the firing line, with supports if required, and the local reserves.

6. When a position is extensive it should be divided into sections, each of which should be assigned to a distinct unit, and have its firing line and local reserve. The extent of a section depends on the power of control of one commander, and must therefore vary according to the nature of ground. Supports to the firing line should be close to it, have covered communication with it, and be under complete cover from shrapnel fire; if this is not possible the firing line should be self-supporting. The local reserves should be placed where they have facilities for local counter-attack and good cover while waiting for an opportunity; the local reserves of flank sections should usually be echeloned in rear of the flanks, except when the flanks are otherwise secured.

7. The general reserve should usually be placed in rear of that portion of the position which, from the general situation and the nature of the ground, offers the best line of advance for the counter-attack. Should the situation, however, be so undeveloped that the direction in which the counter-attack can best be launched cannot be determined, the general reserve may be placed, until the situation develops, in rear of or near the flank on which the enemy's decisive attack is most likely to be made.

The commanders of the reserves, whether local or general, must make themselves acquainted with all ground over which they may have to act, and must keep a watch, by means of staff officers and patrols, on the progress of the engagement, so that they may anticipate orders, and have their troops formed up ready to move as soon as they are called for. For this purpose the general reserve should be given a proportion of mounted troops.

Part of the artillery should usually be told off to accompany the general reserve in the decisive attack, but this should not prevent the employment of those guns from the beginning of the battle if they are required. The number of guns which should accompany

the general reserve will depend largely upon the extent to which it is possible to support the decisive counter-attack with artillery fire from the main position, but even when this can be done effectively it will generally be advantageous from the point of view of *moral* for some guns to accompany the infantry so as to be able to come into action at close artillery range.

The commander of the general reserve should be named in the orders for the occupation of the position, and, if not already provided, should have a sufficient staff allotted to him.

In distributing troops in a position, it must be remembered that, as a rule, some sections will be more easily defended than others. A careful reconnaissance will show where the front can be thinly held, but it is never safe to leave any ground altogether unprotected, however difficult it may appear. The defence of woods and other special tactical points should be entrusted to complete units.

8. The factors which affect the extent of frontage which may be held by the troops allotted to the defence of the position are as varied as those which affect the question of frontage in attack (Sec. 104). Subject to such modification as a careful study of the ever varying conditions of each case shows to be necessary, it may be taken that when the utmost development of rifle fire is required, not more than one man per yard can be usefully employed in one line. When the ground is naturally very favourable to defence (Sec. 108, 3), or can be made so artificially (Sec. 108, 9, 10, 11), a less dense line should be sufficient. The strength of the supports, required to replace casualties and to infuse fresh vigour into the defence, must vary with the probable conditions of the battle, and may be roughly from one-fifth to half of the firing line. Portions of a position, where the conditions are unfavourable to defence, are usually better defended by means of local reserves than by strengthening the firing line. The strength of the local reserves may be estimated roughly at about that of the firing line with its supports.

9. Every position should be strengthened as far as time admits,

with the object of reducing the number of men required to hold it, and of thereby adding to the strength of the general reserve. The first step in this is to improve the field of fire, both by clearing the foreground and by taking ranges to all prominent objects distant 500 yards or more from the position. These may be supplemented by fixing range marks, with which, as well as with the ranges taken, the troops should be made familiar.

10. The chief point to keep in view in providing cover is that the fire from it should be effective, but facilities for concealment, control, communication, and for the supply of ammunition, food, and water must also be considered.

The concealment of trenches usually requires special measures. They should not be sited in exposed positions, such as the tops of bare hills or of prominent salients if this can be avoided, and all excavations should be made to assimilate the background. Salients and advanced posts which are held in order to deny ground to the enemy, and not merely as a screen to the main position, are a weakness if they are exposed to artillery fire which cannot be answered, and if they cannot be supported by effective infantry fire. As a general rule such positions had better be left unoccupied, and the ground between them and the main position be defended either by bringing a crossfire on to it from other parts of the position or by strong entrenchments, which are within supporting distance. On the other hand, advanced posts which can be supported effectively by fire from the main position often are of value in breaking up an attack.

11. Generally speaking, it is easier to arrange covered communication with high-sited trenches, but these often entail a certain amount of dead ground in front of the position. It is often possible to avoid this by arranging for the fire from one trench to sweep the ground in front of another and *vice versa*. Trenches placed at the foot of slopes are easily concealed, and usually admit of a more grazing fire than high-sited trenches, but the supply of reinforcements, ammunition, food, and water to those under fire frequently involves difficulties. Trenches which can bring fire to

bear at decisive range on to the ground over which the attack must pass, and which are themselves concealed from the attackers in the early stages, are most valuable in surprising the enemy at critical periods.

Deep trenches just in rear of the crest-line may be usefully provided to give cover to the supports or to the garrisons of the advanced trenches till they are required; communicating trenches will usually be a necessary addition, in order to ensure covered connection with the fire trenches. Alternative emplacements for guns, including positions from which they can employ direct fire during the later stages of the battle may be prepared with advantage. Communications between these emplacements should be prepared or improved.

109. *General Conduct of the Battle.*

1. When the enemy's intention to attack is evident, the advanced troops who have been screening the position should be withdrawn in sufficient time to prevent them from becoming closely engaged and masking the fire from the main position, or from any advanced posts which are to be held. The mounted troops should be assembled in positions of readiness where they have scope for action and the ground is suitable; such positions will usually be found on the flanks. As large a body of cavalry as possible should be concentrated under the cavalry commander, whose duty it is to keep in touch with the course of the battle and seize opportunities for carrying out the commander-in-chief's instructions as they arise.

2. Until the attack is seen to be serious it will usually be advisable to form the firing line of a few observers or skirmishers, the remainder of the troops allotted to the defence of the position being kept under cover. As the attack develops the artillery and infantry must co-operate in crushing it with fire, and preventing it from establishing itself within close range. Enfilade fire brought against an enemy's firing line which is already engaged in front

will be most effective, and for this machine guns, especially during the later stages of the attack, when firing from positions which have been carefully concealed and prepared beforehand, are of great value. Machine guns are best utilized to sweep with fire exposed spaces which an enemy must cross, or roads and defiles through which he must advance, and will also be of service to flank salients or advanced posts, and to assist in protecting the flanks.

3. The enemy will not ordinarily make a serious attempt to drive his attack home at all points (Sec. 103), and it is very important to discover, as soon as possible, where he intends to apply his main strength. This can usually be attained only by compelling him to employ his reserves earlier than he had intended. Before either side can deliver a decisive attack it is to be expected that there will be a prolonged fight for fire superiority (Sec. 105, 4). During this struggle the object to be aimed at is not merely to wear down the enemy's firing line until it is incapable of further advance, but to drive it back so that the enemy may be forced to use up his local reserves to restore the battle. This can be done by means of vigorous local counter-attacks, delivered on the initiative of commanders of sections, whenever an opportunity offers. Such opportunities will occur, when the enemy's firing line comes within reach, without sufficient support, and when fire superiority, even though only temporary, has been gained. Skill and stratagem can do much to tempt the enemy to expose himself to local counter-attack. To achieve its purpose a local counter-attack should compel the enemy to expend more force than is involved in its delivery. Local counter-attacks against strong tactical points are, therefore, usually inadvisable, and for the same reason success should not be followed up too far. They should be covered by both artillery and infantry fire, enfilade fire being particularly effective, but the original firing line should not leave its trenches. If an enemy succeeds in penetrating the position at any point a local counter-attack should be launched against him. Local reserves should not be employed to reinforce the firing line; every man in the firing

line should be made to understand that assistance will be given if required in the form of a local counter-attack.

When the enemy's infantry attack is pushed home, artillery which has withheld its fire or been compelled to cease fire must reopen against it at all costs. At this stage artillery must occupy direct fire positions, and this will rarely be possible unless these have been previously prepared and occupied.

110. *The Decisive Counter-attack.*

1. To judge the right time for changing from the defensive to the offensive, which a commander usually effects by delivering a decisive counter-attack with his general reserve, is as difficult as it is important. The most favourable moment is when the enemy has expended his reserves in endeavouring to storm the entrenchments, but it is by no means always advisable to wait for this. If the defending force is carefully screened by its covering troops, or if the enemy is led to believe that the front is much longer than it really is, he may commit mistakes, such as exposing a portion of his force without hope of support from the remainder, unduly extending his front, exposing his flanks, or posting his reserves in the wrong place; and these mistakes, all of which are favourable to the counter-attack, may occur at any period of the engagement, even at the very beginning.

3. The direction of the counter-attack may depend on the strategical situation, the dispositions of the enemy, or the nature of the ground, but although opportunities for breaking the centre may sometimes occur, the decisive counter-attack will usually be most effective if it be delivered against a flank, and in such a direction as to threaten the enemy's line of retreat.

The counter-attack should come in the form of a surprise. It should be carried through with the utmost vigour and resolution, and all ranks should understand that they must press forward until the enemy is driven from the field. The principles on which it should be carried out will be the same as in

any other attack, but there will be less time for preparation. The advance should be covered by all the artillery available, firing as rapidly as possible on the enemy's infantry, and keeping a sharp lookout for his reserves (Sec. 108, 6).

4. The assumption of the offensive should not be confined to the advance of the general reserve; but any decisive success which this obtains should rather be the signal for the whole to press the enemy with the utmost vigour. Cavalry being essentially an arm of opportunity, it is not possible to limit its co-operation in the decisive counter-attack to the moment of the advance of the general reserve. It may well happen that the cavalry will be able to create, by its action, the occasion for launching the counter-attack. The cavalry commander and the commander of the force must be in communication throughout the battle, so that the general reserve and the cavalry may each be prepared to seize an opportunity created by the other. The cavalry allotted to the general reserve will usually be employed in covering its flanks during the counter-attack.

5. It is possible that there will be little time for issuing detailed orders, but the direction and manner of carrying out the counter-attack should be carefully pointed out to all subordinate commanders, who will explain the same to the troops, and impress on them the importance of getting to close quarters as quickly as possible. The favourable opportunity will be fleeting, and when it comes there must be no delay in seizing it.

THE ENCOUNTER BATTLE.

111. *General Principles.*

1. The unexpected is the rule in war, and when armies are in proximity, a battle is frequently brought about by the unpremeditated meeting of opposing forces. In such encounter battles the deliberate preparatory arrangements which precede an attack upon an enemy in position to a great extent disappear, and much

depends upon the initiative and enterprise of commanders, and the degree in which all arms co-operate.

2. In order to obtain the initiative, it is essential to deploy before the enemy can do so, and it will depend to a great extent upon the action of the advanced troops whether this is possible or not. There will rarely be time for a complete preliminary reconnaissance, though cavalry commanders must, on meeting the enemy, do all that is possible in this direction. Detailed information as to the enemy and the ground will therefore usually be lacking. Under these circumstances the general strategical situation becomes the deciding factor as to whether an attack shall be delivered or not. It is therefore of importance that the cavalry and advanced guard commanders should be supplied with all available information on this point, and that the intention of the commander of the force should be communicated to them as rapidly as possible, if this has not been done already (Sec. 68). Commanders of protective troops must act on their own initiative, while considering the eventual employment of the troops they cover. It will usually be possible to push back the enemy's advanced troops, to gain ground for the deployment of the main body, and to hamper the enemy's deployment, without interfering with the liberty of action of the commander of the force.

3. The commander of the force should remember in coming to a decision—

- i. That the enemy will probably be in an equal state of uncertainty.
- ii. That when once two forces are in close contact it is usually difficult to avoid an engagement.
- iii. That the advantages of the initiative and of the offensive should only be abandoned for weighty reasons.

4. When he has decided to attack, rapidity of action is of the utmost importance. A formal issue of orders will seldom be possible. While it is desirable that that portion of the main body with which it is proposed to develop the attack should be brought into action as a whole, it will often be necessary to allot

to each portion of the force its rôle in the battle as it deploys from column of route. It is, therefore, more than ever important that each unit should keep those on its flanks informed both of its own progress and of what it knows of the general situation. The conditions which give rise to encounter battles make it probable that flank guards, or columns of troops other than those in actual contact with the enemy, will be left without orders; it is the duty of the commanders concerned, on hearing the sounds of battle, to take steps to ascertain the situation, and to co-operate in whatever way appears to them most suitable.

When once the initiative has been secured, and the enemy has been attacked along his whole front, the engagement will approximate more and more to the attack of an enemy in position. It should then be possible for the commander to obtain information as to the enemy's dispositions and strength, and he will be guided by the considerations contained in Sec. 106 in selecting the objective for the decisive attack.

6. Should it become clear that the enemy has succeeded, or probably will succeed, in deploying first, it is necessary to act with caution, for there is then a danger that a precipitate advance may give the enemy an opportunity to envelop the force before it has deployed, or to defeat the several parts of the force in detail as they reach the battlefield. Under these circumstances the commander should endeavour to avoid becoming seriously engaged until his deployment is well advanced, and he should direct the advanced troops to delay and hold off the enemy, pending the development of sufficient force.

PURSUIT, RETREAT AND DELAYING ACTION.

112. *The Pursuit.*

1. The enemy may elect to fight until his power of resistance is exhausted, and he is driven from the battlefield, or he may endeavour to break off the fight and withdraw before he has

finally committed his whole force. In the former case, the infantry and artillery, which have penetrated his position, must follow him up and continue to press him to the utmost (Sec. 106, 9), but the exhaustion, both of personnel and of stores, at the end of a protracted battle, makes such a pursuit only temporary, and it will rarely lead to decisive results. In order that the pursuit may be continued until the enemy is finally crushed, it will usually be necessary to re-form a part of the force at least, and to replenish ammunition and supplies. The pursuit must, therefore, be taken up by as large a body of mounted troops as possible, so that the enemy may be allowed no respite while this is being done. It is the duty of cavalry commanders to undertake this duty in default of special orders.

2. If any doubt exists as to the direction of retreat of the enemy's main body every road by which it could have retreated should be reconnoitred, a short delay being generally preferable to committing the cavalry in a wrong direction. When the direction of retreat is known, only sufficient mounted troops to keep touch with his movements should pursue the enemy directly, while the greater part of the cavalry and horse artillery should aim at the enemy's flanks, and also try to anticipate him at some defile, bridge, or other vital point on his line of retreat. The main body of the force will take up the direct pursuit at the earliest possible moment, and will continue it by day and night without regard to the exhaustion of men and horses so long as the enemy's troops remain in the field.

3. If the enemy succeeds in breaking off the fight before a definite decision has been reached, it is probable that both commanders will have a portion of their reserves in hand, and that the enemy will use his freshest troops to cover his withdrawal—he may even be prepared to sacrifice the troops on whom this duty devolves to ensure the safety of the remainder. Under these circumstances a direct pursuit by the main body will rarely lead to decisive results. The action of the mounted troops should be similar to that described in the preceding paragraphs, but such

infantry and artillery as are in hand should be at once despatched to assist that body of cavalry which is directed against the flank of the enemy's main force with a view to completing its overthrow, while the remainder will continue to press the enemy's force which is covering the withdrawal.

4. All pursuing troops should act with the greatest boldness, and be prepared to accept risks which would not be justifiable at other times.

113. *The Retreat.*

1. It is the duty of the commander of a force to be ready for any emergency which may arise during the course of the battle; his general staff should, therefore, be prepared to submit to him at any time proposals for a retreat, and so allow him and his troops to devote their entire energies to the defeat of the enemy.

By selecting rallying positions, organizing a covering force, and arranging for the early withdrawal of all transport, a defeated army may to some extent be saved the demoralization which usually accompanies a retreat. It is of great importance to clear the roads chosen for the withdrawal of all vehicles which are not essential to the fighting troops, therefore in order to restore the moral and efficiency of the fighting troops supplies of ammunition and food should be deposited alongside these roads.

2. When retreat appears inevitable the routes to the rallying position should be communicated confidentially to commanders. The rallying position should never be so close to the battlefield as to come at once under the fire of the enemy. It should be occupied as soon as possible by some portion of the artillery, and by complete infantry units. The cavalry and other mounted troops, aided by a strong force of artillery, will meanwhile check the enemy's advance, and the remainder of the force, with the exception, if possible, of a rear-guard in support of the mounted troops, will move as rapidly as possible to the shelter of the rallying position and there reorganize. Steps should be taken immediately to secure

any bridges, defiles, or other vital points on the line of retreat, at which the enemy's mounted troops might intercept the force.

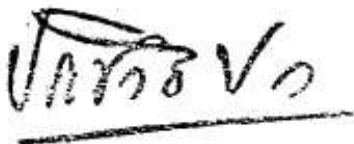
3. Commanders of retreating troops must recognize that their greatest danger will arise from attacks in flank delivered by the enemy's mounted troops and horse artillery; if possible, therefore, they should take precautions that all ground commanding their line of retreat is occupied by flank guards.

114. *The Delaying Action.*

A commander may decide to offer battle without aiming at a decisive result, either in order to await the arrival of some other portion of the army, or to cover a concentration in rear, or to gain time for decisive action in some other part of the theatre of war. In the first case the principles of defensive action will be similar to those already described in Sec. 108, the force, which is actually on the field when battle is accepted, being considered as that which prepares the way for the assumption of the offensive, while the force whose arrival is expected may be looked upon as the general reserve with which the decisive blow is dealt.

When the object is to act as a covering force, or to gain time, a commander will be much influenced by the strategical situation and the nature of the country in which he is operating. The delaying power of a numerically inferior force is greatly affected by ground. When a force is occupying a strong position which cannot be turned, or can only be turned by a wide movement through difficult country, its delaying power is very great; and where a series of such positions exist, a comparatively small force acting on the general principles described in Sec. 72 for the action of a rear guard, can exhaust the offensive energy of one which is much larger. On the other hand, if such a force accepts battle in a position which is liable to envelopment, or in a country and under conditions where an enemy has liberty to manœuvre, it can extricate itself only under cover of darkness, or by a successful counter-attack. Where it is possible for the delaying force to

await an enemy, who is advancing through difficult country, on ground where it can manœuvre freely, it fulfils its rôle in a most effective manner by attacking the enemy's advanced troops as they emerge, and pushing them back on to their main body, which will thus have great difficulty in deploying. The guiding principle in all delaying action must be that when an enemy has liberty to manœuvre, the passive occupation of a position, however strong, can rarely be justified, and always involves the risk of crushing defeat; under these conditions a delaying force must manœuvre, so as to force an enemy to deploy as often as possible but should rarely accept battle.



V. V.

CHAPTER VIII.

SIEGE OPERATIONS.

115. General description of Land Defences.

1. Land defences of sufficient strength to demand attack by siege, methods may be divided into—

- i. Permanent defences which are constructed in peace and whose maintenance is part of the military policy of a nation.
- ii. Provisional defences which are constructed, either during or in immediate anticipation of war, to supplement permanent defences or to extemporize fortresses at points of strategic importance.

2. Permanent defences comprise—

- i. Girdles of mutually supporting works designed for the protection of some place of importance. These are known as fortresses.
- ii. Coast defences, which consist of areas of land and sea provided at certain points or along selected lines with works of defence.
- iii. Isolated self-contained forts or small groups of such forts designed to bar the passage of some defile or to command a railway or road junction. These are called barrier forts.

3. The circle of works which make up a fortress is of great extent in order to ensure the place protected against bombardment. The permanent works may be designed either to develop chiefly the infantry power of the defence, the heavy artillery of the fortress being placed in the intervals between the works; or to develop chiefly the artillery power of the defence; or to develop both artillery and infantry fire. In the first case the invisibility of the works is an important feature, in the second and third cases invisibility is generally sacrificed to command. In each the permanent works are usually connected by provisional defences. The generally accepted principle in the design of modern fortresses is that the assault will be repulsed by the fire of infantry, quick-firing artillery, and machine guns from permanent works protected by deep ditches, and that the rôle of heavy artillery will be to assist in keeping the enemy at a distance, to disorganize his preparations, and to subdue his artillery.

THE ATTACK OF FORTRESSES.

116. *General Principles.*

1. Since the object of war can only be attained by the destruction of the enemy's field armies, all fortress warfare must be considered as subsidiary to that end. A fortress may be masked, invested, or actively attacked.

Masking a place consists in detaching a force to prevent its garrison from interfering with the operations or communications of a field army.

Investment consists in cutting the place off from communication with the outside so that no supplies can be brought into it.

Active attack consists in compelling the fortress to surrender as quickly as possible.

2. The choice of methods will be made by a commander after a review of the strategic situation and a comparison of the enemy's circumstances with the means available have been prepared for him

by his general staff. One of the chief objects of land defences is to detain as large a body of field troops as possible, for as long as possible, in order to gain time for the development of other resources. It will therefore be for consideration whether the fortress should be neutralized by masking it with the smallest number of troops which can perform this duty effectively, whether it should be captured in the shortest possible time by applying to it the greatest pressure which can be usefully exerted, or whether an intermediate course should be adopted.

117. *Masking a Fortress.*

1. A fortress may be masked either by keeping the garrison under such close observation that it cannot leave the fortress unobserved, and by meeting it with a mobile force when it has done so, or by strongly entrenching the masking troops in positions which must be attacked by any force which seeks to come out.

It will depend chiefly upon the character of the troops available and upon the nature of the country, which means of neutralizing a fortress is adopted. The first method demands a considerable proportion of mounted troops and good and numerous communications; the second method is suitable when the lines of operation open to the garrison are few, and the positions closing them are strong. The whole of the garrison will rarely be able to leave the place, and the armament and equipment of part at least of its troops will usually be unsuited for field operations. It will generally be possible therefore to mask a fortress with a force which is smaller than the strength of the garrison, and even under unfavourable conditions the masking force need rarely be the larger of the two.

INVESTMENT AND ACTIVE ATTACK.

118. *The Reconnaissance.*

1. Whether a fortress is to be invested or attacked, the general principles which govern the preliminary measures will be the same. In either case the first object is to drive in the enemy's advanced troops, to cut the lines of supply and communication on which the place ordinarily depends, to make as complete a reconnaissance of the place as possible, and to establish a preliminary investment. This work primarily falls upon the cavalry who should be accompanied by general staff officers, and by artillery and engineer officers to act as technical assistants and be supported by the other arms according as the resistance of the enemy makes this necessary. As soon as the enemy's advanced troops have been driven in, balloon reconnaissances will usually yield valuable results.

2. The preliminary reconnaissance should provide information on the following points :—

- i. The best method of cutting off communication between the place and the outside.
- ii. The line upon which the sortie of the garrison will be met.
- iii. The position of the outposts.
- iv. The communications surrounding the fortress, and the means of improving, adding to, and protecting them.

3. As the garrison is able to concentrate the greater part of its strength against a part of the investors' extended line, it is important that suitable positions for the reserves should be selected as early as possible, that the communications between them should be improved and protected, and that the most efficient form of signalling should be arranged between all parts of the investing lines. It is the business of the general staff to collect information on these points from the outset.

The commander will usually decide from the results of the preliminary reconnoissance, combined with a general review of the situation, whether the place will be reduced by investment or by active attack.

119. *The Investment.*

1. As the sole means of capturing a fortress investment is slow and should be employed only when the number or the training of the troops available for the siege is insufficient to admit of an active attack, or when time is of no importance. In the case of coast defences the command of the sea and the active co-operation of the Navy is essential.

2. Some form of investment, however, forms an important part of every regular siege (Sec. 124), since an active attack is rarely carried out on more than a small part of the circumference at any one period. An investment may be established most rapidly by a simultaneous converging movement, but in the case of an active and prepared enemy, careful communication must be arranged to ensure co-operation between the parts of the converging force, if the centrally situated garrison attempt to attack one of them in superior force. The investing force may also advance in echelon and gradually complete the investing line.

3. Every opportunity should be taken during the advance towards the place to be invested to engage the enemy, who cannot replace his losses in men and stores and will be hampered by wounded, while by so doing positions may be gained which would be more difficult to capture later on when the enemy has had time to strengthen them.

4. When the enemy's advanced troops have been driven in and the preliminary reconnoissance has enabled the general line of investment to be fixed, this line will be divided into sections, to which commanders will be appointed and troops allotted on the same principles as are described in Sec. 108, 6. Outposts will be established as closely as possible round the fortress in order to cut it completely off from outside communication and to

protect the operations in rear. The positions on which sorties of the garrison will be met will next be selected and strengthened, and the positions of local reserves and of the general reserve will be fixed accordingly. It then becomes the duty of commanders of sections and of the commander of the general reserve to improve existing and prepare new communications, fix guide posts, and by other means enable their commands to move rapidly and safely in any required direction either by day or by night. The general staff of the command will at the same time supervise the preparation of an efficient system of observation, and of signal communication between all parts of the investing force.

5. The extent of modern fortresses may make it impossible to invest closely more than a part of the line, the remainder being watched by cavalry outposts or by mobile columns at convenient centres. In such cases it is more important that the garrison should be prevented from breaking out or from receiving substantial assistance than that its absolute isolation should be attempted.

120. *Outposts in Siege Operations.*

1. The duties of outposts in siege operations are even more important and exacting than they are in field operations; in the case both of an investment and of a regular siege the brunt of the work throughout will fall upon the outposts.

2. The general principles of protection are similar to those described in Chapter V, with the following exceptions.

In order to reduce the inevitably great extent of the outpost position it should be established as close to the enemy's positions as is compatible with suitable defensive arrangements, and no opportunity of gaining ground and drawing the outposts closer should be lost. The outposts will be continuously exposed to artillery fire and to the sallies of the garrison, who will try to harass them in every way. They must therefore have

greater power of resistance than outposts in field warfare in order to prevent the troops in rear from being disturbed by every skirmish. The outposts of a section which is maintaining a close investment should be about one-quarter of the total infantry allotted to the section, together with a proportion of artillery, machine guns, and engineers. This high proportion has not the objections which it would have in field warfare, as it is possible to arrange more complete rest for the troops not on outpost duty than can be done when a force is marching from day to day. The line of resistance, which should usually be the piquet line, should be strengthened in every way and bomb-proof cover should be provided for the piquets and supports. As the general position of the outposts must inevitably be known to the defenders, movements in the sentry line are less objectionable, while it is important that the power of resistance of the piquets should be as great as possible; for these reasons the double sentry system will usually be preferable to the group system (Sec. 81, 1). As the whole of the ground, and not merely the main approaches, must be watched both by day and night, sentries should be close enough to allow of no one attempting to pass through them without attracting attention. Additional protection at night may be afforded by means of searchlights, spring guns, flares, electric alarms, &c. (See "Military Engineering," Part I.)

3. Shelter from weather must be provided both for piquets and supports, and, if suitable buildings unexposed to artillery fire are not available, shelter must be constructed. It will lead to better knowledge of the ground, to the improvement of accommodation, and to sanitation, if sections or sub-sections of the outposts are allotted for fixed periods to the same units, which will then have about one-quarter of their strength on outpost at one time, while the remainder who form the reliefs are otherwise employed. Should the siege be protracted, it will be necessary to arrange for the periodical relief of units in the first line, by others from the local and general reserves.

121. *The Active Attack.*

A fortress may be actively attacked by direct attack, by bombardment, or by regular siege.

122. *The Direct Attack.*

Direct attack implies attack without recourse to siege operations. It should only be attempted against the main line of a fortress when the strategical situation demands it and the prospects of success are good, *e.g.*, when the defenders are known to be demoralized either by the defeat of their field armies or by the disaffection of the civil population. Direct attack may be used with success against isolated forts or advanced works, particularly if the assailant is able to approach unseen and to deliver his attack in the form of a surprise. Generally, it is advisable for the assaulting troops to move to a position of deployment under cover of darkness, and to deliver the assault at dawn or under cover of fog or of bad weather, in which case the precautions and general principles laid down for night operations in Chapter IX will be followed. Except when it is possible to overwhelm a work by greatly superior force a preliminary bombardment will usually only serve to announce to the enemy that an attack is impending, but artillery, machine guns, and infantry should invariably be brought into entrenched positions, from which the advance of the assaulting columns can be covered and supported if necessary.

The assault should be delivered against several points simultaneously. An engineer party should be at the head of each assaulting column to open a way through obstacles, and to provide means for the troops to cross them.

123. *The Bombardment.*

By itself, bombardment should not succeed against a good garrison; but where it is possible to mount siege guns within

range, the bombardment of a populous town may have great moral effect on the civil inhabitants who may bring pressure to bear on the governor to surrender. — Small isolated forts which can be bombarded from all sides may also be subjected to this form of attack. It is usual before bombarding a place to summon the governor or commandant to surrender.

124. *The Regular Siege.*

1. The composition and strength of a force destined to undertake a regular siege must be adapted to the special work required of it. The proportion of cavalry may be less than in the field army, while that of artillery and engineers must be largely increased.

In the case of the artillery, the increase is effected by adding to the normal establishment of a field army a certain number of siege artillery units. This number will be determined by the requirements of each case.

Similarly the number of engineers will be increased by the addition of units which have been specially trained in the work of sapping and mining.

2. The distribution of a besieging force is similar to that of a force which awaits attack in the field, except that the siege artillery is not allotted to sections out acts under the orders of an officer styled the officer commanding siege artillery. It is, therefore, divided into

- i. The investing troops, who are divided into sections each with a local reserve.
- ii. The siege artillery.
- iii. The general reserve.

3. The *first phase* of a regular siege consists in establishing a line of investment (Sec. 119); when this is completed siege operations proper may be said to be entered upon and the *second phase* to begin.

To carry out an attack against the whole perimeter of the fortress would involve the employment of a force so large as to be prohibitive. Consequently, while pressure by the investing army is exerted against the whole line of defence, a portion only of this line is subjected to a vigorous attack pushed home by siege operations. This portion is termed the "front of attack," while the ground intervening between the front of attack and that portion of the investing line enveloping this front is termed the "zone of attack."

4. The front of attack will be selected by the commander of the besieging force, after consideration of the proposals prepared for him by his general staff in consultation with the commanders of the siege artillery and of the engineers respectively. In drawing up these proposals it must be remembered that the goal of the attack is the assault, which will be delivered by the infantry, and that the infantry will be able to make progress only with the co-operation of the artillery and engineers.

The choice of the front of attack will therefore be regulated by the following considerations:—

- i. The general strategical situation should be considered, *e.g.*, possibilities of interruption, position of the besiegers field armies, and direction of his line of communication.
- ii. Its capture should promise decisive results.
- iii. The ground in the zone of attack should facilitate the co-operation of infantry, artillery and engineers.
- iv. It should be chosen with reference to the delivery of the immense stores which a siege requires, and to the quartering of the besiegers.

5. The front of attack, having been chosen, the positions for siege batteries will be finally selected, and the besieging troops will be pushed forward to secure the necessary ground. Owing to the great range of modern guns it is rarely necessary to move the siege artillery forward with the besieging troops. The infantry will make progress from the positions of the siege artillery by a

succession of forward movements, such movements being usually the result of a successful assault prepared by combined infantry and artillery fire on some position of tactical importance within the zone of attack.

When owing to the fire of the defenders a further advance above ground is no longer possible, the *third phase* commences. Resort is made to sapping and mining until either the place capitulates or an assault on the main line of defence becomes practicable. When there is more than one line of defence, a *fourth phase*, similar to the third, will occur.

Siege operations differ from field operations in two main particulars; firstly, every day after the investment has been completed should alter the relative strength of the besiegers and besieged owing to the latter not being able to replace either their personnel or their material; and secondly, the final combats resolve themselves into a series of independent frontal attacks on a well-defined and limited frontage.

6. The duties of the technical branches of the service in siege warfare, which come more particularly into play during the advance on the front of attack from the line of investment to the position from which the assault is to be delivered, are dealt with in "Garrison Artillery Training," Vol. II, and "Military Engineering," Part II.

7. When the siege operations have made sufficient progress to make the success of an assault probable, and definite information has been obtained as to the enemy's defensive arrangements at the objective point, a plan for the assault will be formulated.

To ascertain in the case of a permanent work the positions which the defenders would take up to repel an assault, and whether they have any guns which they may be able to unmask at the last moment, it will generally be advisable to deliver feigned assaults; it may be possible by such feints or by a heavy bombardment with sudden pauses, as if for an assault, to induce the defenders to come out of their bomb-proofs and to betray their assigned positions.

Surprise is a very important factor in assault, especially where

the approaches are so deep and well covered as to admit of a large number of men being assembled, unseen by the defender, for the short rush from the sap-heads to the works; for this reason a bombardment should rarely directly precede the delivery of the assault, except when the course of the previous operations has been such that the bombardment will not serve as a warning to the enemy.

8. The power derived by the defender from searchlights, and the difficulty of recognizing friend from foe, or of concerted action, are great drawbacks to night assaults. The chief purpose of night operations, which is to place troops without loss within striking distance of the enemy, will already have been attained by means of sapping.

An attack delivered an hour or two before dark has much to recommend it, as the assault will be delivered during daylight, and the enemy will suffer all the disadvantages of hastily prepared night attacks if he attempts to recapture the work, whereas, should the assault prove a failure, the assaulting columns will more easily be able to withdraw under cover of darkness.

The attack will be made simultaneously along the whole front of attack so as to prevent the enemy from reinforcing the main objectives, which will usually be the forts.

In cases where bombardment is to precede the assault, the time taken by bombardment will be employed by the besieger in assembling his assaulting columns in the approaches, ready to dash out at the appointed moment, which may be arranged for either by carefully setting and comparing watches beforehand or by some signal visible to all concerned. The greatest care must be taken that there is no confusion as regards this fixed hour or signal. Telephonic communication between all points of assembly for assault will reduce the risk of mistake to a minimum.

9. The assault is carried out by assaulting columns composed of:—

- i. Storming parties,
- ii. Reserves.

The storming parties are advanced parties on whom will fall the task of securing the ditch, making good the paths through the obstacles and generally facilitating the advance of the remainder of the assaulting columns. The storming parties are composed of:—

The stormers.—Infantry with fixed bayonets, accompanied by a carrying party (with ladders, planks, bags of hay, shavings or wool, or other suitable materials for crossing obstacles).

The engineer party (to remove obstacles, mines, &c.).

An artillery party (to destroy guns, &c.).

A working party with tools and sandbags, for forming lodgments and improving communications.

The nature of the work to be done will determine whether the engineer or storming party will lead the way, but an engineer officer will always accompany the head of the column. No rule can be laid down as to the size of the assaulting columns, but bearing in mind the probable number of casualties, they should not err on the side of weakness.

Hand-grenades should only be given to men who have been instructed in their use.

10. Immediately the assault is launched, artillery fire will be directed against any supporting works which may bring a cross-fire on to the approaches to the objective, and against the ground in rear of the works to be assaulted over which the defender's supporting troops will have to pass, or where his reserves may be placed in readiness to reinforce the garrison. Machine gun and rifle fire from covering troops detailed specially for that purpose will be directed on the works to be attacked.

It will often occur that the storming parties may be able to seize the parapet but may then be checked by retrenchments within the work; in such an event it will be their duty to make good their ground until sufficient numbers can be brought up to renew the advance. Mountain and machine guns will, if necessary, be brought forward to overcome resistance which may be offered

within the work. The reserves will usually remain in the trenches until the ditch has been captured, or until the storming party requires reinforcing.

The assaulting columns will invariably be composed of complete units and not of detachments of different units.

11. The orders for the assault will be framed on the general principles contained in Sec. 12, and will deal especially with the following points :—

- i. The works to be assaulted.
- ii. The distribution of troops to assaulting columns, giving the names of commanders of columns and the route and objective of each column.
- iii. The hour or signal for the assault.
- iv. Arrangement for the covering fire of siege artillery.
- v. The action to be taken if successful.

Should it be decided to precede the assault by a bombardment, the hour at which the latter will begin will be mentioned.

The general staff of the commander will be prepared with proposals for action in the event of the assault failing and these will be communicated confidentially, if the commander considers it desirable, to the commanders of assaulting columns.

Commanders of assaulting columns will, in turn, issue their orders for the assault. These orders will deal especially with the following points :—

- i. The distribution of the column, giving the names of officers to lead storming parties and to command reserves, its objective and route.
- ii. The position of the reserve.
- iii. Arrangements for covering fire.

125. *Action on the Capture of a Work.*

At the moment the work is captured, the besiegers should entrench themselves and prepare to resist a counter-attack. Every man

in the assaulting columns should carry several empty sand-bags, which can be easily filled from the smashed concrete, débris, and earth of the fort without using tools.

The troops should be warned against picking up anything, however harmless in appearance, that they may find inside a work, as it may be connected with a mine. It is the duty of the engineers to search for mines during and immediately after the assault. All prisoners taken inside a work should be kept there until the search for mines is completed.

It may sometimes be advisable to push straight on before the defender has had time to reorganize his forces, leaving a small party to hold the work until reinforced from the rear.

THE DEFENCE.

126. *General Principles of Organization.*

1. Permanent fortresses are under the command of fortress commanders and the organization of their defence is fixed in time of peace; schemes of defence are drawn up in accordance with the regulations* on the subject and are revised periodically. In the case of an improvised fortress or entrenched camp, for which no scheme of defence has been elaborated and tested in peace, the senior combatant officer in the place becomes the fortress commander and is responsible for the organization of the defence. This will be arranged on the following general principles:—

A main line of defence will be chosen. It will consist of a series of strong natural positions, the intervals being defended by infantry trenches and redoubts, the whole being strengthened as far as time and material admit.

If the nature of the ground, the extent of the place, and the size and armament of the garrison permit, a second line of defence similar in character, and advanced positions in front of the main

* See K. R., paras. 71 to 82.

line of defence will be constructed. The first advanced position should not be so far in advance of the main line of defence as to be beyond the support of the heavy guns, but sufficiently far, should its capture be effected by the enemy, not to compromise the safety of the main line. In accordance with the facilities offered by the ground, positions should be prepared between the first advanced positions and the main line of defence, each position being so arranged as to cover a retirement from the position in front. The natural features of the ground in the vicinity of the fortress, the position of the respective field armies of the attacker and defender, the direction of the lines of communication, and other factors will render an attack from certain directions more probable than from others, so that it will not be necessary to provide advanced positions all round. Care must be taken that the positions if captured shall not offer cover to the besieger.

The advanced positions will be held by infantry and field artillery, and will be similar in character to defensive positions prepared in the field, though the proximity of the fortress and length of time available for preparation may result in some of the works becoming almost of a permanent nature.

2. If the site of the fortress includes a town or any considerable civilian population, the following points should be considered in the preparation of the defence scheme :—

- i. The proclamation of martial law in the area in which the fortress is situated ; if martial law has not already been proclaimed the fortress commander should arrange to have this done at any moment when, in his opinion, it is necessary.
- ii. The question of the expulsion from the fortress of undesirable persons and of such civilians as are not likely to assist in any way during the siege.
- iii. The organization of the civilians remaining in the fortress into corps of artificers, labourers, firemen, hospital attendants, transport drivers, &c. The employment of civilian labour in the execution of defence works.

- iv. The collection, storage and distribution of all food supplies (including cattle), and the organization and supervision of bakeries, abattoirs, water, fuel, and light supply, grazing grounds, and medical comforts. The control of the milk supply for hospitals and infants is also most important.
 - v. The control of the water supply. Should the source of the water supply be without the area of the fortress special arrangements for storage of water must be made.
 - vi. The registration and organization of all transport vehicles and animals.
 - vii. The safeguarding, storage, and distribution of all arms and ammunition.
 - viii. The registration and distribution of all tools and material likely to be of use during the siege.
 - ix. Arrangements for the proper protection of the town by police, for fire precautions, and sanitary supervision. The civil and military police duties must be co-ordinated, and it will be generally advisable to allow the civil power to carry out its usual procedure, strengthening it if necessary by special enactments and by military force. The utmost stress must be laid on sanitary precautions, for disease will spread rapidly under conditions so favourable to it. Ambulances and hospitals must be most carefully organized.
 - x. The control of all means of communication and the censorship of the press.
5. The preparation of schemes of defence is the duty of the general staff, who will be given such assistance on technical points and on matters affecting the civilian population as the commander may consider necessary.

127. *Distribution of the Garrison.*

The general principles of the distribution of the garrison are similar to those which govern the distribution of a force which awaits attack (Sec. 108).

Commanders of sections command all troops including the fortress artillery, within their sections. The troops allotted to sections are divided into :—

i. Mobile troops who are subdivided into—

- (a) Outposts.
- (b) Local reserves.

ii. Garrisons of forts and intermediate works.

The general reserve may conveniently contain, in addition to the mobile troops at the disposal of the fortress commander for offensive operations, an artillery and engineer reserve for the reinforcement of the sections of the fortress.

128. *Conduct of the Defence.*

1. The general principle which governs the defence of fortresses is that the offensive is the soul of defence.

Directly a place is threatened with an attack, the fortress commander will despatch detachments in the direction of the enemy to obtain information and to gain contact with his troops. As soon as he has ascertained that the enemy is advancing, he will send out all the troops he can spare to delay and harass the enemy and to make him deploy on as wide a front as possible. The longer the enemy can be delayed the more time will the defender have to complete his preparations; the wider the circle of investment, the more vulnerable will it be, and the larger will be the area kept under the control of the fortress—an important matter especially as regard crops and grazing grounds

The extent to which this preliminary delaying action is possible will depend chiefly on the size of the fortress and of its garrison, but under any circumstances the enemy must be kept under observation from the earliest possible moment.

The defender's troops, as they fall back, will destroy all bridges, railways, telegraphs, &c., that might be of assistance to the enemy, taking care not to injure those in the direction of the probable advance of any relieving force. Buildings also should be destroyed if they are likely to be of use to the besieger, and all wagons, forage, &c., removed to the fortress.

2. The defender, having been forced back to his first advanced positions, will endeavour to prevent the completion of the line of investment, and when the enemy has effected this, will use all means to ascertain the front of attack selected by the besieger.

When reliable information as to this point has been obtained, the defender will reorganize his troops, reducing to a minimum the garrisons of sections outside the zone of attack, and will prepare to dispute every inch of the ground between the besieger's batteries and the fortress. Frequent sorties should be made on the besieger's works and depôts.

3. A portion, at any rate, of the heavy guns of a fortress should be able to support the troops holding the first advanced positions. As soon as the enemy's intentions regarding the front of attack become clear, the fortress artillery should attempt to prevent the formation of the besieger's depôts and magazines and to annihilate his batteries in detail as they are discovered. Every effort must be made to cope with the fire of the siege batteries in the first stages, in order to hinder them from obtaining accurately the ranges of the more important works. Any guns and howitzers that can be spared should be brought round from those portions of the fortress not threatened. If, however, the besieger has carried out his preliminary operations thoroughly, and if he has an adequate siege train, the fire from the siege batteries will ultimately assert its superiority, and it will then be better for the defender to withdraw some of his guns into a retrenchment or line of inner defences.

4. The use of counter-approaches and counter-mine galleries in checking an enemy's progress and the manner of constructing them are dealt with in "Military Engineering," Part II.

The most effectual means of defence is counter-attack. It imposes caution on the part of the besieger, and imparts an inspiring influence to the defender's troops, besides rendering them more fit for field operations in the event of the siege being raised. Counter-attacks may be divided into :—

i. Sorties in force.

ii. Small sorties.

Sorties in force are delivered with the whole of the available field troops of the garrison and do not differ from a decisive attack upon an enemy in position. The fortress commander should consider the general strategical situation and the prospects of success of such a sortie in the same way as does a commander who offers battle in the field.

Small sorties are made with the object of seizing a position important to the defence of the fortress, of delaying the enemy's works, or of destroying his material and stores. They must be prepared with secrecy and delivered suddenly, and will usually be made by night.

Attacks on sap-heads and approaches will be made by infantry supported by machine guns and by field and light fortress artillery. The troops will carry hand-grenades (Sec. 124, 9), and be accompanied by engineers with explosives.

It is generally advisable to describe precisely the objective of such a sortie, for even if it be successful and the objective gained the sortie should not be allowed to advance further than some prescribed limit.

CHAPTER IX.

NIGHT OPERATIONS.

129.—*General principles.*

1. Night operations may be undertaken to out-manceuvre an enemy, to pass over an area of ground which it has been found difficult or impossible to traverse in daylight, to continue or complete an attack begun before dark, and to effect a tactical surprise. Night marches may also be used to avoid the heat of the day. Night operations may therefore be classified as *night marches*, *night advances*, and *night attacks*.

2. Surprise in some form is usually an object of night operations, secrecy of preparation is therefore important, but this should not be allowed to interfere with the thoroughness and care with which the preliminary arrangements are made. Upon this care and thoroughness, and particularly upon the completeness of the preliminary reconnaissance, the success of night operations is, next to the special training of the troops to work in darkness, chiefly dependent. Ample time must be allowed for the necessary preparations.

3. With the above proviso, night marches and night advances may be undertaken successfully by large bodies of troops. Night attacks, that is to say, attacks delivered in the dark, should rarely be attempted by a force larger than an infantry brigade against a single objective unless the conditions are exceptionally favourable (Sec. 135).

4. In all night operations the maintenance of connection is of

the first importance. It is the duty of every commander who furnishes connecting files to keep a reserve of these in his hands so as to supplement those already sent out whenever necessary.

130.—*The reconnaissance.*

1. A thorough reconnaissance is an essential prelude to a night advance or to a night attack, and should rarely be dispensed with in the case of a night march. Under exceptional favourable conditions, *e.g.*, when good roads, reliable guides and good maps are available, a night march may be successfully carried out without this preliminary, but every commander, who orders a night operation, which is not preceded by a complete reconnaissance, increases the risk of failure and incurs a heavy responsibility.

2. In a reconnaissance for a night march the route should be examined both by day and by night. The best method of protecting the march of the column should be ascertained (Sec. 132, 3). All points where checks are likely to occur, the position of branch roads or of places where the column might go astray and the best method of marking them should be noted (Sec. 132, 10). The general compass direction of the march should be taken and should be mentioned in the operation orders. It is often difficult for a column to know when it has reached its destination in the dark; this should be some easily recognizable landmark or should be marked in some prearranged manner; its appearance by night should be noted, and a description of it should be inserted in the operation orders, or, if it is desired to keep it secret, communicated confidentially to the commanders concerned.

Night Marches

3. In the case of a night advance or of a night attack, reconnaissance from a distance is insufficient. Information should be obtained as to :—

- i. The distribution of the enemy's forces as far as possible and the position of his outposts.

- ii. The nature and position of his entrenchments.
- iii. Whether there are any obstacles either natural or artificial which might hinder the advance.
- iv. The position of any landmarks which might assist the advance (Sec. 136).

It will rarely be possible to obtain this information without fighting, which will usually fall to the advanced troops and take place in daylight (Sec. 92).

Subordinate commanders and regimental officers who are immediately responsible for the leading of the troops should carefully study the ground over which they will have to move, subject to such limitations as the commander of the force may impose. When in proximity to the enemy, advantage should be taken by all officers of pauses in the operations, to gain knowledge of ground over which they may at any time be required to lead their men by night.

Selected scouts from the units to take part in the operation should usually be sent out in the direction of the proposed advance, to study the ground and to note the position of the enemy's outposts and of any defences or obstacles he may have erected. These scouts should assist in guiding their units in the subsequent advance.

131.—*Night marches.*

1. A night march with the exception of one undertaken because of the weather conditions, is either strategical or tactical; each is a valuable weapon in the hands of a skilful commander, who will use it to outwit, deceive, and surprise his enemy. By a strategical night march an enemy may be outflanked or anticipated at an important strategical point, an army may be placed in such a position that the enemy is forced to accept battle under conditions unfavourable to himself, or a commander may extricate himself from an embarrassing situation. By a tactical night march

superior strength may be secretly concentrated at a decisive position, troops may be transferred unknown to the enemy from one point of a battlefield to another, or an inferior force engaged in delaying a superior force may avoid a decisive engagement (Sec. 114).

2. A tactical night march will usually be made under cover of outposts or advanced troops, either pushed forward at dusk or already in contact with the enemy, and will often culminate in an attack. In the case of bodies of troops larger than an infantry brigade such an attack will usually be delivered at dawn or in daylight, and in the case of smaller bodies, the march will frequently be for the purpose of making a night attack. Night attacks should, however, rarely be the sequel to a long night march, owing to the difficulty of obtaining definite information as to the enemy's dispositions, and making the essential preparations from a distance. When a night march is made for the purpose of an attack its immediate objective is the position of assembly (Sec. 136, 2 where the ordinary march formation is to be abandoned.

132. *General Rules for Night Marches.*

1. Local guides should be procured as a rule.
2. As secrecy is usually of the greatest importance the outposts should not be withdrawn till the last possible moment. They should be left in position till daylight, and should follow the column when convenient. Bivouac fires should be left burning, and arrangements should be made for keeping them alight. Orders should be issued as late as possible, and all preparations be made quietly. All horses and vehicles should be kept well in rear. Precautions should be taken to prevent accoutrements and wheels of vehicles rattling. Horses likely to neigh should be left with the second line transport.
3. The march should generally be protected by small advanced and rear guards, which, except in the case of columns composed entirely of mounted troops, will consist of infantry. In enclosed country, the flanks are best protected by picquets posted by the advanced guard and withdrawn by the rear guard (Sec. 144); in open

country, either by piquets or by flanking patrols, but the latter, unless accustomed to night work, are liable to lose direction (*see* 8 below).

4. When a column is formed of all arms, mounted troops, artillery, and machine guns will usually march at the least exposed portion of the column (*see* 2 above). If it is anticipated that obstacles may be met with, engineers with the necessary tools and materials for clearing the obstacles should accompany the advanced guard.

5. All ranks should be previously informed what they are to do in case of an alarm or attack.

6. Every commander should have a fixed place in the column, where he should remain. An orderly officer for the commander will be detailed from each unit to convey instructions.

7. The method of marking the starting point in the dark is described in Sec. 30, 3.

8. The regulation distances between units (Sec. 25) should be reduced or omitted, and the column must be kept closed up. An officer should invariably march in rear of each unit. Connection must be maintained throughout the column.

The distance of the advanced, flank, and rear guards from the column must be small, close connection being maintained by means of connecting files.

9. The march formations will be normal, unless tactical exigencies make a change necessary.

10. To prevent the troops in rear from going astray, the advanced guard, under instructions from the commander of the column, should block all branch roads that are not to be used by posting men at them, or by placing branches of trees or lines of stones across them. These men will be withdrawn by the rear guard. After crossing an obstacle or defile where opening out is likely to occur, the column should advance about its own length and then be halted until the rear is reported to be closed up. Staff officers should be detailed by the commanders of the column to superintend this, wherever necessary.

11. Rifles should not be loaded, but magazines should be charged. No firing is to take place without orders. Absolute silence must be

maintained, and no smoking or lights are to be allowed, except with the permission of the commander of the force.

12. The hours and periods of halts should be arranged before starting. Units must not halt till they have regained any distance which they may have lost.

During halts men may lie down, but must not leave the ranks; mounted men retaining hold of their horses.

13. The pace must be uniform. It is not safe to calculate on a force of the size of a division marching on a road faster than two miles an hour. The darker it is, the slower will be the pace.

133. *Guiding Columns by Night in Open Country.**

1. The route should be fixed by compass bearings; the points where any change of direction is necessary should be noted; the distances between these points should be clearly defined, and, when practicable, the distances between easily recognizable points should also be measured.

2. The general direction can be effectively kept by means of stars. It is, therefore, important that an officer should acquire sufficient knowledge of the stars to enable him to ascertain his bearings by them.

3. An officer, other than the one guiding the column, should invariably be detailed to check the distance marched.

4. When troops are in column, distances from front to rear may be best preserved by means of knotted ropes, intervals by the extension of men (Sec. 129, 4).

134. *Night Advances.*

1. The purpose of a night advance is to gain ground from which further progress will be made in daylight and not to deliver a

* The Service prismatic compass, Mark V, has a luminous dial for night work. For instructions for the use of instruments by night, see "Manual of Map Reading and Field Sketching."

decisive assault during darkness. Night advances are usually of two kinds. They may be used as a preliminary to opening a battle or to continue an engagement already begun, with improved prospects of success. In either case the protective cavalry or outposts will usually be in contact with the enemy. A night advance is a forward movement by a force which is deployed; it may be the sequel to a night march, but more usually the advance is made with the force deployed from the outset. The advance is generally followed by an attack at or soon after dawn, and is undertaken either with the object of surprising the enemy or of gaining ground, which could only be covered in daylight under conditions unfavourable to the attacker.

2. A night advance during a battle may be made when it has not been found possible to gain a sufficient superiority of fire during daylight to justify an assault, for the purpose of renewing the fight under more favourable conditions at dawn. Night advances of this nature will often be advantageous against a strongly posted enemy who offers such stubborn resistance as to cause the operations to extend over a period of more than one day. The objective of the advance when gained should be entrenched so that it may afford a point of support to further progress in daylight. Occasionally it may happen that an enemy has occupied a position which leaves the assailant little or no scope for manœuvre and has been strengthened to such an extent as to make the success of an attack in daylight doubtful. Under these circumstances a series of advances on successive nights, from one fire position to another may be advisable, each advance being for a few hundred yards only and each position when gained being entrenched. Such operations approximate to siege warfare and should rarely be necessary or advisable in field warfare except in country where freedom of manœuvre is very limited. When the ground in the vicinity of the objective of a night advance is likely to be difficult to entrench, the troops should carry empty sand bags, which can be quickly filled and placed in position in darkness.

135. *Night attacks.*

1. Assaults delivered during darkness may be undertaken in order to gain a point of support for further operations in daylight, to drive in an enemy's advanced troops, to secure an outpost position as a preliminary to an attack at dawn, or to surprise an ill-trained, ill-disciplined or semi-civilized enemy.

Though such assaults should rarely be attempted by a force larger than an infantry brigade against one objective, in the case of a force deployed on an extended front, several distinct objectives may be attacked simultaneously with advantage. As in the case of a night advance the attackers should at once entrench the positions they secure. It may be anticipated that the enemy will attempt to regain what he has lost, usually by a counter-attack at dawn. It is therefore advisable to time the delivery of the assault so that the attackers may have two or three hours of darkness in which to prepare and organize their defence. When one or more night attacks are delivered by part of a force, the remainder should always be in readiness to take advantage at daylight of any success obtained during darkness.

2. Night attacks may not infrequently be forced on an assailant by the fact that the conditions of the fire fight have been or are certain to be adverse. Circumstances may prevent the successful co-operation of the attacker's artillery, or it may be important to neutralize the effect of the defender's artillery. A night attack may then be justified as the only possible solution of a difficult situation, but when the conditions of the fire fight are likely to be favourable it will probably be better to accept the inevitable casualties that must result from a struggle for fire supremacy in preference to the undoubted hazards of a night attack.

PREPARATIONS FOR NIGHT ADVANCES AND NIGHT ATTACKS.

136. *Preliminary Measures.*

1. The preliminary measures necessary both for night advances and for night attacks are similar and may be considered together. (For the reconnaissance see Sec. 130.)

2. When a movement in march formation precedes a night advance or a night attack (Sec. 131, 2), a position of assembly must be selected beforehand where the normal march formation is to be abandoned (Sec. 95). The distance of the position of assembly from the objective depends on the nature of the country, the enemy's vigilance, the possibilities of discovery, and the size and composition of the attacking force.

3. It is also necessary to decide beforehand the place where the columns are to deploy for attack. This place is termed the position of deployment. It must be so situated that the force, while there, is secure from interruption. It will frequently be possible to push forward outposts at dusk or during light to within a comparatively short distance of the objective of a night advance and to deploy under their protection.

In certain circumstances, e.g., in very open and level country, or when the opposing forces are in close touch, the position of deployment may coincide with the position of assembly.

4. Both the position of assembly and the position of deployment should be easy to recognize at night. From the former position to the latter, and from it again to the points selected for attack, compass bearings should be carefully taken and noted. The distances between these points must also be ascertained as accurately as circumstances admit.

5. If two or more points are to be attacked simultaneously, care must be taken, in selecting the positions of assembly and the positions of deployment, that the various forces advancing from

them will not converge towards one another to such an extent that there is a danger of their meeting or crossing one another.

6. A distinguishing mark should be ordered for the troops, and a watchword decided on. The commander of the force and his staff should wear easily distinguishable badges.

7. The materials necessary for surmounting or cutting through obstacles, and for entrenching the position when captured, must be arranged for.

8. Rockets, flares, or bonfires may usefully be employed as the signal for assault.

137. Composition and Formation of Columns.

1. The troops employed for night advances or night attacks should as a rule be infantry, with the addition of engineers to assist in the maintenance of communication, in removing obstacles, and in preparing the objective for defence.

2. Artillery can rarely be of assistance during the hours of darkness and in the case of a night attack may prove a serious danger to its own troops if thorough preparations have not been made in daylight. If the operations are protracted, the positions of the artillery have been previously taken up, and the ranges of the objectives are known, guns may occasionally be able to assist an attack upon a strongly entrenched position. In this case careful arrangements are necessary to ensure the cessation of artillery fire when the infantry are close to their objective. Artillery may often be moved with advantage into positions, which can be entrenched during darkness, whence it can support an attack in daylight.

3. At the position of assembly, the normal march formation will usually be changed for a preparatory formation which will bring the force more directly under its commander's control, and from which deployment for attack will be easy.

It is important that the formation adopted should facilitate the guidance of the troops across country.

4. Lines of scouts, at about 80 yards in advance and on the flanks of the column, usually afford the best protection to troops advancing across open country in a preparatory formation.

5. It is not safe to count on troops moving in a preparatory formation faster than one mile an hour.

6. At the position of deployment the formation will be adopted in which the remainder of the advance is to be made. It is an advantage if the force can move from the first in this formation, but when troops advance for long in fighting formations by night control is more difficult and the fatigue caused to the troops is increased.

7. The formations to be adopted must vary with the ground and with the special circumstances of each case. The following formations have proved suitable :—

The force may be divided into three lines. The first line, which should be preceded at from 50 to 80 yards by a line of scouts, may move in line, in line of half-company columns at deploying interval, or in line of company columns at deploying interval; in the last two cases lateral connection should be maintained by connecting files at about 10 paces interval. (Sec. 129, 4.) The second line may move in similar formation to the first at about 100 to 150 yards distance. The third line should follow at about 200 yards distance in quarter column, lines of quarter columns, or any other convenient close formation.

The second and third lines may conveniently move on one or both flanks of the first line, so as to avoid fire suddenly directed at the latter. The rôle of the second line is to act as an immediate support to the first, and of the third to serve as a reserve; any tools or special appliances required to place the objective in a state of defence should accompany the latter.

The above formations are intended as a general guide, the only rule to be followed is that the formation chosen must be adapted to the particular case. When an advance or an attack is made simultaneously against several distinct objectives, a general reserve to the whole should be detailed.

138. *The Advance.*

1. Before the troops move off from the position of assembly it is essential that the orders should be clearly explained to all ranks, so that everyone may know :—

- i. The object in view and direction of the objective.
- ii. The formation to be adopted at the position of deployment.
- iii. The part he has to play.
- iv. His action in case the enemy is not surprised.

2. The following instructions should be repeated two or three times to the men by the company officers :—

- i. Rifles should not be loaded, magazines should be charged and cut-offs closed, and no one is to fire without a distinct order.
- ii. Until daylight, bayonets only are to be used.
- iii. Absolute silence is to be maintained until the moment of assault.
- iv. No smoking is to be allowed, nor are matches to be struck.
- v. If obstacles are encountered which cannot be readily traversed or removed, the troops will lie down till a passage has been cleared.

3. The maintenance of lateral communication between different columns must be arranged so that the assaults may be delivered simultaneously. Communication between columns, and with the general reserve, is best secured by telephone. Visual signalling is very unreliable shortly before and after dawn.

4. The force should occasionally be halted for a short time, to enable the formation to be corrected.

5. If hostile patrols, scouts, or advanced parties are encountered, they must be captured without noise. They must be rushed in silence with the bayonet without hesitation.

6. If, after the position of deployment has been left, the enemy opens fire, all ranks should understand that it is their duty to press forward at once, cost what it may. No movement to the rear

should be permitted, even to correct mistakes which may have been made, so long as it is intended to continue the advance. When two forces are in close contact it will rarely be possible to completely surprise a civilized and disciplined enemy. Night attacks must, therefore, be prepared to receive fire before closing with the enemy.

7. If an assault at dawn succeeds, the mounted troops should push forward with all speed and endeavour to get round the flank of the retreating foe. If it fails, they will do their utmost to protect the retiring infantry while the artillery takes up a rallying position.

139. *Orders for Night Attacks and for Night Advances.*

1. In framing orders for night operations it may be necessary to deal with the following points in addition to those considered in Secs. 12 and 104, 2 :—

- i. Time of assembly at, and departure from, the position of assembly. Description of the position of assembly
- ii. Order of march, and formations on leaving the position of assembly. Distances and intervals. Maintenance of communication.
Compass bearing of the route.
- iv. Time and duration of halts.
- v. If possible, the position of deployment should be described, and its distance from the position of assembly and from the point selected for attack notified.
- vi. Formation to be adopted at the position of deployment.
- vii. Special instructions for the assault, and the signal for it (Sec. 136, 5).
- viii. Short description of the ground to be crossed.
- ix. Description of the position to be assaulted.
- x. Conduct of troops during the advance (Sec. 138, 2).

- xi. Action in case the enemy opens fire.
- xii. Action after the position is captured to resist counter-attack.
- xiii. Extent to which the captured position is to be fortified and the detail of troops who are to perform this duty.
- xiv. Action of reserves or neighbouring troops against positions likely to enfilade the captured position.
- xv. Distinctive marks and watchword.
- xvi. Place of the commander at the position of assembly, during the march thence, and at the position of deployment.

2. Orders will usually be communicated beforehand to those officers only from whom action is required, so that timely arrangements may be made. Until the troops reach the position of assembly, no more should be made known to them than is absolutely necessary. It may be advisable, in order to deceive spies, that misleading orders should be given out.

140.—THE DEFENCE.

The general principles of defence by night differ little from those of defence by day, except that a decisive counter-attack should rarely be attempted outside the limits of the position, since its direction must depend upon the enemy's movements and it cannot therefore be prearranged in daylight. When, however, an enemy has succeeded in establishing himself in the position at night he should be attacked as soon and in as great strength as possible. Artillery may assist the defence effectively when the front to be defended is narrow, and there is limited ground over which the enemy must pass if he wishes to attack; under these circumstances field search lights will be of value. Search lights should not usually be exposed until the attacking force is reported by the outposts or patrols to be advancing to the attack; other-

wise they betray the position and serve to guide the attacker. Those searchlights intended especially to assist the artillery should be under the orders of the artillery commander, and should be at least 400 yards on the flank of the artillery whose target they are to illuminate. All searchlights should be well entrenched usually low down on the forward slope of the position. The whole area of the front should be illuminated by beams directed from the flanks across the front of the position, or when the hilly and broken nature of the ground makes this impossible, by a large number of small lights with dispersed beams at close interval.

CHAPTER X.

WARFARE IN UNCIVILIZED COUNTRIES.*—
CONVOYS.141. *General Principles.*

1. In campaigns against savages the armament, tactics, and characteristics of the enemy, and the nature of the theatre of operations demand that the principles of regular warfare be somewhat modified; the modifications in this chapter are such as experience has shown to be necessary.

2. **Self-reliance, vigilance, and judgment** are the chief requisites for overcoming the difficulties inherent in savage warfare. Discipline and organization are powerful aids; but unless both officers and men are well trained, capable of adapting their action to unexpected conditions, and of beating the enemy at his own tactics the campaign will be needlessly long and costly.

4. The nature of the objective will differ considerably according to circumstances. In the case of peoples with some settled form of government, an advance against their capital will probably be opposed; its fall will follow the defeat of the enemy, and will bring all organized resistance to an end. Similarly, in dealing with independent fanatical tribes, an advance against a sacred town or shrine may have the same effect. If no such objective be available,

* The rules for transport and convoys in Section 33 apply equally to warfare in uncivilized countries.

the enemy may be brought to oppose the advance by a movement against his wells or sources of supply. Should the enemy refuse to make any organized resistance, the occupation of his country, the seizure of his flocks and supplies, and the destruction of his villages and crops may be necessary to obtain his submission.

5. The susceptibility of this class of enemy to moral influences is a most important factor in the campaign. Hesitation, delay, or any retrograde movement will at once be interpreted as signs of weakness, and while the braver of the enemy will be encouraged, the waverers, always to be found amongst undisciplined forces, will be tempted to throw in their lot with what appears to be the winning side. A vigorous offensive, strategical as well as tactical, is always the safest method of conducting operations.

The most complete preparations, which should include a careful study of the topography of the country and of the mode of fighting, habits, and characteristics of the enemy should be made, to ensure the campaign being carried through to its conclusion without a check. Success is to be achieved by discipline and vigour rather than by force of numbers.

6. The local resources being small, all supplies will, as a rule, have to be carried; owing to the absence of good roads it will usually be impossible to use wheeled transport. Pack animals or porters will therefore be employed, and these will often be unable to move on a wide front. Supply and baggage columns will therefore be both long and vulnerable; and as there is a limit to the number of men and animals which it is possible to move over one road during the hours of daylight, a force may have to be broken up into small and compact columns, moving in several lines, or on the same road at a day's interval. Against a badly organized enemy this is not so dangerous as it would be in other circumstances.

7. The freedom of an uncivilized enemy from the complicated organization of regular armies, his individual independence, and his ability to disperse at will, necessitates a crushing blow being delivered against him, if the result of an action is to be decisive.

Care should therefore be taken not to induce him to abandon a position by too great a display of force, or to manœuvre him out of it, unless it be too strong to be taken without undue loss. When once beaten he should be followed up and given no respite until all resistance is at an end. Natural obstacles will often render pursuit a difficult undertaking, but to facilitate it, a portion of the force, at least, should be thoroughly mobile and independent; the question of supply and transport being carefully worked out beforehand.

8. As such people are usually adepts in laying ambushes and effecting surprises, vigilance and precautions should never be relaxed. Reconnaissances, even when everything appears to be absolutely secure, should be pushed out as far as prudence permits and every endeavour made to preclude all possibility of surprise.

9. In open country a badly armed enemy has but small chance against regular troops, but in bush, or very broken country, their superior activity, recklessness, and knowledge of the ground makes them formidable foes. Such ground should, therefore, be avoided especially as a halting-place or bivouac.

MOUNTAIN WARFARE.

142. *General Principles.*

1. In addition to the general principles contained in Sec. 141, the following should be observed in mountain warfare:—

2. The principle of always having bodies of men in rear or on the flanks, covering by their fire the advance or retirement of the troops nearest the enemy is especially important in hill fighting. On nearly every ridge and spur positions will be found where this can be done, and advantage can also often be taken of parallel features from which covering and cross fire may be used with effect.

3. As a general rule ascents should be used both for advances and retirements rather than re-entrants. Ravines should be

avoided unless their exact course is known and the heights on either side are held. In advancing up hill, the pace should be slow so as not to distress the men. Preparations to meet a counter-attack should always be made when the summit is approached, and as soon as a crest is occupied it should be at once strengthened. Men should be most careful never to expose themselves on the crest line.

4. The withdrawal of troops from a hilltop in the presence of an enterprising enemy is a most difficult operation, and should be carried out in accordance with the principles laid down for the conduct of a rear-guard (Sec. 146). A previous reconnaissance of the ground over which the retirement is to be effected is important. The most active men should remain to the last, and keep up a brisk fire on the enemy, and all movements should be as rapid as possible.

143. *Camps and Bivouacs.*

1. The shape of a camp should be as nearly as possible rectangular. Tents and bivouac shelters should be pitched parallel to the perimeter and from 5 to 10 yards from it, in order to give men room to fall in in case of alarm. The flanks of units should not meet at salients, which should each be held by one unit.

2. Transport corps should camp by corps in places convenient to the units to which they are attached. Ample space must be kept for supplies.

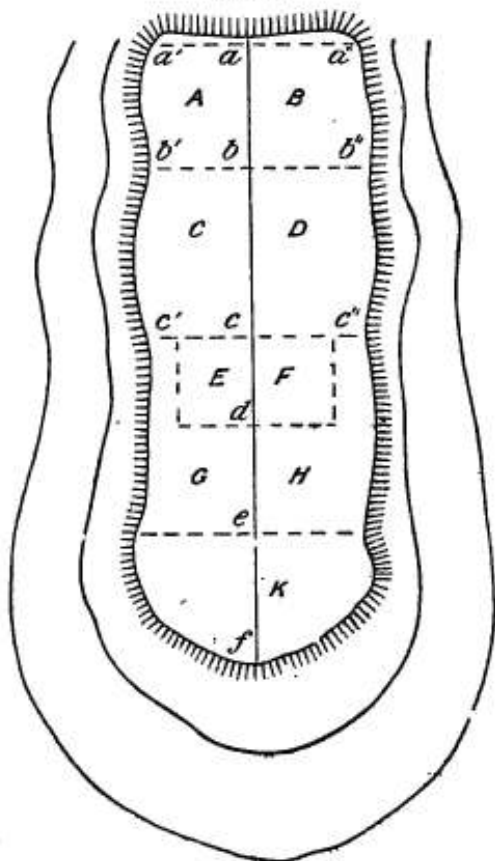
3. Cooking places and latrines for use by day should be outside the perimeter; those for use by night inside and within the camping grounds of units.

4. When a force leaves a camping ground which is to be occupied by another force, all available information regarding the camp should be sent to the incoming force.

5. It is of importance in fixing a camping ground to consider the exits for the next day's movement, and, if necessary, to have those improved.

6. The following is a rapid way of laying out a camp (Fig. 1):—Starting from "a" the staff officer paces along the line "a—f"

Fig. I.



taking as a rule some point in the far distance as his mark. The quartermaster of "A" Regiment is given his portion "a—b" and then strikes perpendiculars a—a', b—b' (say 100 yards long). The Quartermaster of "C" Regiment similarly marks his allotment b—b' to c—c'. On the other side of the central line the units B, D receive their allotments. The points a' b' c'..... being formed become the fronts of camps on one side and similarly a" b" c"..... become the fronts of camps on the other side, while a b c..... forms the rear and becomes the *main street* of the camp, a a', b b', c c'..... become minor streets giving access to the defensible perimeter. The distances a b, b c..... are not often constant as units change in strength and disposition, e.g., "K" Regiment may have an "end" shaped as shown, "H" Regiment may have to overlap the field hospital, "F" and "G" Regiments may have to overlap the Commissariat "E."

144. *The Advanced Guard.*

1. The duties of protection on the march will fall chiefly on the infantry, but it is generally advisable to have a small force of artillery with the advanced guard. It will usually be necessary for the advanced guard to piquet the heights, which command the line of march of the main body, with flanking parties detached to occupy and, if necessary, entrench themselves in favourable positions. Piquets should be as small as is compatible with the object for which they are detached; they usually vary in strength from 4 to 25 rifles.

2. In some cases a large portion of the whole fighting force of a column may have to be employed to piquet heights in this way. Supports should be left at suitable points to cover and regulate the withdrawal of the piquets. Piquets should always be in sight of the supports, or of the main column; when this is not possible, sentries should be posted to keep connection. As soon as the whole

column has passed, such piquets are withdrawn under the orders of the commander of the rear guard (Sec. 146). The strength of an advanced guard will therefore largely depend upon the numbers and nature of the heights which it may have to piquet.

3. In deciding on the distance between the advanced guard and the main body, the advanced guard commander should remember that the enemy is not as a rule provided with artillery and that the process of piqueting heights is slow. If many piquets will probably have to be posted, the advanced guard should start some time before the main body.

145. *Flank Guards.*

The flanks of a column are usually sufficiently guarded by piquets from the advanced guard, but under special circumstances it may be necessary to detail a special flank guard to occupy and entrench itself on a threatened flank. The flank guard will be withdrawn in the same way as are piquets from the advanced guard.

Ravines opening on to the line of advance should be watched especially at night.

146. *Rear Guards.*

1. The rear guard commander is responsible for relieving the outposts and also for withdrawing all flanking parties by whomsoever posted. Mountain artillery should usually form part of a rearguard, and machine guns may be usefully employed. The withdrawal of the artillery is usually an encouragement to the enemy to press on, and on such occasions machine guns will often find scope for action.

2. All retirements must be conducted by bodies of troops in succession. The rearmost troops must retire through the successive supporting-lines, the latter covering the withdrawal and

holding on to their position until their own retirement can be similarly covered by other troops in position in rear.

3. It is of the first importance that the main body should keep touch with, and regulate its pace by, the rear guard.

4. If the rear guard commander considers it impossible to reach camp before nightfall, it will generally be advisable for him to halt and bivouac for the night in the most favourable position for defence, informing the commander of the force of his action. The rear guard should halt in time to make the necessary dispositions for defence before dark.

5. In all movements involving subsequent retirements, such as reconnaissances, foraging, &c., no defile through which the troops will have to pass in returning, and no commanding point from which an enemy could harass the retirement, should be left unguarded.

6. A rear guard must be accompanied by a medical officer and a proportion of ambulance transport to deal with casualties among the baggage guards and followers during the day's march.

7. If the force has been equipped with mixed transport, *e.g.*, pack mules and camels, the superior mobility of the former may render it advisable to detail a special rear guard for the pack mules and a small advanced guard for the camels.

147. *Protection when at Rest.*

1. Against an uncivilized enemy who will generally be superior in numbers, mobility, and cunning, and thoroughly familiar with the country; who can see by night much further than a European; who moves silently, and who gives no quarter; reconnaissance or movement between piquets by night is seldom feasible, and only vigilance and resistance are demanded of the outposts. No commander of the outposts will therefore be appointed.

2. At the end of a march the staff officer deputed for the purpose will point out the ground selected for the camp or bivouac to the advanced guard commander. The latter will then put out piquets

for its temporary protection, pending the final arrangements of the commander of the force, to whom he will report his dispositions.

3. The system usually adopted both by day and night is that of establishing an outer and inner line of defence.

The outer line consists of strong self-contained piquets placed so as to deny to the enemy all ground from which he could fire into camp. If the enemy is armed with a long range rifle it may be necessary to deny to him the occupation of any commanding positions up to a distance of 2,000 yards. On the other hand the number of piquets may be much reduced if ground can be found for the camp the formation of which lends itself to the defilade of the interior, such as a hollow between undulations the crests of which are suitable for the perimeter, or a commanding bluff, along which the perimeter can run.

The piquets must be of sufficient strength to maintain themselves if attacked, be strongly posted in positions prepared for all round defence, and be protected against fire from the camp. Their position should be known to all units in camp and to each other, and they should be in signalling communication. In case of attack piquets must hold on to their positions, and on no account fall back on the camp.

A successful ambush has a very deterrent effect on snipers, who may be in the habit of firing into camp.

The inner line consists of a defensive perimeter, which must be clearly defined round the whole encampment by some obstacle, or breastwork, and which is manned by all troops not told off for other duties. Men should be told off in each unit to stand to all animals, and a general reserve should be detailed; special places should also be allotted to the followers in the camping grounds of units. All troops and followers should be assembled on their alarm posts daily.

4. By day strong patrols may be usefully employed to search the ground in the vicinity, but after dark no one should on any pretext go outside the perimeter unless specially ordered to do so, in which case the sentries should be previously warned.

When the force of combatants is insufficient to provide for an all-round defence (as in the case of convoys, standing camps, or posts on the line of communication), the perimeter must be defended by flanking fire, and must itself be made as formidable an obstacle as circumstances permit.

5. Firing by night should be discouraged unless the enemy shows signs of a determined attack, but star shell, rockets, &c., may be usefully employed for discovering the enemy. Fires may also be lighted outside the camp for this purpose, care being taken that they are so placed that the smoke is not blown towards the defenders.

BUSH FIGHTING.

149. *Characteristics of Bush Tribes.*

1. The fighting value of bush races may be roughly estimated by the methods they employ for protecting their villages, crops, and sacred places. The Asiatic depends more on his villages for protection, and accordingly makes them his chief point of defence and concentration. The African frequently leaves his villages unprotected but guards his crops, and still oftener selects the densest forest or bush near a main road or path as his fighting ground. In the thick bush of Somaliland and in parts of the Soudan the water supply alone indicates the possible fighting ground of the enemy. A knowledge of the characteristics of the enemy is therefore of great value in arranging a plan of action.

2. The Burmese and the races of our Indian North-Eastern Frontier build stout stockades and trust to these defences mainly; their attacks are more or less spasmodic and ill executed.

The Somalis and Soudanese fight frequently in thick bush, and their onslaught must be met with well disciplined troops. A considerable proportion of these races are usually armed with rifles.

Some West African tribes build very strong stockades, needing powerful mountain guns to destroy them. They seldom attack

except from ambush, but are most tenacious in holding their stockades.

It is by study of the many variations of bush warfare in different parts of the world that British officers, who are by nature endowed with jungle instincts beyond other European races, can ensure success. Their chief weapons must be common sense, energy, self-reliance and readiness to assume any and every rôle which the conditions of this service present.

149. *Composition of Columns.*

1. As a force operating in bush country will often have to move in single file, it is a sound principle not to employ larger columns than are absolutely necessary. At the same time every effort should be made, by carefully selecting routes and by a free use of axes, to move on a broader front. The more compact the force is the better, as a lengthy baggage column is a source of danger and causes fatigue and delay.

To avoid long columns, it is often necessary to move by more than one route. In such cases inter-communication is frequently impossible, and therefore if the enemy is likely to know how to take advantage of this dispersion, each column must be sufficiently strong to be self-contained. A knowledge of the enemy's tactics will be the best guide to the strength and composition of columns.

2. A punitive column generally consists of infantry, with a proportion of mountain guns. In countries where cavalry or mounted infantry can act, the presence of these is much dreaded by savages. Against an enemy who fights outside stockades, machine guns are very efficacious; and in any case against all uncivilized people a sudden burst of fire from these is often most paralyzing.

150. *Marches.*

1. In bush it is rarely possible to march before daylight, and it has been found in hot climates that distances can be covered with

the greatest ease to the troops by marching as soon as it is light and continuing up to midday with the usual short halts, and then halting for about three hours to enable the men to cook a meal and the animals to graze. The afternoon march should not be more than two to two and a-half hours' duration, so as to allow of an hour's daylight in which to form a zareba and to distribute rations and water.

2. In all bush countries camp should be reached in time to make defensive and other preparations for the night before darkness sets in. In tropical climates sanitary precautions are of the greatest importance and time should be allowed for these. Near the equator all days are practically the same length.

3. The distances which should divide the parts of a column cannot be fixed. It is important to keep as closed up as possible in dense bush, or the enemy may interpose between the various parts of the column. In less dense country the advanced guard may be from 100 yards or more to the front. Turns in a path are sometimes frequent and very erratic, and it is only by keeping well closed up that all parts of a column can maintain their cohesion and act more or less in concert.

4. When the nature of the bush admits and the enemy is likely to adopt offensive tactics, the best formation for the main body on the line of march is an elastic square.

Too much stress cannot be laid on the importance of taking the offensive in bush warfare. This can rarely be done if the transport is with the fighting troops at the moment of collision. Whenever possible a column should park and form a zareba round its transport before coming into action. Bold scouting and an intelligent use of friendly natives will usually afford the column sufficient warning to enable this to be done.

5. When it is necessary to march in file or single file halts should be frequent. During these the men composing various units or parts of the column should close up at once, and distances should then be corrected between units.

6. The guns should be near the head of the main body. The

baggage guard should be sufficient to hold its own in case of any temporary separation from the remainder of the force and should be under a specially appointed officer.

151. *The Advanced Guard.*

1. Against an enemy unprovided with artillery or modern rifles in any numbers, as is usually the case in bush warfare, the main body is able to march so close to the advanced guard as to be able to support it immediately. The advanced guard should be strong enough to brush aside minor opposition and to hold its own till supported. Whether the advance guard should move out to a distance from camp before the column leaves depends on the character of the enemy, but in any event the advanced guard must be ready for action while camp is being broken, and the whole circuit of the camp should be patrolled to give warning of any enemy collecting in its immediate neighbourhood (Sec. 153, 2).

2. Scouts precede the advanced guard, and even in the densest bush, should be not less than 80 yards on either side of the path, they should carry their rifles ready for immediate use. Close behind these come the point, the remainder of the van guard follows. The scouts and flankers will work in complete silence, using whistles if necessary as signals. None but well trained men can perform these duties, untrained ones will soon be lost in the bush. As soon as they observe anything suspicious they should remain perfectly still and call up their comrades by whistle. If the enemy is discovered and offers a good mark, rifle fire may be used. When a scout has fired he should at once report what he has fired at.

No villages, open spaces, streams, nullahs, or knolls should be crossed or approached before being thoroughly examined.

3. Where the country permits the route may be piqueted as described in Sec. 144. When such piquets are placed in jungle, all ranks should be informed of their exact position. To avoid accidents one or two men should be placed on a path opposite the spot and warn passing troops.

4. The advanced guard should see that all paths leading off the line of advance are carefully closed. This can be done by marking the wrong paths by cut branches, or by grass placed a little beyond the proper path to prevent them from being displaced; trees may be blazed; or where an important turning exists two men may be left on the path. After dark this latter is the only method, and if not adopted great confusion and delay may be caused in a column.

152. *Flankers.*

Every column in addition to its other precautions must have flankers at varying distances along its route to protect it from surprise.

Savages who adopt offensive tactics usually make the baggage their objective; partly in the hope of loot but also because they know that this is, as it were, the defensive as opposed to the offensive portion of the force.

If attacked on a flank, the advanced guard should halt and throw out extra flankers or piquets. Mountain guns should be prepared for action. If firing continues for long a portion of the main body may be sent back to assist in repelling the attack.

153. *The Rear Guard.*

1. The rear guard must be strong enough to act independently or to assist the baggage guard at any time. Many savage races make a point of attacking the rear guard, thinking themselves safe from attack in so doing. In such cases ambuscades, if successfully planned, will often so disconcert the enemy as to stop all further attempts for the time being.

2. Just before daylight the rear guard for the day will relieve the outposts. Piquets and sentries round camp should be doubled and not withdrawn till the camp is clear; the commander of the

rear guard will then inform the commander of the force that all is ready for the advance.

The covering of the movement out of camp is one of the most important duties of the rear guard.

154. *Protection when at Rest.*

1. In bush warfare it is necessary to adopt special systems of outposts, which will vary according to the nature of the country and the enemy. The degree of security will depend more on the common sense employed in improvising it than on any rules. Savages see further by night, are endowed with cunning, and are generally superior in numbers; they move silently and know the bush. Against them, therefore, vigilance by night is of the greatest importance.

2. Camps should be formed on the perimeter system; well guarded by obstacles, for which barbed wire is of value in easy soil; trenches will be useful. Much clearing has generally to be done, and may conveniently be commenced by several parties working outwards from the centre of the camping ground. A second series of parties follows the first, to collect the material and form it into abattis. Sufficient branches for hutting should be left. Large trees should not be cut down, as while standing they take up little room, and if felled require much labour and time to remove.

Protection must be provided for the working parties.

At sunset all paths in the vicinity of camp should be blocked by obstacles, which should be removed next morning. One or two single strands of wire run round the camp through the brushwood and firmly fixed about two feet from the ground, will usually stop a savage rush.

3. The troops should be placed on the perimeter. All shelters should open outwards. Piquets will be told off at special points on the perimeter. Camp followers should be thoroughly drilled in what they have to do in case of attack. A clear space should be

left immediately behind the firing lines all round the perimeter, to facilitate communication and control in the event of attack.

4. Patrols should search the surrounding ground by day. Paths should be constructed between all units, and the better and neater they are, the easier will it be to avoid all confusion in case of alarm.

By day, piquets should be posted some way out, watching paths, open clearings and nullahs leading to camp; these should be withdrawn at night. If for any special reason a piquet is left out at night it should be made safe from fire from the camp, and also from surprise. In no case should it fall back on camp during an attack. It can sometimes be arranged for native scouts to remain out all night in small groups, at a sufficient distance from the camp to give timely warning of an enemy's approach. Such scouts should make a prearranged signal when returning to camp with information, and all sentries should know the signal agreed upon. The natives employed on such duties are the best judges as to when and where they are feasible.

5. The guns should always be ready to use star shell and case, and must be prepared to move at once to any part of the perimeter. Machine guns should be placed so as to enfilade the front. Star shell are the dread of savages, and if supplemented by some form of small portable searchlight will generally stop all attempts at night attacks.

15b. *Precautions in Camp and Bivouac.*

1. It is advisable to place troops in camp on the same system daily, the advanced guard always forming the front face and the rear guard the rear face; men and followers soon learn to move into their proper places immediately they reach the bivouac.

2. The smoke from fires is often most trying in close bivouac; fires should be limited to absolute requirements and placed as far as possible to leeward. In countries where there is thorn bush or long grass, it is of great importance to guard against fire during

the dry season. No fires are to be lighted save on properly cleared spaces set apart for the purpose.

3. The baggage should be so arranged as to avoid confusion in loading at dawn. Baggage guards should be distributed before a start is made. Where animals are used as transport it is necessary to form a zereba round them not only as a precaution against the enemy but to prevent them being stampeded or straying.

4. The position of night latrines must be arranged in accordance with the requirements of the tactical situation, but whenever possible they should be outside the perimeter, under charge of sentries. Day latrines must be further away but within the line of piquets.

156. *Convoy Camps.*

1. With a view to utilizing wagons or the loads of pack animals as a means of defence, convoy camps are sometimes advantageous in warfare against savages.

2. Other considerations being favourable, the best formation for a convoy camp is that of a square, the wagons being arranged axle to axle as closely as possible. Except on the rear face, poles and shafts should face outwards, to facilitate driving off next morning. If, however, the wagons thus arranged do not afford a sufficient area for the animals, they may be placed end on, the poles or shafts of each being secured under the bow of the one in its front. In either case, openings must be left on each face by drawing forward or backward one or more wagons, which, in case of attack, can at once be run into place. If rapidity of forming the camp is an object, the wagons may be drawn up in either a triangular or a diamond form.

3. Where the site is favourable and the convoy and escort large, two convoy camps may be formed, care being taken to avoid risk of their firing into each other in the event of a night attack. When the escort is small and the convoy large, a cattle camp may be formed with two small camps at opposite corners of the cattle camp for the escort.

4. With pack transport the loads of animals may be used to form a defensive perimeter on the same principles, being supplemented by abattis, sangars, or trenches.

157. CONVOYS.

1. The senior combatant officer with a convoy will command both the transport and its escort. He will consult the senior transport officer on all matters which affect the welfare and convenience of the transport, will avoid all interference with his technical functions, and will give effect to his wishes unless, by so doing, the safety of the convoy would be endangered.

2. Convoys may be worked on any of the three following systems:—

- i. Through convoys.
- ii. Staging system.
- iii. Meeting system.

The through convoy system consists in the same animals and vehicles being employed from the start of the convoy until its arrival at its destination.

The staging system consists in the division of the road into stages, the same section of the transport working over the same ground, proceeding laden and returning empty.

The meeting system is that by which two sections, one laden and the other unladen, meet daily at a fixed point between two stages, when loads are transferred or vehicles exchanged, each section returning to its respective stage.

The through convoy system is generally adopted in front of the advanced dépôt, and the staging or meeting systems on the lines of communications.

3. The success of an attack upon a convoy usually depends upon the desert of the protecting troops. This will involve a combat, which will be governed by the principles already laid down in this manual.

4. If convoys move frequently along a line of communication, the route should be piqueted daily by troops sent out from the posts on the line.

Should it be necessary to send a convoy along a route which cannot be protected in this way, and is liable to attack, a special escort must be provided. In civilized warfare the escort should not be distributed along the convoy, but after small advanced and rear guards have been provided for the latter and sufficient men have been posted along it to ensure order and easy communication, the main portion of the escort should move with the usual precautions and in a handy formation on that flank of the convoy from which attack is anticipated.

5. The special business of the commander of a convoy is to conduct the convoy safely to its destination. Secrecy is most important. Under no circumstances should anything be done to provoke an attack. If fighting is inevitable, the enemy should be engaged as far from the convoy as possible.

6. Early information about the enemy and the roads ahead is essential, and the escort should be strong in mounted men or cyclists. Secrecy in movement being important, the escort and its scouts should be specially warned to avoid attracting the enemy's attention. If the enemy is near, silence should be enforced in the convoy itself.

7. If attacked, a convoy should not be halted and parked except as a last resource.

8. If the attitude of the drivers is doubtful, adequate police measures must be taken to prevent their deserting in the event of an attack.

9. Should the whole or part of a convoy be in danger of falling into the enemy's hands, it should be either destroyed or rendered unserviceable. The transport animals should at least be either carried off or killed.

*For transport information see para 33
page 43*

CHAPTER XI.

AMMUNITION SUPPLY.

158. *General Principles.*

1. The administrative services deliver ammunition at certain points beyond the advanced base called refilling points, where it is taken over by the fighting troops.

2. The reserves of ammunition with the fighting troops are divided into three lines, viz. :—

- (a) Divisional ammunition column reserves.
- (b) Artillery brigade ammunition column reserves.
- (c) Regimental reserves.

Commanders of divisional ammunition columns demand the ammunition required to replenish their columns direct from the nearest ordnance depôts. The ammunition is then sent to the refilling points, the position of which, usually one day's march in rear of the main bodies, is fixed by army headquarters and notified, as directed in Sec. 12, 7, to all concerned. The headquarters of divisional ammunition columns will usually be at refilling points, whence sections will be sent forward to get in touch with artillery brigade ammunition columns.

3. Indents on an ammunition column are unnecessary. Receipts will be prepared by the officer handing over the ammunition for the number of full wagons or carts issued from the column, and

will be signed by the officer receiving them ; no other vouchers are required. Officers receiving ammunition and stores from a column should see that they are what they require.

The account of rounds fired by any unit during an action is not the affair of the brigade ammunition column commander. Such accounts must be kept under the orders of the commander of the unit.

The supply from ammunition columns is not necessarily restricted to troops of their own division or brigade, &c. ; any troops are to receive ammunition on demand, during an action, from any column which may be at hand.

159. *Divisional Ammunition Columns.*

A divisional ammunition column forms part of the divisional artillery ; it consists of four sections. The first three sections carry small-arm and 18-pr. ammunition to replenish the three field artillery brigade ammunition columns of the division. The fourth section carries a reserve for the howitzer brigade, and heavy battery ammunition columns, in addition to a proportion of small-arm and 13-pr. ammunition for the horse artillery and mounted brigade ammunition columns. Thus, one-sixth of the third reserve of ammunition for the cavalry division and the mounted brigades is carried in each divisional ammunition column. Horse artillery or mounted brigades are not restricted to any particular divisional ammunition column, but fill up from the nearest.

During an action sections of the divisional ammunition columns will be sent on to form reserves at convenient points off the road. The position of these points will be fixed by divisional commanders, if necessary under instructions from army head-quarters ; they will normally be from one to two miles in rear of the brigade ammunition columns but this will depend on the conditions under which battle has been accepted. Commanders in making their plans for battle must keep in view the importance of having the communications immediately in rear of the fighting troops clear of

vehicles, and of having ammunition when and where it is required. The officer in charge of the sections sent forward will at once notify his arrival and position to the divisional artillery commander and to the brigade ammunition-column commanders.

Ammunition is sent forward to the brigade ammunition columns in the vehicles belonging to the divisional columns. Empty vehicles are sent back to the refilling points.

180. *Brigade Ammunition Columns.*

1. Brigade ammunition columns form part of an artillery brigade.

A field artillery brigade ammunition column normally provides ammunition for the batteries of its own brigade, for one of the infantry brigades of the division, and for a proportion of the divisional troops.

A horse artillery brigade ammunition column provides ammunition for the batteries of its own artillery brigade, for two brigades of cavalry and for a proportion of the cavalry divisional troops. This column is divisible into two equal sections, each carrying ammunition for a cavalry brigade and one battery, to meet occasions when it becomes necessary to split the cavalry division temporarily into self-contained cavalry brigades.

A mounted brigade ammunition column provides ammunition for the units of a mounted brigade.

The ammunition columns of howitzer brigades and heavy batteries, provide ammunition for their batteries only, and carry no small-arm ammunition.

2. The position of brigade ammunition columns during a battle will normally be regulated by artillery and mounted brigade commanders in accordance with the plans of army and divisional commanders respectively. Occasionally, when there are special reasons for keeping the communications in rear of the fighting troops clear of vehicles, it may be necessary for the higher commanders (army and divisional) to issue special orders as to the position of these columns.

3. On arriving at the position allotted him, a brigade ammunition column commander will at once place himself in communication with the units he has to supply. He will provide the commander of infantry brigade ammunition reserves and each of the commanders of battery wagon lines with an orderly, who is to be used only in connection with ammunition supply to enable those commanders to notify their requirements to him.

4. If troops are scattered, brigade ammunition columns may be distributed into two or more sections in order to bring the reserves of ammunition nearer to the troops engaged. Commanders of sections will then deal direct with commanders of battery wagon lines or of infantry brigade reserves, reporting issues of ammunition to the brigade ammunition column commander.

5. On receipt of a message that ammunition is wanted, the brigade ammunition column commander sends forward under an officer the number of wagons or carts demanded. The latter, guided by the orderly who has brought the message, leads the wagons or carts to the battery wagon line or infantry brigade ammunition reserve, as the case may be. The ammunition is then transferred from the full to the empty vehicles, and the former, when emptied, return to the brigade ammunition column and are refilled from the general service wagons. When the position of the wagon line or infantry brigade ammunition reserve is much exposed it is advisable to withdraw the empty vehicles to some covered position in the vicinity, and there effect the transfer of ammunition; or the horses may be unhooked from the empty wagons or carts and hooked into the full ones, the ammunition column horses taking the empty wagon or carts to the rear; but in the case of artillery wagons, on which men's cloaks, &c., are carried, it will be necessary to transfer these articles from one set of wagons to the other, otherwise there is a risk, in the event of an advance, that they will not be at hand when required.

INDEX.

A.

	PAGE
Accommodation in billets	63
Action, cavalry, effect of, on dispositions of an army approaching an enemy	103
" defensive, of protective cavalry	77
" delaying, definition of	109
" deployment for	110
" dismounted, cavalry	12
" of a rear guard to a retreating force	83
" offensive of protective cavalry	77
" on gaining contact with the enemy	109
" " the capture of a work	149
" readiness for, of a force advancing	39
" " of outposts	95
" the delaying, principles of	134
Adjutant of the day in quarters	62
Adjutant-General's staff, detailing of orderlies by	34
Administrative areas in quarters	60
" services, issue of operation orders to	25
Admiralty, responsibility of, for sea transport	54
Advance, by night, use of	161
" enemy's, expedients for delaying the	84
" " use of obstacles to delay the	85
" night, orders for	168

	PAGE
Advance, night, precautions to be observed during a	167
" " preliminary reconnaissance necessary for	164
" " when made during a battle	162
" of an army, method of	103
" " the firing line, the	116
" to the battlefield, the	103
Advanced guard artillery, position of	80
" " commander, duties of, when enemy is met	80
" " " instructions to the	79
" " " responsibility of, for maintenance of connection	81
" " " to be informed if a decisive engagement is to be avoided	80
" " composition of, on a night march	159
" " distance of, from main body in mountain warfare	177
" " duties of, in bush warfare	183
" " " " mountain warfare	176
" " " " retreat	81
" " forming new, on change of direction	82
" " mounted troops to keep in touch with protective cavalry and other columns	81
" " orders to the	79
" " position of, in camp (bush warfare)	186
" " " to a force advancing	79
" " single for several columns, when desirable	78
" " strategic	38, 78
" " strength and composition of an	78
" " tactical, the	78
" " time of starting	79
" " to support the mounted troops	80
" " " protective cavalry	101
" " position, protective cavalry to seize	77
" " posts, value of, in the defence	125
Air-line companies, allotment of	16
Alarm posts in quarters	69
" " units to be halted on	61
" signal in billets	60

	PAGE
Alarm, sounding of, in quarters	62
Alarms, electric, use of, in siege operations	142
Allotment of billets	63
Allowance of cooking and drinking water	70
Ambulances, field, composition of	44
" " position of, on the march	44
" organization of, in fortresses	152
Ambuscades, use of, by rear guard (bush warfare)	184
Ambushes to delay the enemy's advance	85
" use of, in mountain warfare	179
Ammunition, delivery of, by administrative services	190
" expenditure of, by quick-firing guns, necessitates control	13
" " by rapid fire of infantry and machine guns necessitates control	17
" " account to be rendered by units if required	191
" indents for, unnecessary	190
" method of conveying from the divisional to the brigade ammunition columns	192
" officers receiving, to ascertain if correct	191
" on board ship	56
" procedure on receipt of a message that it is required	193
" receipts for	190
" reserve, amount carried by divisional ammunition columns	191
" reserves of	190
" " during an action, position of	191
" supply of, general principles	190
" " to horse artillery and mounted troops	191
" " from brigade ammunition columns	192
" to be supplied to any unit during an action	191
" transport of, responsibility of artillery for	15
Ammunition columns, artillery brigade, position of, on the march	44
" " " " in battle	192
" " brigade	192
" " distribution of, in sections	193

	PAGE
Ammunition columns, divisional, in battle	192
" " " on the march	46
" " " organization of	191
" " mounted brigade in battle	192
" " " on the march	44
" wagon, position of	193
Animals, dead, disposal of, in camp	73
" pack, on the march	48
" precautions to be taken to prevent stampeding of (bush warfare)	187
" spare, with transport	49
" watering of, in camp	69
Application of general principles and rules	11
Areas, billeting, capacity of	63
Arms, all, necessity for forces to be composed of	12
" care of, in billets	65
" necessity for co-operation of all	12
" various, characteristics of the	12
Armoured trains, employment of	51
Army approaching the enemy, effect of cavalry action on its dispositions	109
" definition of an	46
" method of advance of an	109
" orderlies	34
Army Book 153, use of	21
" Form C 398, use of	21
" " C 2121, use of	30
Arrangements for camps or bivouacs	68
" watering, in camp	69
Arrivals and departures, report of, at rest camp	74
Artillery, action of, in the pursuit	132
" " with rear guard	83
" ammunition supply	131
" brigade ammunition columns on the march	44
" characteristics of	13
" combination of different kinds of	13
" commanders, reconnaissance by	103
" " to keep in touch with their infantry	115, 119

	PAGE
Artillery, dispersion of	13
" distribution of, for the attack	114
" divisional, position of, on the march	44
" " commanders of, included in expression " subordinate commanders"	28
" effect of smokeless powder on action of...	13
" employment of, in night attacks...	165
" escorts for	115
" field, characteristics of	14
" " with the vanguard	79
" fire, concentration of	13
" " during the assault	119
" " use of, in the assault in siege operations	148
" garrison, companies allotment of	15
" halting on pontoon bridges	48
" heavy, characteristics of	14
" " position of, in a fortress	137
" horse, characteristics of	13
" in the defence in night operations	169
" " " " use of searchlights with the	170
" " " of a permanent fortress	151
" " " to occupy direct fire positions in the final stages of the battle	128
" mountain, characteristics of	14
" " with the rear guard	177
" only as much as is necessary to be employed in the opening stages of the battle	115
" position of, in the defence	122
" " on a night march	160
" " with advanced guard	80
" principle of employment in the battle of	118
" proportion of, in a regular siege	144
" protection of, during the attack	115
" quick-firing	13, 115
" responsibility of, for transport of ammunition	15
" siege, addition of units of, to a besieging force...	144
" " allotment of	15

Assaulting parties in siege operations, size of	148
Attack, action of the general reserve in the	117
" active, of a fortress, definition of	137
" artillery to be entrenched in the	117
" co-operation between the artillery and infantry in the	115
" counter-attack by the enemy during the	119
" decisive, the	117
" " artillery with general reserve in the	123
" " objective of the	112
" " principles affecting the selection of the objective in the	118
" definition of	109
" direct, of a fortress, when attempted	143
" entrenching by infantry during the, when employed	117
" fire fight in the	116
" front of, considerations affecting the choice of in siege operations	145
" " in siege operations, definition of	145
" general conduct of the	115
" " principles of the	112
" night, immediate objective of a	159
" " orders for	168
" " preliminary measures necessary for a	164
" " when delivered	159
" " undertaken	163
" of fortresses, general principles of the	137
" " the active	143
" " " direct	143
" on sap heads, when delivered by infantry	155
" preliminary measures for the	112
" principles to be observed in framing orders for the	113
" protection of the artillery during the	115
" superiority of fire the first object of the	115
" upon a convoy	189
" value of machine guns in the	117
" zone of, in siege operations, definition of	145
Attacking force, normal distribution of an	114
Authorities, local, duties of in billets	69

B.

	PAGE
Badge, distinguishing, to be worn by the commander and staff in night operations	165
" to be worn by railway control officers	50
Baggage, arrangement of (bush warfare)	187
Balloon, captive, the	34
" companies, allotment of	16
" position of, on the march	44
" reconnaissance	103
" " in the attack of fortresses	130
" " radius of action	104
Balloons signal, use of	34
Banks, river, method of, describing in orders	20
Barrier forts	136
Base of operations for an expeditionary force	37
Battle, cavalry action at the crisis of the	118
" considerations which influence a commander in offering	167
" decisive success in, how obtained	107
" distribution of the cavalry at the beginning of a	114
" employment of artillery in the early stages of a	115
" encounter, action should the enemy succeed in deploying first	131
" " duty of commanders in the	131
" " duties of protective troops in the	130
" " general principles of the	129
" " issue of orders in	130
" general conduct of the	126
" night advance during a, when made	162
" night preparations for renewal of the	123
" principle of the employment of the artillery in the	118
" reconnaissance during	105
" the	107
" " defensive in, general considerations	108
" " offensive in, general considerations	108
" use of darkness to prepare for renewal of the	120

	PAGE
Battlefield, the advance to the	109
Bayonet, use of, in night attacks	167
Bearer division of a field ambulance	44
Bearings, compass, in orders, &c.	20
" " in night operations	161
Beaten zone of shrapnel	14
Billets, allotment of	63
" cleaning of	66
" close	66
" general principles of	63
" " rules in	65
" near line of march to be used	63
" sanitation in	66
" units to be kept together in	63
Billeting areas, capacity of	63
" concentration of marching column at end of march not necessary for	59
" parties	63
" " to examine water supply	66
Bivouacs, general principles for	67
" " rules in	73
" in mountain warfare, general rules for	174
" sanitation in	71
Block letters, use of	19
Bombardment, governor of a place to be called upon to surrender before	144
" moral effect of, on civil inhabitants	144
" of a fortress	143
Breakfast, preliminary arrangements for, on the march	59
Bridge, pontoon, halting of artillery on	48
Bridges, destruction of by defenders of a fortress	154
" " " rear guard	82
" military, crossing of	49
Bridging trains, allotment of.... ..	16
" units, position of, on the march	44
Brigade ammunition columns, artillery, position of, in battle	102
" " " " " on the march	44
" area in quarters	60

	PAGE
Camp, sanitation in	71
" watering arrangements in	69
Camps and bivouacs, general principles for	67
" general rules in	72
" in mountain warfare, general rules for	174
" protection of, in bush warfare	185
" rest	73
" size of	72
" standing, general rules in	72
" " tents to be struck in	72
Campaigns against savages, how conducted	171
Captive balloon, the	34
Cattle camp, when formed	187
" lines in camp	71
" " to be cleaned regularly	73
Cavalry action during the decisive counter-attack	129
" " effect of, on the dispositions of an army approach- ing the enemy	109
" " in screening defensive positions	122
" " of in the defence	126
" " " retreat	133
" " with the rear guard	83
" ammunition supply	192
" and other mounted troops, characteristics of	12
" dismounted action of	12
" distribution of, at the beginning of the battle	114
" duties of, with regard to obtaining information	98
" field ambulance, description of	44
" in the reconnaissance of a fortress	139
" independent, co-operation of, with protective cavalry	101
" " definition of	76
" " instructions to commander of the	100
" " transmission of information from the	106
" in the pursuit	132
" march formations	41
" outposts, employment of, in the attack of a fortress	141
" pace of, on the march	42
" position of, in quarters	58

	PAGE
Cavalry, preparatory action of, with defensive force	121
" proportion of, in a regular siege	144
" protective, the	75, 77
" advanced guard to support	101
" billeting parties to move with	64
" duties of, in the tactical reconnaissance	101
" functions of...	77
" general duties of	77
" to seize advanced positions	77
" reconnaissance in enclosed country	100
" space occupied on the march by	42
" the divisional	77
" the independent	76, 99
" with the general reserve in the defence	123
" rear guard	82
Challenging by sentries	92
Channel, usual, for orders, when departed from	28
Characteristics of artillery	13
" cavalry	12
" cyclists	13
" engineers	15
" engineer field companies	15
" field artillery	15
" heavy artillery	14
" horse artillery	13
" howitzers	14
" infantry	16
" machine guns	17
" mountain artillery	14
" mounted infantry	12
" the various arms	11
Cheeking of orders reports and messages	20
Civilians in a fortress, organization of	151
" inhabitants in billets, treatment of	65
" undesirable, expulsion of, from a fortress	151
Classification of orders	22
Cleaning of billets	66

	P.-GS
Close billets	66
" ranges, definition of	14
Coast defences	136
Columns, length of, data for ascertaining	42
" punitive, composition of	181
Columns, artillery brigade ammunition, position of, in battle	102
" " " " " " " on the march	44
" assaulting in siege operations assembly of	147
" " " " " " to be composed of com- plete units	149
" " use of sandbags by	150
" divisional ammunition, position of, in battle	102
" " " " " " " on the march	46
" " " " " " organization of	101
" supply and baggage in savage warfare	172
" transport and supply, on the march	45
Combination of different kinds of artillery	13
Command of second line transport	45
Commander, brigade ammunition column, duties of, regarding communication	193
Commander-in-chief, headquarters of the	46
" " means of communication of, with subor- dinates	16
Commander of a brigade area in quarters, duties of	60
" " a convoy, duties of	189
" " a detachment to be named in orders	26
" " a permanent fortress	150
" " a troop train	51
" " an advanced guard, instructions to	79
" " " " " responsibility of for the pro- tection of the main body	79
" " detachment, responsibility of, for maintenance of connection	75
" " " " " to keep his command ready for action	75
" " divisional artillery included in subordinate com- manders	28
" " " " " to take part in tactical recon- naissance	193

	PAGE
Commander of divisional engineers included in subordinate commanders	28
" " general reserve to be named	124
" " outpost company, conversation of, with persons presenting themselves at outposts	94
" " " " outpost company, duties of	91
" " " " to detail detached posts to deal with traffic through the outposts	94
" " protecting detachment to gain time for force protected	75
" " rear guard to report arrival in camp	68
" " second line transport to report arrival in camp	68
" " the independent cavalry, instructions to	100
" " " " outposts, how appointed	89
" " " " issue of instructions to the	89
" " " " not required in mountain warfare	178
" " " " responsibility of, for communication	95
" " rear guard	82
" " transport and supply columns to report arrival in camp	68
" " position of, during an engagement	114
" " " " on a night march	160
" " responsibility of, for protection	75
" " to appoint a representative in his absence	18
" " to arrange for receipt of reports in his absence	115
Commanders, duty of, in the encounter battle	131
" " of assaulting columns, points to be dealt with in orders of	149
" " " " columns, position of, prior to encountering the enemy	110
" " " " piquets to see that sentries are alert	95
" " " " reserves to keep watch on the progress of the engagement	123
" " " " sections of an investing line, appointment of	140
" " " " " duties of	141
" " " " " outpost line, appointment of	88
" " responsibility of, with regard to reconnaissance in night operations	157

	PAGE
Commanders, subordinate, definition of	28
" " framing of orders by	26
" to arrange for supplies of ammunition in rear of the fighting troops	191
" " report arrival in quarters	61
Communication between brigade ammunition columns and units	193
" " infantry and artillery in the attack	115, 119
" " columns in the night advance	167
" " parts of an outpost position	95
" general principles of	18
" importance of maintaining in night operations	156
" in the field, system of maintaining	31
" lateral, to be maintained during the night advance	167
" means of	31
" responsibility for maintenance of	18
Communications, covered, for supports	123
" in the attack of fortresses	140
Communicating trenches	126
Companies, field, of engineers, characteristics of	15
" " " position on the march	44
" " " to be attached to local reserves in attack	117
" " " to strengthen captured positions	120
Company, officer to march in rear of each	40
" officers to repeat instructions before night operations	167
Companies, fortress, allotment of	16
" outpost	88 <i>et seq.</i>
Compass bearings in orders, &c.	20
" direction, mention of, in operation orders for night operations	157
Compass, use of, during night marches	161
" prismatic description of	161
Compliments on outposts	86
" the march	40
Composition of advanced guard	78
" the outposts	88
Concealment, importance of, in defence	122

	PAGE
Copies of orders to be kept	21
" signal messages	33
" superior's orders, distribution of	27
Cossack posts	93
Counter-approaches in the defence of a fortress, use of	155
Counter-attack, artillery support in the	129
" by the enemy during the attack	119
" decisive, cavalry action during the	129
" " direction of the	128
" " how carried out	128
" " orders for the	129
" " when delivered	128
" most suitable ground for the	122
Counter-attacks in the defence of a fortress, employment of	155
" local use of, in the defence	127
" preparation for, in mountain warfare	174
Counter-mine galleries in the defence of a fortress, use of	155
Country, enclosed, protection of flanks on a night march in	150
" " reconnaissance by cavalry in	100
" open, guiding columns by night in	161
Countries, uncivilized, general principles of warfare in	171
Cover for supports	126
Covered communications, importance of, in the defence	122
Covering force, employment of	134
" " for strategical concentration	38
Crossing bridges, fords &c.	48
" prevention of, by troops moving from camp	69
Cyclists, as reconnoitring patrols, use of	96
" characteristics of	13
" use of, as escort for convoys	180

D.

Daily duties in quarters	61
Darkness, use of, to prepare for renewal of the battle	120
Dead animals, disposal of, in camp	68
Decisive attack, method of carrying out, in battle	117 <i>et seq.</i>

	PAGE
Decisive attack, strength of force allotted to	114
Defence, all important tactical points gained to be put in a state of	116
" choie of main line of, in the defence of a permanent fortress	150
" definition of	109
" distribution of troops in the	122
" frontage in the, factors affecting	124
" general principles of the	120
" importance of concealment in	122
" " covered communications in the	122
" " field of fire in the	122
" influence of ground in the	122
" in night operations, general principles of the	169
" machine guns in the	127
" of a fortress, distribution of the garrison in	153
" " general principles of the	153
" " " " organization of the	150
" of railways, the	53
" position of artillery in the	122
" " supports in the	123
" preliminary measures for the	121
" scheme of, for a permanent fortress, when prepared	150
" schemes of, to be prepared by the general staff	152
" value of advanced posts in the	125
Defences, coast	136
" " co-operation of the Royal Navy required in the investment of	140
" land, general description of	136
" " object of	138
" permanent	136
" provisional	136
" used by bush races	180
Defender, difficulty of assumption of the offensive by a	108
Defensive action of protective cavalry	77
" deployment of a force on the	121
" in battle, general considerations of the	108
" position, cavalry action in screening the	122

	PAGE
Defensive position, occupation of, by rear guard	83
" " points to be noted	105
" " principles of the use of a	108
Definition of army	46
" " " attack " and " defence "	109
" " " delaying action "	100
" " first and second line transport	26
" " independent cavalry	76
" " masking, investing, and actively attacking a fortress	137
" " ranges	14
" " " signal "	31
" " subordinate commanders	28
Delaying action, definition of	109
" " principles of the	134
Departments, issue of operation orders to	29
Departure from orders, when justified	23
Departures and arrivals, report of, at rest camps	74
Deployment, concealment of the	111
" " in the direct attack of a fortress	143
" " of force on the defensive	121
" " position of, in night attacks and night advances	164
" " for attack, principles of	111
" " " when necessary	110
Deploying, formation before	110
Depôts, position of, in quarters	58
Deserters, reception of, by outposts....	94
" " information from	98
Destination in night operations, recognition of ..	157
Destruction of bridges, railways, &c., by a rear guard ...	82
Detached post to deal with outpost traffic	94
" " posts	93
Detachment, commander of, to be named in orders	26
" " protecting to gain time for force protected	75
" " readiness for action of a'	75
Details on the march	49
Detailing outpost troops	77
Detraining, general rules for	32

	PAGE
Difficulties of reconnaissance.....	103
Direct attack of a fortress, deployment in the	143
Discipline, breaches of, by signal operators	33
" in quarters	61
" importance of, in war	11
" march, meaning of	40
Disembarkation at a friendly port, how carried out	56
" choice of, point of	37
Disinfectants, use of	71
Dismounted action of cavalry	12
" units, position of, in quarters	58
Dispersion of artillery....	13
Distance between advanced guard and main body	79
" loss of, on the march	43
" of advanced guard from main body in mountain warfare	177
" of outposts from main body	87
" of rear guard from main body	84
Distances in bush warfare	182
" " light marches, preservation of, by means of knotted ropes	161
" on the march	41
Distant ranges, definition of	14
Distinguishing flags and lamps	58
Distribution of copies of superior's orders	26
" outposts	89
" troops in a regular siege	144
" " defence of a fortress	153
" " the defence	122
" " " attack	113
" " quarters, general rules for	58
" " night marches	160
" " night advances and night attacks	165
Divisional artillery, position of, on the march	44
" " commanders included in subordinate commands	28
" " " to take part in tactical reconnaissance	103

	PAGE
Divisional ammunition columns on the march	46
" " " duties of	191
" transport and supply parks on the march	46
" cavalry, embarkation of the	38
" " duties of	77
" " with outposts	88
" engineers, commander of, included in subordinate commanders	28
" troops, position of, on the march	44
" " in quarters	60
Division, cavalry, wireless telegraph company with	16
" tactical advanced guard of a	78
" outposts of a	88
Divisions as part of a strategic advanced guard	78
" bearer and tent, of a field ambulance	44
" distance between on the march	41
" method of billeting	63
" not to be broken up	39
Documents, captured, disposal of	98
Double sentries	92
" " in siege warfare	142
Drains, surface, in camp	72
Drinking water, allowance of	70
" " care of, in camp	69
" " " in billets	66
" " " general rules for, in quarters	59
Driving in camp	73
Dusty weather, march formations in	41
Duties, daily, in quarters	61
" of an advanced guard	80
" " commander of a brigade area	60
" " " troop train	51
" " technical branches in siege operations	146
" on board ship	66

E.

	PAGE
Effect of fire, influence of ground on the	122
Effective ranges, definition of	14
Embarkations	37, 55
Employment of machine guns, general principles	17
Empty ammunition vehicles, disposal of	192
Enclosed country, outpost in	87
" " strategical reconnaissance in	100
Enemy, action on gaining contact with the....	109
" savage, characteristics of, to be studied	172
" to be kept in touch	99
Enemy's advance, expedients for delaying the	84
" " use of ambushes in delaying the	85
" flanks, method of enveloping the	111
Engaging an enemy during advance against a fortress	140
Engineer Field companies, characteristics of	16
" " " position of, on the march	44
" " " to strengthen captured positions	120
" " " to be attached to local reserves in attack	117
" troops, characteristics of	16
" officer to assist in selecting water supply....	47, 67
Engineers, characteristics of	15
" proportion of, in a regular siege	144
" position of, in the assault of a fortress....	143
" to mark water supply in camps....	69
" telegraph companies of, functions of	16
" in night operations	105
" divisional, position of, on the march	44
" " commander of, included in subordinate commanders	28
" with the advanced guard	79
" " " " in night operations....	100
" " " " retreat	81
" " " rearguard	82

	PAGE
Engineers, with the vanguard	79
Entraining, general rules for	52
Entrenching by infantry during the attack, when employed	117
" general principles of	125
Envelope, field message	21
Envelopment, moral effect of	112
Escorts for artillery	115
" convoys	188
Expedients for delaying an enemy's advance	84
Expedition, oversea, conditions affecting	54
Explanations of orders to be given rarely	22
Explosives on board ship	56
" use of, by the defenders of a fortress	155

F

Feeding and watering of cossack posts	93
Field ambulance, composition of a	44
" ambulances, position of, on the march	44
" artillery, characteristics of	14
" " with the vanguard	79
" companies, characteristics of	15
" " to be attached to local reserves in attack	117
" " position of, on the march	44
" " to strengthen captured positions	120
" message book, use of	21
" messages, general rules for framing	19
" officer of the day in quarters	62
" of fire, importance of, to the defence	122
" troops, engineer, characteristics of	15
Filters, use of	59
Fire, concentration of artillery	13
" control, importance of	17
" covering, in the assault in siege operations	148
" field of, to be improved	125
" flight, the, in the attack	116

	PAGE
Fire, fight, the, in the defence	127
„ flanking, use of, in mountain warfare	180
„ positions in the defence	127
„ „ „ attack, improvement of	117
„ precautions against, in billets	65
„ „ „ railway trains	53
„ „ „ camps	72
„ „ „ „ in bush warfare	186
„ „ „ „ fortresses	152
„ rapid, use of, by quick-firing guns	115
„ „ „ infantry	17
„ „ „ machine guns	17
„ superiority of, artillery action necessary to attain	14
„ „ as preparation for the assault	119
„ „ „ „ decisive counter-attack	127
„ „ „ „ first object of the attack	115
Fires to be limited in close bivouac in bush warfare	186
„ bivouac to be left burning in night operations	159
Firing line, advance of the	116
„ in the defence	123
„ may initiate the assault	119
First line transport, definition of	26
„ „ „ moving to the starting point	46
Flags, distinguishing	58
„ of truce	94
„ to mark the water supply	69
Flank guard, the	81
„ „ (mountain warfare)	177
„ guards, withdrawal of, in mountain warfare	177
„ march, forming new advanced guard for	82
Flanks, enemy's, method of enveloping	111
„ protection of, in night operations	150, 166
„ „ „ bush warfare	184
„ importance of covering in mountain warfare	173
Flares, use of, in siege operations	142
„ „ night operations	165
Followers, camp, action of, in case of attack (bush warfare)	185

	PAGE
Followers, camp, to assemble on alarm posts daily (mountain warfare)	170
" on the march	49
Force, besieging, distribution and division of a	144
" attacking, distribution of	113
" covering, for strategical concentration	38
" defending, distribution of	123
" display of, in savage warfare....	173
" size of, necessary to mask a fortress....	138
" strategical concentration of a	37
Forced march	43
Formation before deploying	110
" march, normal	41
" of rearguard	82
Formations, march	41
" " in bush warfare	182
" " in hot weather	41
" " on a night march	100
" " suitable, for night advances	166
Fortress, active attack of, definition	137
" bombardment of a	143
" captured, instructions regarding mines in a	150
" careful communication necessary in the investment of a	140
" considerations affecting number of troops required to mask a	138
" " governing commander's choice of method in the attack of a	137
" counter-attacks in the defence of a	155
" decision of a commander affected by preliminary reconnaissance of a	140
" defence of a, allotment of troops....	153
" " information to be obtained	153
" " preliminary delaying action	154
" distribution of the garrison in the defence of a....	153
" duties of the commander of the general reserve in the attack of a	141
" general principles of organization for the defence of a	150
" " " the defence of a	153

	PAGE
Fortress, investing a, definition	137
„ masking a	137
„ methods of masking a	138
„ organization of ambulances and hospitals in a	152
„ permanent, advanced position of, not to afford cover if captured by the besieger	151
„ permanent, main line of defence of, choice of the	150
„ points to be considered in the preparation of a defence scheme for a	151
„ principle in the design of a modern	137
„ reconnaissance in the attack of a	139
„ regular siege of a	144
„ siege of a	137
„ signal communication between all parts of investing force of a	141
„ the active attack of a	143
„ „ assault of a, how carried out	147
„ „ „ how delivered	143
„ „ direct attack of a	143
„ „ investment of a	140
„ use of counter-mine galleries and counter-approaches in the defence of a	155
„ warfare, to be considered as subsidiary to the destruction of the enemy's field armies	137
Fortresses, balloons in the reconnaissance of	139
„ general principles of the attack of	137
„ investment and active attack of	139
„ permanent, commander of	150
Forts, barrier	136
Forward movement, the, from the area of concentration	39
Franking of signal messages	32
Freight trains	59
Front of attack, in siege operations, definition of	145
„ „ of besieger, to be ascertained by defenders of a fortress	154
Frontage, extent of, allotted to outpost companies	88
„ in the attack	113
„ „ defence, factors affecting the	121

G.

	PAGE
Garrison artillery companies, allotment of	15
" of a fortress, distribution of	153
General principles, application of, to leading of troops	11
" " for the attack in battle....	112
" " " " of fortresses	137
" " " " defence in battle	120
" " " " of fortresses	150
" " " " encounter battle....	129
" " in billets	63
" " " camps and bivouacs	67
" " " quarters	57
" " of ammunition supply	190
" " " communication	18
" " " employment of a general reserve in battle	111
" " " flank guards	81
" " " night operations	156
" " " outposts	85
" " " protection	75
" " " warfare in uncivilized countries	171
reserve, artillery with the, in the defence	123
" " " " " attack	114
" " cavalry with the, in the defence	123
" " employment of, in the decisive attack	117
" " " " " counter-attack	128
" " for the defence of a fortress, composition of	153
" " in the attack of a fortress, duties of a commander of	141
" " position of, in the defence....	123
" " mounted troops with the, in the defence....	123
" " size of the, with a defensive force	121
" " " " an attacking force	113
" " staff to be provided for	123
reserves, general principles affecting the employment of, in attack	111

	PAGE
General rules for entraining and detraining	52
" " " marches	40
" " " movements by rail	50
" " " movements by sea	54
" " " night marches	159
" " " orders, reports and messages	19
" " " transport on the march	48
" " in billets	65
" " " bivouacs	73
" " " camps	72
staff control over captive balloons	34
" " duty of, in the event of an assault in siege operations proving unsuccessful	119
" " duties of, at bridges, defiles, &c.	48
" " " in the attack of a fortress	139
" " " on the march	41
" " officer with independent cavalry for the trans- mission of information	106
" " officers in the reconnaissance of a fortress	139
" " " in the tactical reconnaissance	103
" " to carefully sift all information received	98
" " " control orderlies	34
" " " organize relays	35
" " " prepare proposals for attack of fortresses	138
" " " " for retreat	133
" " " " schemes of defence for fortresses	152
" " " supervise system of observation at the attack of a fortress	141
Grazing grounds, allotment of	68
Ground commanding line of retreat to be occupied	134
" influence of, on the defence	122
" in night operations, leaders to study carefully the	158
" most suitable for counter-attack	122
" no part of, to be left unprotected in the defence	124
" study of, by scouts before night advances are under- taken	158
Grounds, grazing, allotment of	68
Guard on troop trains	51

Guard, <i>see also</i> "advanced guard," "rear guard," "flank guard," "vanguard."	
Guides, local, use of, in night marches	159
Gun park, artillery, as alarm post	60
Guns, action of, in night attacks in bush warfare	186
" alternative emplacements for, in the defence	126
" and vehicles, parking of, in camps	70
" entraining and detraining of	53
" mountain, use of, in the assault in siege operations	148
" parking of, in billets	64
" position of, on the march (bush warfare)	182
" proportion of, with advanced guard	79
" spare use of, in the defence of a fortress	154
" spring, use of, in siege operations	142
" <i>see also</i> "artillery."	

H.

Walta	47
" action of protective troops during	47
" for water	47
" in bush warfare	182
" on a night march	161
" protection during	47
" responsibility for protection during	76
" with transport	40
Hand grenades, use of	148
" " " by defenders of a fortress	155
Heading of operation orders	24
Health of troops, orders affecting	58
" " <i>see also</i> "sanitation."	
Heavy artillery, characteristics of	14
" " rôle of, in defence of a fortress	137
High explosive shell, radius of explosion of	14
Horse artillery, characteristics of	13
" " ammunition supply of	191
" lines to be cleaned regularly	73
" vehicles length of, on the march	22

	PAGE
Horses crossing a pontoon bridge	48
" entraining and detraining of	52
" likely to neigh, position of, on a night march	159
" picketing of	70
" spare, position of, on the march	44
" watering of, in camp	60
Hospitals, organization of, in a fortress	152
" position of, in quarters	58
Hot weather, march formations in	41
Hour of assault in siege operations, selection of	147
" twelve, method of writing	19
Howitzers, characteristics of	14
" spare, use of, in the defence of a fortress	154
Hygiene and sanitation in quarters	58

I.

Incomplete unit, method of naming in orders	20
Indefinite phrases in orders	19
Independent cavalry action of, on gaining contact with enemy	109
" " co-operation with protective cavalry	101
" " definition of	76
" " principles of distribution of	76
" " instructions for commander of	100
" " strategical reconnaissance by	100
" " transmission of information from	106
Infantry acting alone, outposts for	76
" action of, in attack	115 <i>et seq.</i>
" " defence	121 <i>et seq.</i>
" " pursuit	132
" ammunition supply	192
" as escorts for heavy and mountain artillery	115
" brigade, largest force to be employed in night attacks	150, 163
" characteristics of	16
" chiefly responsible for outposts at night	88
" co-operation of with artillery in attack	115

	PAGE
Infantry crossing military bridges	48
" employment of, in tactical reconnaissance	103
" " strategical reconnaissance	100
" entrenching in the attack	117
" fire control	17
" formations for night attacks	106
" in defence of a permanent fortress	151 <i>et seq.</i>
" " sarties from a fortress	155
" " the regular siege	145 <i>et seq.</i>
" march formations	41
" mounted officers and motors to avoid passing	40
" pace of, on the march	42
" principal arm in night operations	165
" reconnoitring patrols	96
" responsibility of, for reconnaissance	102
" rôle of, in permanent fortification	137
" standing patrols	97
" to occupy most exposed position in quarters	58
" " " " " " night operation	160
Inflammable stores in trains	53
Information, duties of cavalry in obtaining	100
" during the battle	105
" early transmission, necessity for	105
" enemy's advanced troops to be driven in in order to obtain	110,
" employment of kites to obtain	103
" " " balloons to obtain	34, 103
" escort of convoy to obtain	169
" general principles	98
" how obtained in war	98
" leakage of, through orders, responsibility of com- manders for	27
" important, to be transmitted direct to headquarters	100
" infantry to obtain	102
" in the defence of a fortress to be obtained	153
" method of conveying in reports	31
" negative, importance of	31
" needed before undertaking night operations	157

	PAGE
Information, precautions to be taken to prevent leakage of	65
" protective cavalry to furnish	77
" regarding the enemy in operation orders	25
" rarely obtained without fighting	101
" required by a commander in battle	110, 113, 121
" received to be carefully sifted by general staff	98
" subordinate commanders to transmit	18
" to be given to commanders of strategical patrols	101
" " " advanced guards	79
" to be obtained in the preliminary reconnoissance of a fortress	139
" transmission of, from independent cavalry	106
" transmission of, general staff officer with inde- pendent cavalry for	106
" use of strategical patrols for obtaining	100
" usually lacking in the encounter battle	130
Inhabitants, moral effect of a bombardment on	144
" reception of, by outposts	94
" treatment of, in billets	65
Inlying piquet as outpost reserve	92
" " in quarters	62
Instructions for advanced guard commander	79
" " commander of balloon companies	103
" " " independent cavalry	100
" " " the outposts	89
" " commanders of armoured trains	54
" " rear guard commander	82
" take place of orders in the case of detachments	22, 28
" to be explained to the men before night operations	167
Intercommunication between parts of outpost position	95
" general principles of	18
" <i>see also</i> "communication."	
Interruption of telegraph or telephone lines by troops	34
Intervals during night marches, how reserved	101
Investing a fortress, definition of	137
" line, appointment of commanders of sections of the	140
Investment of a fortress, the	140
Issue of orders	28

	PAGE
Issue of orders for night operations	159, 169
" " for the decisive counter attack	129
" " in the encounter battle	130
" routine orders	29
" supplementary orders	27

K.

Kitchens, position of, in camp	68
Kites, employment of, to obtain information	34, 103

L.

Lamps, distinguishing	58
Land defences, general description of	130
" " object of	138
Landscape sketches	31
Latrines in standing camps	73
" in camp and bivouac	71
" night and day, position of in camp (bush warfare)	187
" on outposts, position of in camp (bush warfare)	87
" position of, in camp	68
" " mountain warfare	174
Led horses, position of, on the march	44
Length of column, data for ascertaining	42
" " importance of, in bush warfare	181
" " columns, general principles affecting	39
" " marches, general principles affecting	43
Line investing. Division into sections	140
" of resistance of outposts	90
" " " in siege warfare	142
Liquor, control of, in billets	65
Loads of pack animals, use of, as a defensive perimeter (bush warfare)	188
" vehicles for embarkation	56

	PAGE
Local authorities, duties of, in billets	64, 66
" protection always to be provided	75
" " protective cavalry not responsible for	75
reserves, in a regular siege	144
" in the attack	114
" " attack to strengthen captured localities	117
" " defence, general principles of the employment...	127
" of an investing force, position of	141
" of the garrison of a fortress	153
" position of, in the defence	123
" strength of the, in the defence	124
Localities, attack of, in battle	116
" captured, strengthening of, by local reserves	117
Long ranges, definitions of	14
Loss of distance on the march	43

II.

Machine guns, action of, in the assault of a fortress	148
" " characteristics and general principles of employment of	17
" in support of direct attack on a fortress	143
" position in a night march	160
" rôle of, in permanent fortification	137
" to cover assault on a fortress	148
" use of, in the defence	127
" value of, in bush warfare	131, 186
" " the attack	117
" with outposts...	89
" " outposts in fortress warfare	142
" " rear guard in mountain warfare	177
Medical Corps, Royal Army, care of water supply by	59
Magazines to be charged on a night march	160
Main body, change of direction of	81
" composition of for a march	43
" " in bush warfare	182

Main body, communication between, and outposts	96
" commander of, to keep rear guard informed of his progress	84
" distance of advanced guard from	79
" duty of advanced guard to protect march of	79
" head of, referred to in orders	20
" not to be disturbed by enterprises on the part of outposts	86
" protection of march of, in mountain warfare	176
" rear guard to follow, when transport is at a distance	85
" to keep touch with rear guard in mountain warfare	178
Main guard of an advanced guard	79
" a rear guard	82
Maintenance of connection, see "connection."	
Maps to be specified when used	20
March, ambulances field, position on the	44
" ammunition columns, position on the	41, 46, 190
" arrangements for breakfast on	59
" artillery, divisional position on the	44
" balloon company, position on the	44
" bridging units, position on the	44
" compliments on the	40
" detailing outposts on the	89
" details on the	49
" discipline, meaning of	40
" distances	41
" divisional troops, position on the	44
" duties of general staff on	41
" flank forming new advanced guard for	82
" followers on the	49
" forced	43
" formations	41
" in hot weather	41
" " night operations	165
" normal	41
" halts on the	47
" line of, distance of quarters from	52
" loss of distance on the	13

	PAGE
March, mixed transport on the	40
" night, marking starting point for	46
" non-combatants on the	40
" order of, of units	43
" pace on the	42
" pack animals on the	48
" protection of force at end or beginning of....	76
" regimental supply vehicles, position of, on the	45
" regulation of, traffic on	41
" rules for transport on	48
" second line transport, position on the	45
" spare horses, position on the	44
" starting point of	46
" table, issue of, with operation orders	26
" telegraph units, position on the	44
" transport and supply columns, position on the	45
" " " parks, position on the	46
" water carts, position on the....	45
Marches, general principles for the arrangement of	39
" general rules for	40
" in bush country, general rules for	181
" length of	43
" night, importance of secrecy in	159
" " " use of....	156
Marching, forced, when resorted to	43
" rate of	42
Market in quarters	60
Marking billets....	64
Marks, distinguishing, for night operations....	165, 169
Martial law, proclamation of, in a permanent fortress including a town	151
Masking a fortress, definition of	137
" " " methods of	138
Means of communication	31
" " " allotment of	18
" " " subsistence, how utilized	40
Mechanical transport in camps	71
Medical officer of the day in quarters	61

Medical officer to inspect water-bottles	59
" " " accompany a rear guard in mountain warfare	178
" " " assist in selecting halting places on the march	47
" " " select water supply in camp	89
Messages, field, general rules for framing	19
" framing of	29
" receipt for	35
" service, transmission of	32
" signal, copies of	33
" " franking of	33
" " transmission of, by orderlies	35
Method of protecting troops	75
Military bridges, crossing of	48
" police, care of water supply	69
" tribunals in billets	65
Milk, care of	59
Mines in a captured work, instructions regarding	160
Mining, when used in siege operations	146
Mixed transport on the march	49
Motor car, use of, in reconnaissance	102
" vehicles, supply of petrol for	35
Mountain artillery, characteristics of	14
" " with rear guard in mountain warfare	177
" guns, use of, in the assault in siege operations	148
" warfare, duties of advanced guard in	176
" " flank guards in	177
" " general rules for bivouacs in	174
" " " camps in	174
" " " protection when at rest	178
" " method of laying out a camp in	174
" " preparations to meet counter-attacks in	174
" " principles to be observed in	173
" " protection in	176
" " " on the march	176
" " rear guards in	177
" " reconnaissance in	174
" " retirements in	177
" " use of ambushes in	179

	PAGE.
Mountain warfare, use of rockets, star shell, &c., in	180
" " withdrawal of troops from a hill top in	174
Mounted brigades protective cavalry organized in.....	78
" brigade ammunition columns, position of, on the march	44
" " " " duties of	102
" infantry, characteristics of	12
" " space occupied by, on the march	42
" patrols, distance of, in front of main body on the march	80
" piquets and vedettes	93
" troops acting alone, outposts for	76
" " action of, with rear guard.....	83
" " position of, in a night march	100
" " proportion of, with advanced guard	79
" " rate of march	43
" " value of, in bush fighting	181
" " with general reserve in defence	123
" " " outposts	88
" " " rear guard	82
Movement, the forward, from area of concentration	39
Movements by rail	38
" " " general rules for.....	50
" " " orders for.....	50
" " " sea	54
" " converging, advantages of	111
Mules on the march	49

N.

Name of places in vicinity of quarters	61
" repetition of, on maps, precautions against	19
" to be in block letters	19
Natives, friendly, use of, in bush warfare	182
" latrines for	71
Navy, Royal, co-operation &c., in the investment of coast defences	140
Negative information, importance of	31

	PAGE
Night, guiding columns in open country by	161
" instruction in the use of instruments by	161
" method of describing a	19
" preparations by, for renewal of battle	120
" protection at, furnished by infantry	88
" " at, in siege operations	142
" " of a column marching at	157
" vedettes and cossack posts at	93
" vigilance by, importance of, in bush warfare	185
Night advance, lateral communication to be maintained	167
advances, composition and formation of columns employed in	165
" " instructions to company officers and men	167
" " orders for	168
" " preliminary measures necessary for	164
" " position of assembly	164
" " " deployment in	164
" " rate of marching of troops in preparatory formations	166
" " use of	161
" assaults, signals for	165
" attacks, composition and formation of columns employed in	165
" " hazards of	163
" " orders for	168
" " " when communicated	169
" " position of assembly for	164
" " " deployment in	164
" " precautions to be observed during the advance to	167
" " preliminary measures necessary for	164
" " size of force to partake in	156
" " success in, advantage to be taken of, by daylight	163
" " watchword to be decided upon	165
" " when delivered	159
" " " forced upon an assailant	163
" " " undertaken	163
" firing in mountain warfare	180

	PAGE
Night march, connection to be maintained between columns on a	160
" " distances between units on a	160
" " destination to be marked	157
" " firing on a	160
" " formations on a	160
" " halts on a	161
" " issue of orders for a	159
" " marking the starting point for a	40
" " necessity for silence on a	160
" " position of mounted troops, artillery and machine guns on a	160
" " precautions to be taken to prevent accoutrements and wheels rattling during a	159
" " " " " troops going astray on a	160
" " the strategical	158
" " " tactical	158
" " uniformity of pace on a	161
" " withdrawal of outposts prior to a	159
" " marches, description of	158
" " " general rules for	159
" " " importance of secrecy in	159
" " " intervals on, how preserved	161
" " " position of horses likely to neigh	159
" " " preservation of distances	161
" " " use of	156
" " " " compass during	161
" " " " local guides in	159
" " " " stars as a guide in	161
" " outposts, special arrangements for	90
" " " roads to be specially watched by operations, artillery in the defence in	169
" " " distant reconnaissance insufficient for	157
" " " general principles of	156
" " " " the defence in	169
" " " how classified	150

	PAGE
Night operations, necessity for reconnaissance in....	157
" " use of searchlights in	170
" " " " the defence in	170
Nights, successive, series of advances on, when advisable	162
Non-combatants, position on the march	49
Normal march formation	41

O.

Objective, immediate, of a night march	159
" in savage warfare	171
" of the decisive attack, the	112
" " " principles affecting selection of	118
Observation, importance of facilities for, with outposts	87
" in the attack of a fortress, general staff to supervise	141
Obstacles, action if met at night	167
Offensive, action of advanced guard	80
" " protective cavalry	77
" " rear guard	83
" assumption of, by the defender	128
" difficulty of assumption of, by defender	108
" in battle, general considerations affecting the	108
" importance of the, in the encounter battle	130
" necessity for taking the, in bush warfare	182
" strategical and tactical, against savages	172
Officer commanding siege artillery	142
" " see also "commander."	
" engineer to assist in selecting water supply	47, 67
" field, of the day, in quarters	61
" medical, of the day in quarters	61
" " to accompany rear guard in mountain warfare	178
" " " assist in selecting halting places	47
" " " inspect water bottles	59
" " " select water supply in camp	69
" of the day, regimental in quarters	62
" staff, to select ground for camp	37
" " see also "staff officer."	

	PAGE
Officer to accompany watering parties	70
.. to march in rear of unit	40
Officers, artillery and engineers, in the reconnaissance of a fortress	139
.. general staff, in the reconnaissance of a fortress	139
.. " " see also "general staff."	
.. mounted, in camp	73
.. company to repeat instructions before night operations	167
.. position of, in quarters	58
.. railway control	50
.. staff, to report arrival in billets	66
.. to report arrival at rest camps	74
.. to visit their men in billets	65
Offices, in quarters, marking of	60
.. staff, position in billets	64
Operation order, one to embody all directions for an operation.....	23
.. orders	23
.. " copies of, at signal stations	33
.. " distribution of copies of superior's	26
.. " framing by of subordinate commanders	26
.. " heading of	24
.. " instructions for subordinates in	25
.. " issue of supplementary	27
.. " " to services and departments	29
.. " sequence in which units are referred to in	28
.. " system of framing... ..	24
.. " see also "orders."	
Operations, base of, for an expeditionary force	37
.. night, classification of	159
.. " general principles of	156
.. siege	136
.. " and field, difference of	146
.. " duties of outposts in	141
.. " protection in	141
Operators, signal, breaches of discipline by	33
Order of march of units	43
.. " " in bush warfare	182
.. " " in night operations	160
.. warning, issue of	28

	PAGE
Orders, advanced guard	79
" attack principles to be observed in framing	113
" checking of	20
" copies of, to be kept	21
" departure from, when justified	27
" division into paragraphs	22
" for a night march, when issued	159
" " a decisive counter attack	129
" " movement by rail	50
" general arrangement of	22
" " rules for framing	19
" important to be sent in duplicate	21
" issue of	28
" " in encounter battle	130
" " to administrative services	29
" misleading, when advisable	169
" not issued through usual channel	280
" of commanders of assaulting columns in siege operations, points to be dealt with in	149
" operation	23
" " see also "operation orders."	
" outpost	89
" reasons for	22
" routine	29
" signature of	21
" standing	29
" supplementary, issue of	27
" to be in writing	19
" transmission of, by orderlies	35
Orderlies	34
Organization of a divisional ammunition column	191
" field ambulance	44
" of means of communication	31
Outpost commander, how appointed	88
" company commander, duties of	91
" " " to detail detached posts to deal with traffic through the out- posts	94

	PAGE
Outpost company, conversation of commander of, with persons	
presenting themselves at the	94
defensive position	91
position in siege operations	141
mounted troops	88
orders	89
position, division into section	88
position, method of taking up	91
" strengthening of	88
troops, how detailed	88
Outposts, artillery with the	88
cavalry, employment of, in the attack of a fortress	141
commander of, issue of instructions to	89
" not appointed in mountain warfare	178
composition of	88
distance of, from main body	87
distribution of	90
for mounted troops or infantry acting independently	76
general principles and rules of	85
in bush warfare	185
in enclosed country	87
in mountain warfare	178
in siege operations, duties of	141
of a section in siege operations, strength of	142
position of the	87
proportion of force to be employed on	86
traffic through	94
use of, in a tactical night march	159
when relieved	96
withdrawal of, at beginning of a march	76
" prior to a night march	159

P.

Pace advancing uphill in mountain warfare	174
" on a light march	161
" " the march	42

	PAGE
Pack animals in mountain warfare	178
" " on the march	48
Paragraphs, orders to be divided into	22
Park, gun, artillery, as an alarm post	60
" wagon, in quarters	60
Parks, transport and supply, on the march	46
Parking guns and vehicles in billets....	64
" " " camps	70
Parties billeting	63
Patrols flanking, in a night march	160
" mounted, distance from main body on the march	80
" outpost, commander of outpost company to send out	91
" reconnoitring, cyclists as	96
" " outpost	96
" " mounted, employment of	96
" standing, value of	97
" strategical, instructions to be given to commanders of	101
" " use of, in obtaining information	100
" tactical reconnaissance by	102
Paying compliments by outposts	86
" " on the march	40
Plan sketches, rules for	31
Point, refilling	190
" starting of a march	46
Police, civil and military in a fortress, duties of, to be co-ordinated	152
" military, care of water supply by	67
Pontoon bridge, crossing a	48
Position, defensive, division into sections	123
" " extent of, to be prepared for occupation	121
" " points to be noted	105
" " principles of use of	108
" method of describing a, in orders....	20
" of a commander during an engagement	114
" " advanced guard	79
" " assembly before deploying	110
" " brigade ammunition columns during the battle	192
" " commanders of columns when an encounter with the enemy is anticipated	110

Places, position of, method of fixing in orders	70
Position, advanced, protective cavalry to seize	77
" captured, artillery to occupy	120
" " engineers to strengthen	120
" defensive, occupation of, by rear guard	83
" " to be strengthened	124
" of assembly in night operations	164
" " deployment in night operations	164
" " outpost line in siege operations	141
" " readiness for cavalry in battle	114
" " " artillery in battle	115
" for the reserves in the attack of a fortress	139
Post, messages, when sent by	32
" office, use of	32
Posts, advanced, value of, in the defence	125
" alarm, in quarters	60
" " units to be halted on	61
" " " " in mountain warfare	179
" crossack	93
" detached	93
Powder, smokeless, effect of, on reconnaissance	103
Precautions against fire in billets	65
" " " bush warfare	186
" " " in camp	72
" " " railway trains	53
Preliminary order, issue of	28
Principles and rules, general application of	11
" general, see " general principles."	
Priority, messages, rules for	32
Prisoners taken in a work to be kept there	150
" reception of, by outposts	94
Protection at end or beginning of a march	76
" " night, in siege operations	142
" during halts	47
" general principles of	75
" in mountain warfare	176
" " " system adopted by day and night	179
" in siege operations, general principles of	141

	PAGE
Protection of a column marching at night	157
" " flanks on a night march in enclosed country	159
" " railways	53
" " telephone and telegraph lines	33
" " the artillery during the attack	115
" on the march in bush warfare	183
" " " mountain warfare	176
" when at rest, bush warfare	185
" " general rules for mountain warfare	178
Protecting detachment to gain time for force protected	75
" detachments, commanders of, to keep touch with	
main body	75
Protective cavalry, advanced guard to support	80
" " advanced guard mounted troops to keep	
touch with	81
" " billeting parties to move with	64
" " general duties of	77
" " not responsible for local protection	75
" " to find first line of security	76
" troops, action during halts	47
" " duties of, in encounter battle	130
Provisional defences	136
Pursuit, action of artillery and infantry in the	132
" cavalry, in the	132
" the	131
Purifying water	59

Q.

Quartermaster-general's staff, duties of	50
" " to allot billets	34
Quartermaster of the day in quarters	62
Quarters, administration and discipline in	60
" arrangements on arrival of troops in	61
" constant readiness in	61
" daily duties in	61

	PAGE
Quarters, discipline in	61
" distance of, from line of march	58
" field officer of the day in	61
" general principles of	57
" guards and inlying piquets in	62
" hygiene and sanitation in	58
" inlying piquets in	62
" market in	60
" marking of offices in	60
" names of places in vicinity of	61
" sounding alarm in	62
" troops not to quit their area in	61
Quick-firing artillery	13
" " guns cannot use rapid fire continuously	115

R.

Radius of explosion of high explosive shell	14*
Rail, movements by	50
" " " orders for	50
" " " rate of, for a large force	38
Railway buildings, occupation of, by troops	51
" control officers	50
" water supply, use of, by troops	51
Railways, defence of	59
" destruction of by the defenders of a fortress	154
" " " rear guards	82
Rallying position, the	133
Ramps, emergency, for trains	53
Ranges, definitions of	14
" taking of	125
Rate of marching	42
Readiness, constant, in billets	65
" " " quarters	61
" for action of a force advancing	39
" " " mounted piquets and vedettes	93

	PAGE
Readiness, for action of outposts	95
" " responsibility of commanders of protecting detachments for	75
Rear guard, action of	83
" " in bush warfare	184
" " in mountain warfare	177
" commander of	82
" " to report arrival in camp	68
" destruction of bridges, railways, &c., by	82
" distance of, from main body	84
" " " in night operations	160
" formation of	82
" method of withdrawal of	84
" position of, in camp (bush warfare)	186
" positions, reconnaissance of	84
" strength of, in bush warfare	184
" to a force advancing	85
" " retreating	83
Rear of unit, officer to march with the	40
" party of a rear guard	82
Reconnaissance, balloon	103
" " in the attack of fortresses	139
" " radius of action	104
" by artillery commanders	103
" cavalry, in enclosed country	100
" definition of	99
" difficulties of	103
" distant, insufficiency of, for night operations	157
" during the battle	105
" effect of smokeless powder on	103
" employment of scouts in	103
" infantry to assist cavalry in, in enclosed country	100
" in mountain warfare	174
" in the attack of a fortress	139
" necessity of, for night operations	157
" of a position to be attacked	104
" " rear guard position	84
" personal, by a commander	102

Reconnaissance, personal, necessity of, before troops are com-	mitted to an engagement	....	....	102
"	preliminary of a defensive position	....	....	121
"	"	fortress, decision of a com-	mander affected by the	.... 140
"	"	fortress, information to be	obtained in the	.... 139
"	protective, when required	....	....	99
"	responsibility of outposts for	....	....	86
"	special duty of van guard	....	....	79
"	strategical, purpose of	....	....	99
"	tactical, by patrols	....	....	102
"	"	duty of protective cavalry	....	101
"	"	employment of infantry in the	....	103
"	"	general staff officers to assist in the	....	103
"	"	when required	....	99
"	"	use of motor cars in	....	102
Reconnoitring patrols	....	....	....	96
"	responsibility of advanced guard for	....	....	78
Refuse pits for outposts	....	....	....	87
"	"	in camps	....	71
Regimental officer of the day in quarters	....	....	....	62
"	orderlies	....	....	34
Regimental transport, organization of	....	....	....	26
"	"	position of, on the march	....	45
Relays	....	....	....	35
Relieving coesack posts	....	....	....	90
Reports, framing of	....	....	....	30
"	general rules for framing	....	....	19
"	receipt of, in commander's absence	....	....	18, 115
Reserve, general action of, in the decisive attack	....	....	....	117
"	"	"	counter-attack	.... 128
"	"	artillery with, in the defence	....	123
"	"	"	attack	.... 114
"	"	cavalry with, in the defence	....	123
"	"	in the defence of a fortress, composition of	....	153
"	"	in the attack of a fortress, duties of com-	mander of	.... 141

	PAGE
Reserve, general position of, in the defence	123
" " size of, with a defensive force	121
" " " " an attacking force	113
" " staff to be provided for	123
" outpost	91
Reserves, general principles affecting the employment of, in the	
attack	111
" for assaulting columns in siege operations	147
" in the attack of a fortress.	139
" local, in a regular siege	144
" " the attack to strengthen captured localities	117
" " " defence, general principles of the employ- ment of	127
" " of an investing force, position of	141
" " " the garrison of a fortress	153
" " position of, in the attack	114
" " " " defence	123
" " " strength of, in the defence	124
Resistance, importance of facilities for, with outposts	87
Resources of the country, protective cavalry to furnish informa- tion regarding	77
Rest camps	73
" " arrivals and departures to be reported at	74
" importance of	59
Retirements in mountain warfare, method of conducting	177
Retreat, duties of the advanced guard in the	81
" the	133
Riding in camp	73
Rifles not to be loaded on a night march	160
River banks, method of describing in orders	20
Roads, information regarding, protective cavalry to furnish	77
" method of indicating in orders	20
Rôle of machine guns	17
Routine orders	29
Rules for the distribution of troops in quarters	58
" general, for entraining and detraining	52
" " " marches	40
" " " movements by rail	50

	PAGE
Rules general, for movements by sea	54
" " " night marches	159
" " " orders, reports, and field messages	19
" " in billets	65
" " " bivouacs	73
" " " camps	73

S.

Salients, use of, in mountain warfare	173
Sand bags, use of, by assaulting columns in siege operations	150
" " " in a night advance	162
Sanitary precautions to be taken in bush warfare	182
Sanitation in billets	66
" " camp and bivouac	71
" " quarters	58
" " of outposts	87
Sapping, when used in siege operations	146
Savage warfare, achievement of success in	172
" " rules for convoys in	171
" " " transport in	171
Savages, campaigns against, how conducted	171
" pursuit of, after defeat	173
Scattered forces, issue of instructions to	28
Scouts, action of, in bush warfare	183
" distance of, from a path in dense bush	183
" employment of, in reconnoissance	103
" lines of, in night advances	166
" native, use of, at night (bush warfare)	186
Screening defensive positions	122
Sea, movements by	54
Searchlights, entrenchment of, in night operations	170
" use of, in bush warfare	186
" " siege operations	142
" " the defence in night operations	170
Second line transport, command of the	45
" " " corps, of, to report arrival in camp	68

	PAGE
Second line transport, definition of	28
" " " on the march	45
" " " to be guided into camp	68
Secrecy, importance of, in night marches	159
" to be considered in publishing the intentions of a commander	26
Secret communications to be in cipher	21
" documents, custody of, at signal station	33
Sections of a defensive position, extent of	123
" outposts, appointment of commanders to	90
" " " to be clearly defined	90
Security, first line of, protective cavalry to furnish	76
Sentry, double system, to be used in siege operations	142
" groups	92
Sentries, double	92
" " in siege warfare	142
" duties of	92
" over water	69
Service messages, transmission of	32
Shelter in siege operations, provision of	142
Ship, duties on board	56
Shrapnel, beaten zone of	14
" limit of forward effect of	14
Siege artillery, allotment of	15
" operations	136
" " considerations affecting the choice of the front of attack by a commander in ..	145
" " covering fire in	148
" " double sentry system to be used in	142
" " duties of technical branches in	146
" " importance of surprise in	146
" " line of resistance of outposts in	142
" " objectives of the assault in	147
" " outposts in	141
" " provision of shelter in	142
" " relief of units in the first line in	142
" " reserves in	147
" " size of assaulting parties in	142

	Page
Siege operations, storming parties in	147
" " " use of hand grenades in	148
" " " sapping and mining in	146
" " " searchlights in	142
" " " spring guns and flares in	142
" regular, phases of a	144
Signal alarm in billets	66
" balloons, use of	34
" communication in the attack of a fortress	141
" definition of	31
" for the assault in siege operations, the	149
" messages, copies of	33
" " framing of	30
" " franking of	33
" operators, breaches of discipline by	33
" service, distribution of	32
" station, report of opening	33
" traffic	32
Signals for night assaults	165
Signalling, visual, unreliable at dawn	167
Signing of orders, reports and messages	21
Signs, conventional, in sketches	31
Site of camp or bivouac	67
Siting of trenches, general principles for	125
Situation, strategical, influence of time on the	107
Size of the general reserve of a defensive force	121
Sketches, rules for	35
Smokeless powder, effect of, on the action of artillery	13
" " " " " reconnaissance	103
Forties in force, delivery of, in the defence of a fortress	155
" objective of, to be described	155
" of a garrison, preparation to be made for	141
" small, object of, in the defence of a fortress	155
Spare animals with transport	49
" horses, position of, on the march	44
Squadrons, contact	100
Square, use of, in bush warfare	152
Staff, general, <i>see</i> also "general staff."	

	PAGE
Staff, quartermaster-general s, to allot billets	64
" to be provided for general reserve	123
Staffs, position of, in quarters	58
Staff offices, position of, in billets	64
" officer at headquarters in quarters	62
" " to select camping ground	67
" officers to report arrival in billets	66
Standing camps, general rules in	73
" " tents to be struck in	72
" orders	22
Starting, hour of	46
" point	46
" " position of advanced guard relative to	79
Stars, use of, in guiding columns by night	161
Star shell, use of, in savage warfare	180, 186
Statements by inhabitants and deserters, how treated	94
Station, signal, reports of opening	33
Stores, entraining and detraining	53
Storming parties in siege operations	147
Strategic advanced guard, the	38, 109
Strategical concentration, the	37
" night march	158
" patrols, information to be given to commanders of	101
" " use of, for obtaining information	100
" reconnoissance, purpose of	99
" " when required	99
" situation, commander to review before offering battle	110
" " influence of the, on method of occupying a position	120
" " " on siege operations	137
" " " " choice of front of attack on a fortress	145
Streets in camps	72
Strength of an advanced guard	78
" cossack posts	93
" detached posts	94
" firing line with the attack	114
" " " defence	124

	PAGE
Strength of force required to mask a fortress	138
" general reserve with an attacking force	113
" " " " a defending force	121
" local reserve with a defending force	124
" outposts	80
" " with a besieging force	142
" piquets in mountain warfare	176
" reconnoitring patrols	96
" sentry groups	92
" standing patrols	97
" supports with a defending force	124
Strengthening a position	124
" " when captured	120
" captured localities	117
" outpost positions	88
Subordinate commanders, framing of orders by	26
" " definition of	28
Subordinates, instructions for, in operation orders	25
" interference with, to be avoided	19
" interpretation of orders by	23
" responsible for keeping their superiors informed	18
Subsistence in billets ...	63
" means of, how utilized ...	39
Summons to surrender before bombardment ...	144
Superiority of fire, artillery action necessary to attain	14
" " as preparation for the assault	119
" " " " decisive counter attack	127
" " first object of the attack	115
Supplementary orders, issue of	27
Supply column, transport and, on the march	45
" dépôts in area of concentration	39
" parks, transport and, on the march	46
Supplies, carriage of, in savage warfare ...	172
Support mutual, all leaders to apply principle of	116
" of outposts, composition of	91
Supports, cover for, in the defence ...	126
" covered communication for	123
" in the attack	114

	PAGE
Supports, outpost, to strengthen their position	88,
" position of the, in the defence	123
" strength of the, in the defence	124
Surface drains in camps	72
Surprise, importance of, in siege operations	146
" necessity of, in night operations	156
" protection against, responsibility of commander for ..	75
Surrender, summons to, before bombardment	144
System of framing operation orders	24

T.

Tactical features, protective cavalry to furnish information re- garding	77
" reconnaissance, when required	99
Telegraph companies, cable, allotment of	16
" " of engineers, functions of	16
" " wireless, allotment of	16
" included in expression "signal"	31
" line interruption of, by troops	34
" " protection of	34
" units, duties of	32
" " position of, on the march	44
Telegraphs, destruction of, by the defenders of a fortress	154
Telephonic communication between columns and reserves in night attacks	167
" " " points of assembly for the assault in siege operations, necessity for	147
Telephone, control of, in billets	65
" general principles of use of	31
" included in expression "signal"	31
" line, interruption of, by troops	34
" " protection of	34
Tents, detail, as to	72
Time, influence of, on the strategical situation	107
" protecting detachment to gain, for force protected	75
Touch, maintenance of, responsibility of commanders of protec- tive detachments for	73

	PAGE
Tramp train, duties of the commander of a	51
Trains	50
Troops, allotment of, in the defence of a fortress	153
" arrangements on arrival of, in quarters	61
" contact	100
" distribution of, in quarters, general rules for	58
" field, engineer, characteristics of	15
" health of, orders affecting	58
" not to quit their area in quarters	61
" on duty, passage of, through outposts	94
Truce, flag of	94
Trumpet calls on outposts	86
" the march	40
Twelve, hour of, method of writing	19

U.

Unit, incomplete, method of, naming in orders	20
Units, sequence in which referred to in operation orders	26
Urinals in camps	71

V.

Van guard, composition and duties of a	79
Variation of compasses, checking of the	20
Vedettes	93
Vehicles, embarkation of	56
" parking of, in camps	70
Verbal order, method of delivering a	34
" orders, confirmation of	19
" reports, instructions for	30
Villages, examination of, in bush warfare	183

W

Wagon parks in quarters	60
Wagons, ammunition, position of	193
" broken-down	49

	PAGE
Wagons, empty, with transport	29
" entraining and detraining	53
" in convoy camps, how placed	187
" on pontoon bridges	48
" parking of, in camps	70
" riding on	49
War, information in, how obtained	98
Warfare, bush, necessity for flankers in	184
" in uncivilized countries, general principles of	171
" mountain, preparation for counter-attacks in	174
" " principles to be observed in	173
" savage, objectives in	171
" " requisites for	171
Warning order, issue of	28
Washing, arrangements for, in camp	69
Water-bottles, care of...	59
" carts, position of, on the march	45
" cooking and drinking, allowance of	70
" halts for	47
Water supply, care of	59
" " " by Royal Army Medical Corps	59
" " control of, in fortresses	152
" " in billets	66
" " railway, use of, by troops	51
Watering arrangements in camp	69
" of animals in camp	69
Weather, hot, march formations in	41
Wireless telegraph companies, allotment of	16
Withdrawal of troops from a hilltop in mountain warfare	174
Withdrawing a rear guard, method of	84
Work, action on the capture of a (siege warfare)	149

Z.

Zone of attack in siege operations, the	145
" " shrapnel, beaten to...	14

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